


VOLUME
LXXIII

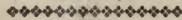
JULY & DEC
1897

THE BUILDER

 N : ILLUSTRATED : WEEKLY
MAGAZINE : FOR : THE
ARCHITECT : ENGINEER : ARCHÆ-
OLOGIST : CONSTRUCTOR : SANI-
TARY-REFORMER : & : ART-LOVER.

CONDUCTED BY
H. H. STATHAM,

FELLOW OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.



"EVERY man's proper mansion-house, and home, being the theater of his hospitality, the seat of self-fruit, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kind of private princedome, may, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned." * * * * *

"Architecture can want no commendation, where there are noble men, or noble mindes."—SIR HENRY WOTTON. * * * *

"OUR English word To BUILD is the Anglo-Saxon Bylsan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."—DIVERSIONS OF PURLEY.

"ALWAYS be ready to speak your mind, and a base man will avoid you."—WILLIAM BLAKE. * * * * *

OFFICE: 16, CATHERINE-ST. COVENT-GARDEN LONDON W.C.

Printed at

74-76, Great Queen Street, Lincoln's Inn Fields,

London, W.C.

INDEX TO VOLUME LXXIII.

JULY TO DECEMBER, 1897.

CONTENTS.

Articles, Notes, and Reviews	iii	Correspondence: Writers of Letters	viii
Reports of Meetings, Papers Read, Law Cases, &c.	v	General	viii
Correspondence		Architects, &c., of Buildings Illustrated	x
Subjects of Letters	vii	Illustrations	xi

ARTICLES, NOTES, AND REVIEWS.

- ABBEY: Bayham, 9; Pershore, 260, 281; Fluscardine, 183; St. Albans, 235; Selby, 222.
- Académie des Beaux-Arts, 4, 46.
- Accident at: Drury-lane, 25; the General Post Office, 281.
- Accumulator Traction, 416.
- Acropolis, Excavations on the, 198, 235.
- Ader Recorder, the, 105.
- Advertiser, Curse of the, 106, 281.
- Ætolia, Excavations in, 538.
- Air, Liquid, 236.
- Aldermanbury, St. Mary the Virgin, 125.
- Aldershot in the Camping Season, 146.
- Aluminium for Electric Wires, in, 127.
- America, Electric & Steam Railways in, 127.
- American: Building Stones, 2; Sculpture, 463; Slates in England, 67.
- Ancient Buildings, Treatment of, 167.
- Antiquities, Key to English, 134.
- Arc de Triomphe, Paris, 255.
- Arc Lamps, Lighting by, 218.
- Arcades for Birmingham, 486.
- Archæological Societies, Associated, Germany, 245.
- Archæology, a New Point in Greek, 413.
- Architects: Congress at Brussels, 145, 166, 201; Dundee Institute of, 324; Names on Buildings, 217.
- Architectural Association, Birmingham, 416.
- Architectural Association, London: Conversation, 463; Discussion Section, 341; Excursion, 25, 89, 123, 397; Lectures, 165; Sketch Book, 101.
- Architectural: Congress, International, for London, 234, 359; Education, a Foreign Critic on, 301; Rooms, Bursaux Exhibition, 108; Sculpture at Sydney, 4; Societies, Amalgamated, of Germany, 255; Society, a New, 282; Society, Liverpool, 46.
- Architecture: Ancient, of Ireland, 244, 252, 252, 281, 298, 321, 362; at Pennsylvania University, 55; Dictionary of, a new, 104; Ecclesiastical, of Scotland, 319; Influence of Material on, 64, 84, 92, 100, 112, 124, 132, 144, 153, 167, 181, 167; Railway Station, 486; Renaissance, in Malta, 423; Sketches of London Street, 86, 110, 203, 298, 370, 465.
- Architecture of Large Provincial Towns: Birmingham, 349, 435, 446; Derby, 39, 50; Nottingham, 161, 170; Sheffield, 273, 284.
- Architecture and Railways in Berlin, 189.
- Art: Glasgow School of, 167; Institute, a new, Florence, 324; Medieval, of Corpus, 109; Sir E. J. Poynter on, 83.
- Artificial Stone, the Owen, 367.
- Arts and Crafts: Exhibition, Cape Town, 539; Periodical, a German, 302.
- Asbestos and Asbestos, 153.
- Athens: Excavations at, 198, 235, 486; the "Theban" at, 201.
- Australasian Association for Advancement of Science, 126.
- Australian, West, Jubilee Casket, 4.
- Autographs of Artists, 365.
- RANK Premises, Concaster, 73.
- Bacina Exhibition, 442.
- Bath: Famous Houses in, 225; Municipal Buildings, Council Chamber, 29; the Roman Bath, 328.
- Baths: Battersea, 45; Bethnal Green, 445, 521.
- Battersea Park River Wall, 24.
- Bayham Abbey, 9.
- Bayham: Académie des, 4, 46; Students, 539.
- Belgique, Société Centrale d'Architecture, 217.
- Belgium: Architects' Names on Buildings, 217; and the Twenty-four Hour Day, 4.
- Berlin: Architecture of the Railways, 389; Bismarck Monument Competition, 301; Light and Air Cases, 126; Monument to Emperor William, 222; New Building Act, 166; Public Buildings at, 105.
- Bethlehem Hospital, the old, and Finsbury Circus, 365.
- Bethnal Green: Baths, &c., Competition, 445, 521; St. Matthew's, 137; Vestry v. School Board for London, 461.
- Beverly, Catholic Church, 92.
- Bewdley, Sanitary State of, 219.
- Bexhill Promenade Competition, 301.
- Birmingham: Arcades for, 486; Architectural Association, 366, 416; Architecture of, 349, 435, 446; Site of Christ's Ch., 462.
- Bismarck Monument, Berlin, 301.
- Black Swan Distillery, Holborn, 342.
- Bluecoat School, Westminster, 198.
- Board of Trade: Electrical Laboratory, 384; and Conciliation, 143.
- Board Schools, Exhibition of Work, 83.
- Boiler Explosion at Devonport, 462.
- Books, Magazines, Pamphlets, &c., notices, reviews, and articles as to:-
- Adams, H., Machine Construction and Drawing, 57.
- Allen, J. P., Building Construction, 377.
- Antiquary, 25, 123, 204, 395, 407.
- Appleby, C. J., Hoisting Machinery, 157.
- Architectural Assocn. Sketch Book, 101.
- Architectural Record, 133, 497.
- Architectural Review, 65, 133, 283, 394.
- Armstrong, Ella S., Key to English Antiquities, 134.
- Art Annual, the, 394, 497.
- Art Journal, 25, 132, 204, 283, 394, 497.
- Artist, the, 60, 407.
- Atlantic Monthly, 134, 394.
- Biggs, C. H. W., Electricity and Magnetism, 377, 408.
- Blackwood, 498.
- Brussels Exposition Internationale, 260.
- Burgoyne, R. J., Library Construction, 377.
- Catalogues, Trade, 31, 57, 134, 153, 260, 377, 450, 478, 548.
- Century, the, 26, 132, 204, 283, 498.
- Contemporary, the, 26, 283.
- Cornhill, 26, 132, 205.
- Cosmopolis, 133.
- Dawson, P., Electric Railways and Tramways, 61.
- Decorative Kunst, 302, 407.
- Directory, the Post Office London, 521.
- Donald, R., Municipal Year Book, 59.
- Dörpfeld, Dr., Das griechische Theater, 179.
- Edinburgh Review, 65.
- Engineering Magazine, 25, 133, 497.
- Essex Review, 26, 395, 498.
- Fisher, J., Exhibitions, South Kensington, 414.
- Fortnightly, the, 133, 205, 283.
- Fritchley, E. W., Art of Tracing, 134.
- Gardner, R., Electric Undertakings, 113.
- Gardner, R., Starkie, Tjio's drawings, 113.
- Gazette des Beaux-Arts, 498.
- Geographical Magazine, 25, 395.
- Gentleman's Magazine, 26, 205, 283.
- Gordon, J. W., Monopolies by Patents, 32.
- Handbook to Mid-Wales, 292.
- Herby, 123, 283.
- Harris, G. F., Science of Brickmaking, 134.
- Hausig, Dr. Paul, a Relief in the British Museum, 241.
- Here's Ray, Guide to, 314.
- House, the, 205.
- Investors' Review, 498.
- Jackson, T. G., the church of St. Mary the Virgin, Oxford, 195.
- Jones, R. H., Asbestos and Asbestos, 153.
- Journal of the Sanitary Institute, 395.
- Knowledge, 133, 283.
- L'Architecture, 109.
- Lemonnier, C. and A. Wauters, Le Palais de la Ville de Bruxelles, 260.
- London Manual, the, 96.
- Longman, 2.
- MacGibbon, D. & T. Ross, Ecclesiastical Architecture of Scotland, 319.
- Macmillan, 205.
- Mather, Marshall, John Ruskin, 152.
- Magazines and Reviews, 25, 69, 133, 204, 283, 394, 497.
- Map of Central London, 31.
- Merrill, G. P., Stones for Building and Decoration, 2.
- Millar, W., Flastering, Plain and Decorative, 213.
- Murray's Cyclists' Road Book, 59.
- National Review, 167, 204.
- Nineteenth Century, 204, 394.
- Pall Mall Magazine, 26, 132, 205, 283, 498.
- Phipson, Emma, Choir Stalls and their Carvings, 31.
- Poynter, Sir E. J., Lectures on Art, 83.
- Quarterly Review, 69.
- Reichel, Dr. W., The Cults of the Gods in Pre-Hellenic Days, 415.
- Revue des Deux Mondes, 498.
- Revue Générale, 69, 133, 283, 394.
- Rideal, S., Water & its Purification, 157.
- Ruskin, J., Life and Teaching, 152.
- Sachs, E. O., Fires and Public Entertainments, 31; Modern Opera-houses, 462.
- Saxby, W. J., the Case Against Picketing, 352.
- Scott, E. K., Electric Power in Workshops, 377.
- Scribner, 25, 132, 205, 283.
- Shipping Marks, Timber Trade, 134.
- Singer, J. and L. H. Berens, Unrecognised Laws of Nature, 259.
- Sirranne, R. de la, Ruskin, 1.
- Sketch Book, Architectural Assocn., 101.
- Société Centrale d'Architecture de Belgique, 217.
- Society of Engineers' Transactions, 56.
- Spalding, F. P., Hydraulic Cement, 45.
- Stubbins, J., La Construction des Villes, 460.
- Studio, the, 394, 497.
- Timber Trade Shipping Marks, 134.
- Wallis-Taylor, A. J., Motor Cars, 56.
- Wauters, A., Bruxelles, 260.
- Watson, E. B., Tables, Head of Head of Water in Pipes, 57.
- Brent, State of the River, 127.
- Brick Industry, the Fletton, 413, 462.
- Brickmaking, Science of, 134.
- Bridge: Collapse of a French Railway, 907.
- Proposed, New York, 67; Vauxhall, 442.
- Bridges: Hinged Stone, 105; Tendering for Egyptian, 225.
- British Museum: a Relief in, 341; Entablature of Mausoleum, 112; Hours of Opening, 538.
- British Trav. & Foreign Competition, 297.
- Brown, Prof. B., on Ancient Architecture of Ireland, 214, 232, 252, 281, 298, 321, 352.
- Brussels: Architects' Congress at, 145, 166, 201; Exhibition, Architectural Rooms, 198; Exhibition, Municipal Work at, 199.
- Building: Act, New, Berlin, 166; Construction, 377; Moving a, in Paris, 146; Stones, American, 2; Structures, Preservation of Iron in, 200.
- Buildings: Architecture of, 167; Architects' Names on, 217; Fireproof, 448.
- Bulstrode, Dr., on Enteric Fever at Chichester, 146.
- Bury Drinking Fountain, 308.
- CABOT, Monument to, Bristol, 308.
- Cabs, Electrical, 443.
- California University Extension, 415.
- Camera Club, Charing Cross-road, 539.
- Camping Season at Aldershot, 146.
- Canal, Paris to Rouen, 45.
- Canopies, Carved, Lancaster Church, 153.
- Cape Town, Arts and Crafts Exhibition, 539.
- Cappella Palatina, Palermo, Pulpit, &c., 470.
- Cardiff Municipal Buildings, 541, 538, 544.
- Carlton, a, in Paris, 282.
- Casket, West Australian Jubilee, 4.
- Castle, Fernhurst, 218.
- Cathedral: Chichester, 387; Peterborough, 44; Wakefield, 515.
- Cavendish-square, No. 16, 416.
- Cement: Hydraulic, 56; Portland, Imports, U.S.A., 166.
- Central Railway Terminus, the Great, 355.
- Ceremonial Key, Gold, 372.
- Chapel and Schools, Old Kent-road, 29.
- Chardon, F., Pastels by, 266.
- Chester, Roman Column Base, 51, 153.
- Chichester: Cathedral, 387; Sanitary State of, 146.
- Chigwell-row, Window for All Saints', 256.
- Chiveley Park, Dog-iron for Grate, 109.
- Choir Stalls and their Carvings, 31.
- Church: Beverley (Catholic), 92; Birmingham, 462; Blackheath, 359; Clive, 12; Cockington, 12; East Grinstead, 72; Elland, 132; Exeter, 72, 400, 446; Ford, 470; Handford, 261; Kettering, 330; Kington, 152; Little Ilford, 308; London, 255, 335, 462; Lymington, 183; Nottingham, 263; Oxford, 105; Paddington, 24; Perth, 374; St. Martin-de-Viviers, 199; Stratford-on-Avon, 281; Swiland, 308; Turner's Hill, 375; Twickenham, 88; Wandswoth, 72.
- Church, a French Fortress, 199.
- Church, Memorial, 152.
- Church, St. Clement Dances, Strand, 256.
- Church, St. Mary's, Oxford, 105.
- Church, St. Mary the Virgin, Aldermanbury, 325.
- Church, St. Thomas's, Southwark, 462.
- Church, Soho, and the L.C.C., 146.
- Church, Design for a West Country, 263.
- Church-row, Hampstead, 145.
- Church Tower: Liskeard, 12, 46, 301; Wrexham, 68.
- City Commission of Sewers, the, 58.
- Clarke v. London, 256.
- Cleaning Steel by Sand Blast, 442.
- Clive Church, 12.
- Clowers, the, Salisbury, 72.
- Cockington Church, Font at, 12.
- Coinage, Designs for New French, 219.
- Colchester Town Hall, 167, 187, 202.
- Cold Storage Vault, Fire in, 237.
- Commissions, Illicit, 166.
- Compensation Bill, Workmen's, 23, 45, 87.
- Competition: A Sun Dial, 68; Baths, &c., Bethnal Green, 445, 521; Battersea Baths, 45; Bexhill Promenade, 26; California University, 415; Cardiff Municipal Buildings, 541, 538, 544; Colchester Town Hall, 167; Dwellings, Millbank Estate, 415; Foreign, and British Trade, 297; Houses of Parliament, Mexico, 46; Lewisham Public Libraries, 444; Surbiton Municipal Buildings, 444, 444; the Bismarck Monument, Berlin, 301; the Prix de Rome, 104.
- Competitions, Last Novelty in, 184.
- Consolidation Act, Working of the, 143.
- Concrete Sewers, 184.
- Conduit Mead Estate, the, 342.
- Conference, the Engineers', 485.

ARTICLES, NOTES, AND REVIEWS
(continued):—

Congress: Architects', at Brussels, 145
166, 201; International Architectural, for
London, 324, 389
Contamination of Water Supply, 255
Continental, Technical Education on the, 257
Contractor's Responsibility, a, 236
Conventual House, Epping Forest, 424
Conversation, the, at the Architectural Assoc., 493
Cornish Towers, Sketches of, 92
Council Chamber: Bath, 29; Sheffield, 112
Council House Decorations, Wakefield, 487
County Council (see London)
Court Houses and Prisons, 324
Covenants for Quiet Enjoyment, 442
Cover Garden Opera. Decorations at, 5
Cripplegate Fire, the, 443, 456
Critic, a Foreign, on our Architectural
Education, 391
Culvert, the Manchester Sewage, 354
Cyprus, Medieval Art of, 109
Czar, French Present for the, 200

Daily Chronicle, the, & City Church, 355
Day, the Twenty-four-hour, 4
Dean's Yard, Lutite, Westminster, 82
Decoration: Design for Wall, 544; of Banks
of the River Seine, 88
Decorations: at Covent Garden Opera, 5;
Jubilee, a German Criticism on, 40;
Wakefield Council House, 487
Decorative: Art, Nature's, 487; Painting,
Studentship, 14, 442; in Oil Coverings, 66
Delos, the Theatre at, 462
Delphi: Sculptures, Casts of, 281; Temple
of Apollo at, 87
Deputations, the, at the Theatre, 358
Derby, Architecture of, 39, 50
Designs for New French Coinage, 219
Devonport, Boiler Explosion at, 462
Dictionary of Architecture, a New, 104
Dinner, the Institute, 443, 487
Directors' Room, Messrs. Macmillan's, 240
Discovery of an Ancient Moat, 441
Discussion Section, Archl. Assoc., 341
Dissemination by Advertisements, 282
Distillery, the Black Swan, Holborn, 243
Dog-in for Grate, Chisley Park, 161
Doncaster Bank Premises, 73
Dorset, Dr., on the Theatre, 179
Old Athens Temple, &c., 217; Theatre
at Delos, 462
Dover Pier and Victoria Station, 235, 416
Drainage Question, the Manchester, 166,
251, 254, 354
Drains or Sewers? 461
Drawings: in Italy and Egypt, 339; J.
Tappin's, 5, 31; of the Holy Land, 410;
Students', at South Kensington, 210;
Students', at the Royal Academy, 516;
the Prix de Rome, 104
Drinking Trough for Horses, 146
Dry Run Stage Accident, 255
Dudley Gallery, the, 416
Dundee Institute of Architects, 324
Dust Destructor, Shoreditch, 4, 28

EAST ANGLIA, Wayside Notes in, 358
East Grinstead, St. Peter's Church, 72
East London Jubilee Exhibition, 146, 341
Eastman Photographic Exhibition, 342
Eaton Park, Sanitary State of, 198
Ecclesiastical Architecture of Scotland, 319
Edinburgh, the McEwan Hall, 496
Education, Architectural, a Foreign Critic
on, 391
Egypt Exploration Fund, 67, 415
Egypt, Monuments at El Kab, 67
Egyptian Buildings, Tendering for, 126
Egyptian Relics, 24
Eight Hours Day: Arguments, 390; and
the Unemployed, 197
El Kab, Egypt, Monuments of, 67
Electric: Académie des Beaux-Arts, 4, 46
Electric: Glowlamps, 146; Lighting by
Arc Lamps, 218; Lighting, Shoreditch,
4; Lighting, Strand Station, 394; Local
motors, the Paton, 515; Power in
Workshops, 377; Traction, 63, 105, 390,
414; Wires, Aluminium for, 253; Wiring,
4, 24, 149, 166
Electrical: Association, Municipal, 24;
Cabs, 443; Laboratory, the Board of
Trade, 324; Works, Dangerous, 45
Electricity Supply,
Electricity by Steam for Railways, 177
Electricity and Magnetism, 377, 408
Embankment, &c., Westminster, 462
Emperor William I. Monument, Berlin, 222
Employers' Liability, 32, 45, 87, 361
Employers, the Union of, 459
Engine House, Leicester Waterworks, 29
Engineer, City, Liverpool, 462
Engineering Trades' Dispute, 32, 166, 236,
341, 389, 390, 459, 461, 486, 538
English Antiquities, Key to, 134
Engravings, &c., New Gallery, 462
"Envois de Rome," Ecole des Beaux-Arts,
25
Excavations: at Æolia, 538; Athens, 193,
235, 486; Delphi, 87, 88; Lycouras, 201
Excursion, Archl. Assoc., 25, 89, 122
Exeter, Design for Church at, 72, 400, 446
Exhibition: Androuctos, Count, Drawings
by, 463; Barcelona, 442; Brussels, 198,
259, 260; Batteries, and Moths, 497
Camera Club, 39; Cape Town Arts and
Crafts, 539; Chardon, F. Pastels by,
566; Cook, E. Wake, Drawings by, 487
Dowdell's, Messrs. Gallery, 366, 439;
Dudley Gallery, 416; East London
Trades, 146, 341; Eastman Photographic,
342; Egyptian Relics, Prof. Flinders
Petrie, 44; Fine Art Society, 46, 325,
345, 416, 487, 539; Fisher, J. H. Vignoles,
201; Foxton, 470; Folkestone, 92, 109;
Pictures by, 487; Goupil Gallery, 365,
555; Grafton Gallery, the, 25; Holy
Land, Drawings of, 416; Institute of

Painters in Oil, 325; Israel's, Pictures
by, 565; Italy and Egypt, Draw-
ings, 159; J. J. Leves, Trades
and Inventions, 146, 341; Leeds Health,
240; Lisle, M. Alfred, Paintings by,
463; London School of Board Work, 88;
Maclean's, Messrs. Gallery, 5, 366, 463;
New English Art Club, 416; New
Gallery, 464; Paris, the 1900, 67, 256,
417; Photographs, Dudley Gallery, 365;
Rothenburg, Pottery, Goupil Gallery,
555; Saint, Mr. C., Silver-points by, 46;
Sambourne, Mr., Drawings of Water-
colours, 463; Students' Drawings, &c.,
South Kensington, 210; T-Square Club,
Pennsylvania, 390; Tappin, J., Draw-
ings, 5, 31; Thompson, Mr. Hugh,
Drawing by, 461; Tooth's, Messrs.,
Gallery, 366; Turner's Company, the,
341; Union Centrale des Arts Decoratifs,
461; Vermet, a Proposed, Paris, 516
Exhibits, German, for Paris, 67
Exploration Fund, Egyptian, 67, 415
Explosion, Boiler, at Devonport, 462

FELLOWSHIP, Institute of Architects, 361
Fernhurst Castle, Co. Roxburgh, 218
Fine Art Society Exhibitions, 46, 325, 365,
366
Fire-bury Church and Old Bethlehem
Hospital, 365
Fire in a Coal Storage, 127; Protection in
London, 67; Result of Paris Bazaar, 88;
Tests, Hamburg, 359, 484; the Cripple-
gate, 443, 465; Wrotesley Hall, 538
Fireproof Buildings, 442
Fires and Public Entertainments, 31
Fleming, Prof., on Liquid Art, 236
Fletton Brick Industry, 413, 462
Floor Materials, Tests of, 184
Florence, New Art Institute, 249
Folkstone, Hotel Metropole, 92, 109
Foot: Cockington Church, 12; Design for
Lead, 474
Foreign Competition and British Trade, 207
Fortress Church, a French, 199
Fortress Church, and the Advertiser, 106
Fountain, Drinking, Bury, 368
France, Steam Rollers in, 88
French Art and Craft Exhibition, 166;
Exposition, Designs for New, 29; Expon-
tion of Ruskin, 1; Fortress Church, a,
199; Lithographic Exhibition, 342; Rail-
way Bridge, Lollage of a, 90
Frieze, Design for Painted, 374, 497
Funeral of Mr. Pearson, 519
Furniture Sketches, South Kensington, 219

GALLERY, National, of British Art, 45,
47, 88, 104
Gallery, the National, 104, 282
Garden Infirmary, Westminster, 89
Gate and Well, Villeneuve-lez-Avignon, 30
Gates of Bronze, Sketch for, 348; St. James
Court, Westminster, 123
Gateway, Parham Hall, 133
General Post Office, Life Accident, 281
German: Arts and Crafts Periodical, 202;
Criticism on Jubilee Decorations, 46;
Municipal Exhibits for Paris Exhibition,
67; Germany: Amalgamated Architectural
Societies of, 223; Associated Archaeo-
logical Societies of, 255
Gilbert, Sir John, the late, 262
Glasgow School of Art, 188
Glass Industry: Crisis in the, 24
Gloicester Cathedral, Lady Chapel, 254
Glow Lamps, 146
Goupil Gallery, 365, 515
Government Office Sites Report, 126, 133,
483, 495
Grafton Gallery, the, 365
Grant Mausoleum, New York, 237, 240
Grays, Memorial Chancel, 240
Great Central Railway, Farnham, 365
Great Ormond-street, 515
Greek: Archaeology, New Point in, 415;
Street Church, Soho, 146; Temples,
Orientation of, 461; Theatre, Dr. Dörp-
f, 179
Grimsby, Lollage, & St. Albans, 353, 388, 441

HACKNEY Medical Officers' Report, 127
Hall: Claverton, 204; Hengrave, 106;
Parham, 133, 308; Smallbridge, 308
Hamburg: Fire-resistant Buildings at, 369;
Fire tests, 454; Town Hall, 369
Hamstead Church, 145
Handsworth Council v. Derrington, 45
Hansard, Octavus, the late, 515
Hayle water supply, 515
Health Exhibition, Leeds, 240
Health Report, Liverpool, 88
Hengrave Hall, 106
Hemleydon-Thames, "Red Lion" at, 443
Hertford House, Wallace Collection, 104
Hinged Stone Bridges, 105
Hoisting machinery, 113
Holborn Black Swan Distillery, 342
Holy Land, drawings of, 416
Holywell, Sanitary State of, 167
Homeless, Convalescent, Epping Forest, 424
Hope, Dr., on Liverpool sanitary state, 88
Horses, drinking troughs for, 146
Horsford, Sanitary State of, 215
Hospital, Shipston-on-Stour, 338
Hospital, the Park, Lewisham, 476
Hotel: Cromer, 522; Design for, Cork,
374; Edinboro, 174; Folkestone, 92, 109;
Royal Palace Extension, 401; Salisbury,
407; Swansea, 322
Houses: At Selkirk, 113; Banstead,
401; Boxwood, 470; Cavendish-square,
416; Harrington-gardens, 390; Harrow,
328; Holmwood Park, Wimborne, 240;

Lincoln's Inn-Fields, 258; "Paddock-
hurst," Sussex, 101; Palace-court, W.,
26; Pangbourne, 400; Port-street, 210;
Queen's Gate, 465; "Rowdards Wood,"
350; South Kensington, 210; St. Mary's,
The Heights, Hinchard, 470; "Wendley
Wood," 447; Wolferton, 113
Houses, Famous, in Bath, 325
Howards, Mansion, at, 374
Hudson: Bridge over the, 67; Tunnel
under the, 169
Hugo, Victor, Monument to, 200
Hydraulic Cement, 56

ILLUSTRATIONS. Excavations near the, 198
Illustrations to "Pilgrim's Progress," 395
Improvements: Parliament-street, 105, 390;
the Marshalsea, 300; Westminster, 462
Industry, the Fleet River, 413, 462
Inspectors, Sanitary, Powers of, 256
Institute of Architects: Dinner, 443, 487;
Fellowship Question, the, 391; In-
crease of, Prize Essay (see Material,
Influence of)
Institute of Art, Florence, 324
Institution, the, in Oil, 325
Institute, the Moffat, Forth, 374
Ireland, Ancient Architecture of, 214, 232,
259, 361, 369, 371, 365
Iron: Preservation of, in Building Struc-
tures, 200; Railings, Lincoln's Inn
Fields, 188
Israel's, Pictures by, 375
Italian Paving Tiles, 302

JUBILEE: Casket, West Australian, 4;
German Criticism on, 40;
Presents, the, 325; the, and the County
Council, 3; Trades, &c., Exhibition,
146, 341

KEELSEY, A., on Education, America, 282
Kew Bridge, 483
Key, Gold Ceremonial, 372

LABORATORY, Board of Trade Elec-
trical, 394
Lady Chapel, Gloucester Cathedral, 254
Lancaster: Church, St. Ann, 152
and its Neighbourhood, 59, 132
Lands Transfer Office, 224, 389
Leeds Health Exhibition, 240
Leicester Corporation Waterworks, 29
Leipziger Town Hall, 4
Lewisham Athletic Competition, 444
Library Construction, 377
Life in Sewers, 105
Life Accident, General Post Office, 281
Light and Air Cases, Berlin, 126
Lighting by Arc Lamps, 218
Lincoln's Inn Fields and the Garden, 218
Liquid Air, 240
Liskeard Church Tower, 12, 46, 301
Lithographic Exhibition, French, 342
Liverpool: Architectural Society, 46; City
Engineer, 46; Health Report, 88
Livesey Hall, 397
Local Government Board Reports, 146, 167,
184, 185, 219, 325, 515
Lock, 146, Wandsworth, 302
Locomotive, the Patent Electric, 515
London County Council, and the Jubilee, 3;
and the Session 1897, 544; 20; Kewton, 515
London: Fire Protection, 67; International
Architectural Congress, 224, 389; Map of
Central, 31; Municipalities for, 461;
Scavenging in, 24; School Board Work,
Exhibition of, 46; Signs, an Old, 302
Street Architecture, Sketches of, 26, 210,
203, 258, 370, 465; Street Fronts, three, 112
Low, Dr., on Sanitary State, Horsford, 235
Lycouras, 201
Lymington, SS. Mary and Ethelburga, 183
Lyveden, the 'New Field,' 68

MEWAN Hall, Edinburgh, 496
Machine Construction, Elementary, 57
Machinery, Handbook of, 151
Maclean's Gallery, Messrs., 5, 366, 463
Magazines and Reviews, 5, 69, 124, 204,
282, 394, 407
Magnetic dip of ancient Terra-cottas, 23
Magnetism and Electricity, 377
Mainstone Water Supply, 255
Mairie, rebuilding of a Paris, 5
Malta, Renaissance Architecture in, 423
Manchester Drainage, 166, 251, 281, 364
Manchester Ship Canal, 166, 199
"Manor of Paris" Garden, the ancient, 133
Map of Central London, 31
Marble, Norwegian, 281
Marshalsea Prison, Site of, 390
Master, who is to be? 166
Mass influence of, on Architecture,
64, 84, 92, 109, 112, 124, 133, 144, 153, 167,
181, 187
Maupassant, Monument to, 400
Mausoleum: design for a, 350; establish-
ment of, British Museum, 12; the Grant,
New York, 331, 340
Modern Opera Houses and Theatres, 460
"Monks' Barn," the Peterborough, 254
Monopolies by Patents, 31
Mont St. Michel, Caen, 109
Emperor William I., 202; to Jean
Leclaire, Paris, 400; 20; to Jean
Leclaire, Paris, 400; to Jean Cabot, 308; to
Victor Hugo, 200
Monuments of El Kab, Egypt, 67
Mosaic, Discovery of an Ancient, 441

Motor Cars, 56
Moving a Building in Paris, 146
Muckers Estate, Co. Kerry, 127
Municipal: Electric Light Association, 21;
at Shanghai, 105; Work at the
Brussels Exhibition, 105; Year Book, 59
Municipal Buildings: Cardiff, 517; San-
itary, 344; Oxford, 264; Study for, 490; Sur-
biton, 455, 444
Municipalities for London, 461
Museum: the Scane, 533; the South Ken-
sington, Inquiry, 339
NAMES of Architects on Buildings, 217
National Gallery, British Art, 45, 47, 88, 104
Natural Gallery, the, 104, 282
Naure, Unrecognised laws of, 259
Natures Decorative Art, 467
New Bird, Lyveden, 68
New Gallery, the, 462
New York: Grant Mausoleum, 231, 240;
Proposed Bridge, 67
North Eastern Railway Dispute, 126
Norwegian Marbles, 282
Nottingham: Architecture of, 161, 170; St.
Stephen's Church, 263

OFFICES, Government, Sites Report, 126,
131, 483, 495
Old Deer Park, Richmond, 235
Open Space, Bethnal Green, 127
Opera: Decorations, Covent Garden, 5;
Theatres, Modern, 460
Orientation of Greek Temples, 461
Ostrakon of Themistokles, 486
Oxford: Municipal Buildings, 204; St.
Mary's Church, 195, 68
Owen Artificial Stone, 365

PADDINGTON, St. David's Church, 24
Paddockhurst, Sussex, 202
Padham, Competition for School, &c., 184
Painting, Studentship in Decorative, 442
Palermo: Cappella Palatina, Pulpit, &c.,
470; San Cialdino, 341
Parham Hall, 133, 308
Paris: Académie des Beaux-Arts, 4, 46;
Bazaar, 104; Bazaar, 104; Bazaar, 104;
results of, 88; Beaux-Arts students, 539;
Canal to Rouen, 45; Carillon, a, 282;
Coinage, designs for, 215; Coinage, a present
for the, 200; to the Corporation of banks of
the Seine, 88; Decoration of the Hôtel de
Ville, 344; Envois de Rome, Ecole
des Beaux-Arts, 25; Exhibition, the,
1500, German exhibits for, 67, 236, 417;
Isle, M. Alfred, paintings by, 463;
Mairie, rebuilding of a, 5; Monument to
Jean Leclaire, 400; Monument to Maupassant,
400; Monument to Victor Hugo, 200;
Moving a building, 146; Pont
Neuf, the, 202; the, 202; the, 202; the, 202;
Competition, &c.; Railway Station Archi-
tecture, 466; Railway Works, 389; Salon,
the New, proposed gallery, 104, 324;
Salon, the, 104; the, 104; the, 104; the, 104;
Société des Artistes Lithographes, 391; Société
des Peintres Lithographes, 391; Société
Internationale de Peinture, 487; Subter-
ranean, Paris, 218; Tuilleries, alterations at,
515; Union Centrale des Arts Decoratifs,
461; Vermet, a Proposed, Paris, 516
Park Hospital, Lewisham, 476
Parks, Old Deer, Richmond, 235
Parliament Houses, Mexico, 46
Parliament Street improvements, 105, 390
Parthenon, State of the, 165, 389
Parthenon, and the 'Old Athens Temple,'
217
Patents, Monopolies by, 31
Patton Electric Locomotive, the, 515
Pearson, J. L., the late, 514, 539
Pediment Sculptures, 'Old Athens Temple,'
217

Pennsylvania University, Architecture 25
Penthy Quarries disused, 166
Perth, the, 104; the, 104; the, 104; the, 104;
People's Palace Jubilee Exhibition, 146, 342
Pershere Abbey, 609, 281
Petrie, Prof. Flinders, Exhibition, 24
Photographic Exhibition, the Eastman, 342
Records, National, 514; Salon, the, 282
Picketing, 362
"Pilgrim's Progress," illustrations to, 395
Plastering, Plain and Decorative, 213
Plumbers' Registration Bill, 3
Pluscarrine Abbey, 183
Police Buildings, Kotherham, 72
Port Mirabeau, Paris, 240
"Porter and Dwarf," Newgate-street, 202
Portland Cement imports, U.S.A., 166
Post Office London Directory, 521
Post Office, Zurich, 183
Poynter, Sir R. L., on Art, 83
Presents, the, 325
Prison, &c., Old Wellclose Square, 302
Prisons and Court Houses, 374
Provincial Towns, Architecture of, Bir-
mingham, 349, 435, 446; Derby, 39, 50;
Nottingham, 161, 170; Sheffield, 273, 284
Public Health and the Sewers, 45
Pulpit, Cappella Palatina, Palermo, 470
Purification, Water and its, 151

QUANTITIES and Quantity-taking, 15,
74, 92, 113, 135, 154, 173, 186, 206, 222,
249, 260, 279, 339, 370, 389, 424, 473,
500, 522, 561
Quarries, Subterranean, Paris, 218
Quiet Enjoyment, the, 442
RAILWAY: a New Thames, 442; Bridge,
Collyer, a French, 90; Dispute, the
North Eastern, 166; Servants' Demands,
341; Station Architecture, 466; Ter-
minus, the Great Central, 365; Works in
Paris, 379

Sculpture: American, 452; Architectural, at Sydney 4; at the Royal Academy, 302; Paris Salon, 235; Delphi, 231; Pediment, 'Old Athene Temple', 235
Seine, Decorative in f., 231, of the, 88
Seymour Abbey, Tower, 82, 235
Sewall, John, 235; life in, 105
Manchester, 136, 241, 281, 364; New, and the Public Health Act, 45; or, the 'Sewall' Commission of 1850
Shanghai Municipal Report, 105
Sheffield: Architecture of, 273, 284; Town Hall, 112
Ship Canal: Manchester, 166, 199
Shipping Marks, Timber Trade, 134
Ship, Who is to be Master in the, 166
Society of Architects, London, 4
Sign, an Old London, 235
Site, Cardiff Town Hall, 538
Sites, Government Offices, 126, 131, 483, 538
Sketch Book, the Archl. Assocn., 19
Sketches in Worcestershire, &c, 73
States, American, in England, 67
Smallbridge, J. H., Esq., 130
Soane Museum, the, 13
Soci t  Centrale d'Architecture de Belgique, 215
Soci t  des Peintres Lithographes, 39
Soci t  Internationale de Peinture, 48
Society of: British Artists, 365; Miniaturists, 365
Society of Water Colour Painters, 365

Colours, 453
 Furniture, *See* *Interiors*: Awarods, 1897, 256
 Furniture, Sketches from, 219; Museum
 Inquiry, 393; Prize Studies, 414; Students'
 drawings at, 170
 Southwark: Ancient Manor of Paris,
 422
 Sprague F. J., on 'Thematic' Lits, 127
 'Spring': Design, Wall Decoration, 544
 Stage Accident, Drury Lane, 255
 Stairs, Cambridge, 1900, 531
 Stalls, Choir, and their Carving, 31
 Stalls, etc., Kington Church, 152
 Steam Rollers in France, 84
 Steel wall, 1900, 531
 Stone: Bridges, hinged, 105; Owen
 Artificer, 396
 Stones, American building, 2
 Strand District, Electric Lighting in, 354
 Street, London, 1900, 531
 Street Architecture, Sketches of London,
 22, 110, 203, 258, 370, 415
 Street Fronts, three, London, 122
 Streets, New York, 1900, 531
 Strike, Engineering trades', 23, 256, 235,
 341, 382, 390, 459, 454, 483, 533

291, 464; Discussion Section, 320, 398;
 399, 464, 465; Excursion, the annual, 398,
 123, 147; House decoration, 539; Lec-
 tures, 165; Lyric Club, 373; New
 materials for use in building, 392; Paris
 Bazar fire, 312; Pinning of high
 schools for girls, 438; Presentation, a,
 393; President's address, 393; Prize
 winners, list of, 393; Report and balance
 sheet, 393; Society, 393;
 Architectural Museum, Westminster, 59
 Architectural School, King's College, 293
 Architectural Societies: Birmingham,
 366, 370, 416; Devon and Exeter, 47, 60;
 Edinburgh, 366, 370, 416; Glasgow
 Edinburgh Association, 447; 545; Edin-
 burgh Society, 368, 319, 398, 447, 498;
 Glasgow Association, 439, 319, 398, 447;
 Glasgow Society, 368, 319, 398, 447;
 Philosophical Society, Architectural Sec-
 tion, 453, 498; Ireland, Architectural
 Association of, 319, 447; Leeds and York
 Association, 366, 370, 416, 498;
 326, 374, 525; Manchester, 417; North-
 ampton, 175; Norwich, 418, 499; Perth
 284, 419, 422; Royal Institute of British
 Architects, 366, 370, 416, 498; St. Albans,
 450; Sheffield, 428, 368, 399, 525
 Architecture: birth and development of,
 37, 27; eighteenth century, 399; evolution
 of style in, 545; of the Victorian era,
 417 and 418; 149; Renaissance, in
 Malta, 417
 Art Gallery for Huddersfield, 293
 Art, the possibilities of examination in, 498
 Art and architecture, 498
 Artist, advantages of being an, 391
 Asbestos, 392
 Aspinall, J. A. F., on railway work, 423
 Association of Master Plumbers, 373
 Municipal and County Engineers (*see*
 'Municipal')
 Athens, British School at, 68
 Astronomy, 498
 Awards, Health Exhibition, Leeds, 241
 Bagallay, F. T., on Harrogate baths, 238
 Barber, Mr., on train lines, 54
 Barry Master Builders' Association, 55
 Barry, Sir J. Wolfe: address to engineers,
 377; address to students, 387; on science
 and engineering, 387
 Bateman, C. E., address to architects, 370

Paris, 32
deauris, visit of archaeologists to, 126
Bedford, Rev. W. K. R., on Renaissance
architecture in Malta, 47, 48
Belfast, workmen's dwellings in, 437
Belgium, see under Belgium
Bell, Mr., on infantile diarrhoea, 548
Berley's Breweries v. Dodson, 335
Bentley tramway pavements, 54
Berry, A. E., on plumbing, 13
Bignie, Sir A., address to municipal engi-
neers, 53
Blackburn Corporation v. Blandell,
431
Master Builders' Association, 472
Waterworks, Elan Valley, 187
Blair, W. N., on bricks for carriage ways, 55
Blanc, H., address to Perth architects, 419
Blondel, R., on the Paris Bazaar, 419
Bong, A., on Renaissance architecture in
Malta, 418
the Paris Bazaar fire, 348
Blondel, R., on examinations in art, 498
Bong, A., on the Paris Bazaar fire, 498
Borwick Hall, 80, 147
Boulton, H. P., on: refuse destructors,
40; tramway pavements, 54
Boy, Thomas, Prof., on prehistoric archi-
tecture, 160
Boyd, J. R., on Bridlington Church, 307
Bradford, Ltd. Trades, &c., Exchange, 356
Bridlington tests, 56
Bridgewater, see under Archaeologists at, 120
Bridlington Church, 307
British: Archaeological Association, 184;
309, 446, 495; Association, Toronto,
184
British Museum, 184
Brown, Mr., on workmen's dwellings, 448
Brown, Prof. B., on: Edinburgh buildings,
&c., 498; Italian art, 407
Buckwell, see under Architects at, 201
Bryce, Rt. Hon., on ancient buildings,
50
Buckinghamshire road system, 54
Burlington Benevolent Institution, 95, 472;
Burlington's Clerks' Benevolent Institution, 352
Builders' work, classifying, 307
Building Act, 1894, applications under, 14,
30, 51, 329, 353, 375, 403, 423, 439, 514, 547
Building Association, 184
Building under, 136, 137, 138, 139,
157, 191, 247, 293, 326, 335, 376, 382,
445, 506, 528
Building: construction and health, 408;
materials, 408
new, 302; trespass, alleged, 262

Bidding Trades : Exchange, Bradford,
36; Exchange, Edinburgh, 77; Ex-
change, Glasgow, 408; Exchange, Hal-
fax, 490; Exchange, Keighley, 551;
Federation, the Scottish, 383; technical
Buildings : new, of old sites, 357; of his-
toric, etc., interest, 90; protection of, 247
Burr v. Pitman, 427
Buswell, H., on diaphanous, 500

Cambrian Archaeological Association, 168
Cameron, Mr., on sewage disposal, 8, 27, 55
Canada : Canada, on brick-paving, roads, 55
Canada's metals, 171
Capell, Bruce J., on brickwork tests, 518
Cardiff Master Builders Association, 551
Carlisle Water, report, 359
Clark Hall, Lancashire, 397
Carmelite remains, Temple Bar, 399
Carnarvon Castle, 185
Carpenters Company, the, 55, 505, 528
Castles : see Fortifications ; also, Castles
Carte v. Spencer and others, 431, 505
Cartmel Priory church, 89, 129
Casney, W. H., on ventilation, &c., 407
Cash, J. E., on the value of Carnarvon, 185
Castaway, 184; Cofre, 108; Gwydder, 186
Haverfordwest, 160; Lancaster, 89, 148
Lawheaden, Pembroke, 160; Pictou, 169
Pembroke, 160; St. David's, 168; Sowerby,
139; Thurland, 89, 128; Wiseton, 159
Cathedral : Bangor, 185; St. Asaph, 185;
St. David's, 168
Cathedrals, English, 499
Chace v. Urquhart, 130
Church, Chorchester, 130
Chalmers, Mr., on Glasgow Cathedral, 453
Chapworth, visit of Sheffield arch-tects to, 13
Children, Dr., on the Munch slaughter-
house, &c., 237
Christy v. Mayor &c., Brighton, 77
Church art, 130
Churches : Abbotshury, 120; Ambleson,
170; Banstead, 111; Beaumars, 186;
Beetham, 137; Bradway, Pembroke, 169;
Braydon, 130; Brown, 130
Cincinnati, Ohio, General Priory, 89,
129; Cerne, 130; Charnminster, 139;
Chedzoy, 131; Church Broughton, 250;
Dilnoog, 165; Dinton, 135; Dalton-le-
Moor, 131; Fordington,
166; Great Canfield, 357; Haverford-

A number line with a solid dot at 1 and an open circle at 2, with a line segment connecting them.

A close-up, vertical view of the fore-edge of a very thick, antique book. The pages are numerous, tightly packed, and heavily discolored with age, showing a range of brown and tan hues. The binding material, likely dark red or maroon leather, is visible along the right edge of the image.

REPORTS, &c. (continued):—

- Earthquakes and volcanoes, 371
- Eays, J. I., on: brick-paving for carriage ways, 54; sewage disposal, 8; tramway haulage, 54
- Ecclesiastical vestments, 446
- Edinburgh: Building Trades' Exchange, 77; buildings and monuments, 458; and Leith Master Builders' Assoc., 527
- Education, technical, in the building trades, 306
- Eighteenth century architecture, 399
- Elan Valley Waterworks, 167
- Electric: traction, 390, 416; tramways, 171; ventilating fans, 372
- Electricity supply, 46
- Electro zincing, 454
- Eliot, W., on Manchester Ship Canal, 402

Fair wages and corporat on contracts, 430
Farlow, P. McKee, 455, 552
Farrow, F. K., on warming public buildings, 582
Federation, 361
Federation of Scottish Building Trades', 361
Ferris, R., on modelling, 349
Fever Hospital construction, 258
Fife, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
Filtration, artificial, sewage disposal by, 7
Finchley District Council, R. Marriott, 139
Fire, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
Fleming, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
Fletcher, B. P., on girls' high schools, 402
Flower, A. S., on Renaissance architecture
Flower, Major L., on river pollution, 237
Fonts, English lead, 121
Fordington Church, 360
Fowler, J. W., on sewage treatment, 54
Fowler, R. W., address to architects, 308
Fox, Major, on the Paris Bazaar Fire, 347
Fox, R. W., the late, on Fembroke Churches, 368
French architects' congress, 6
Turness Abbey, 38, 259
Fyfe, P., on building construction and health, 403
ventilation, 222

Halifax, Builders' Exchange for, 430
 Hall: Bowrick, 85; 147; Cark, 89, 129;
 Claughton, 89, 128; Garratts, Epsom,
 121; Goodstadt, 187; Holker, 89, 129;
 Houghton, 147; Huxley, 89, 148, 397;
 Samselbury, 89, 147
 Hall, E. T., on fever, hospitals, 238, 239
 Hall, J. G. Eden, 409
 Handsworth, J. W., on Dr. Derrington, 45
 Harrison, J. P., on Carfax Tower, 399
 Harrogate baths, 238
 Haunale, railway, 54
 Haverwest, and geologists at, 153, 168
 Health Exhibition, Leeds, 240, 265
 Heston, Cc., District Council v. Grout, 60
 Heyham, Archl. Assoc. visit to, 128
 Hind v. G. & L., 128
 Hogg, Col., on works in Auld, 413
 Houghton Towers, 89, 148
 Holborn and Strand electric supply, 46
 Holloway, J. W., on Police classes, 36
 Hooper, F. G. F., on the A. A., 392
 Hope, Dr., on sanitation, 314

Lectures, sanitary, Liverpool, 293, 314.
 Levees, 293, 314.
 Master Builders Association, 227; Sanitary Congress at, 252, 227, 240.
 Legal, 293, 314.
 Lenses, ancient lights case, 335; Bury v. Atwood, ancient lights case, 304, 227; Eikenhead v. Corporation of Glasgow, 227.
 Lighthouses, 293, 314.
 Limestone, Birmingham Corporation v. Flundell, case under local by-laws, 43; Building Corporation v. St. John, 74th, 127; Bury v. Pittman, ancient lights case, 335; Bury v. Collins & Godfrey, case under Employers' Liability Act, 227, 240.
 Limestone, Turner & Eldon, Ltd., ancient lights case, 431, 506; Cave v. Drury, new buildings on, 293, 314.
 Limestone, Mayor & C. of Brighton, ancient lights case, 335.
 Limestone, 77; Clarke v. London, landlords and tenants, 293, 314.
 Limestone, Brooks, light and, 245, 256; Crane v. Nottingham, C. C., Club, light and, 245.
 Limestone, 293, 314.
 Limestone, Davies v. Corporation of South Shields, passing of plans, 157; Dawes v. Kent, light and, ancient, 314.
 Limestone, Public inspection of, 293, 314.
 Limestone, Drear v. St. Pancras Guardians, 382.
 Limestone, 453, 452; Finchley District Council, 453, 452.

[illegible]

REPORTS, &c. (continued):—

- Matear, Huon A., on architecture, 371
Materials, new buildings, 392
Mathews, J. D., on brickwork tests, 518
classifying bricks, work, 392; Petrified, 394
Matthew, J. F., on inlay, 447
May, F. J. C., on sewage disposal, 8
Meade-King, W. O. E., on Manchester Ship Canal, 402
Mellon, W. A., on half-timber work, 349
Mills, Canada's, 171
Metropolitan Asylums Board, 357
Millais, Sir E. J., the Pre-Raphaelite art of, 479
Milne, W. J. N., on house decoration, 544
Milne, Prof., on earthquakes and volcanoes, 171
Milton Abbas, Dorchester, 130
Mitchell, A., on Peterborough Cathedral, 447
Modeling, relation to sculpture and decoration, 342
Molloy v. Sheffield Ice Co., 506
Moncreiff, Major Scott, on stoves for hospitals, 290
Moore and Briscoe v. Mullaney, 383
Morgan v. Viscount Gort, 139
Mortimer, J. A., on attainable ideals, 239
Mossley, Lord, address to archaeologists, 185
Moule, H. J., on Dorchester churches, 106
Munce, J., on workmen's dwellings, 237
Municipal Electrical Association, 242
Municipal and County Engineers' Association: Annual meeting, London, 53; Examinations, 209; Stafford meeting, 71
Sunderland meeting, 447; visit to Elan Valley Waterworks, 187
Murray, Dr., on architectural matters, 369
Newman, Architectural, Westminster, 52
Museum, Gallo-Roman at Sens, 51
National Trust, the, 49
Newbery, Ralph, on 'The Oaks,' 111
Newville, F. H., on a school of art, 447
Newby, F. H., on tradition, 498
Newcastle architecture, 418
Northampton Master Builders' Assoc'n v. Queen v. Mead, 357
Queen v. the Justices of Hastings, 357
Railway work, some aspects of, 423
Rath, the, Haverfordwest, 106
Ray v. Bullock, 455, 552
Refuse destructors
Reichel, Rev. O., on parochial churches, 395
Reid, Dr. G., on sewage disposal, 7
Restoration of monuments, Belgium, 202
Rhuddlan, ruins at, 399
Rich, F. W., on Newcastle architecture, 418
Richmond, Sir W., on church art, 259
Ridell, Dr. S., on sewage purification, 551
River pollution, 237
Road system, Buckinghamshire, 54
Roads, specifications of Tyneside, 448
Roberts-Austen, Professor, on Canada's metals, 171
Roberts, R., on the Paris bazaar fire, 347
Roehampton, Holy Trinity Church, 239
Routhwaite, R. S., on public works, Sunderland, 447, 448
Royal Archaeological Institute, the, 51, 106, 129, 359, 495
Sachs, E. O., on Paris bazaar fire, 342, 349
St. Michael's, St. Albans, Roman remains at, 350
Salmon, J., on design in construction, 368
Sanitary Inspectors' Association, the, 126, 409, 486, 397, 505, 548
Sanitary inspectors and landlords, 247
Sanitary Institute, the, 17, 59, 95, 222, 237, 240, 356, 454
Sanitary Science, lectures on, Liverpool, 233, 314
Sanitation, the outcome of, 268
Sankey, H. R., on the decimal system in engineering measurements, 183
Scarborough Master Builders' Association, 453, 551
School of Art, 8, 447
School of Engineering, Crystal Palace, 551
Schools, girls' high, planning of, 488
Scottish Building Trades Federation, 382
Sea defences, 392
Seasloe-Wood, H. D., on new building materials, 392
Seddon, G. F., on Petrified, 394
Sens, Gallo-Roman Museum at, 51
Sewage tank system, the, 27
Seth-Smith, W. H., on classifying builders' work, 392; high schools for girls, 491; new building materials, 354
Sevenoaks, churches, &c., in and near, 111
Sewage: biological purification of, 53; disposal by artificial filtration, 7; purification of, by bacteria, 551; sludge, filter presses for, 284; treatment, 299; treatment on the septic tank system, 27
Sewers, City Commission of, 59, 292, 335, 382, 430, 479, 528
Sheffield: Surveyors' Institution, 397; Sherborne Abbey and Castle, 129
Ship accommodation, 222
Ship Canal, Manchester, 171, 402
Shedfield electric light, &c., works, 96
Shuffrey, L. A., on house decoration, 539, 544
Silcock, E. J., on tramway haulage, 54
Sim, E. H., on high schools for girls, 492; new building materials, 394
Slop water in isolated houses, 239
Smellie, Mr., on breaking up streets, 448
Smith, C., on British School at Athens, 69
Smith, Gordon, on brickwork tests, 518
Smith, H. V. C., on church interiors, 398
Smith, J. Osborne, on classifying builders' work, 392; the planning of high schools for girls, 488, 492
Smith, L., on technical education, 305
Smith v. Devon and Exeter Turkish Baths, Limited, 429
Smoke abatement, 222, 237
Somersetshire Archaeological Society, 130
Spinning, domestic, 446
Stafford, Municipal Engineers' visit to, 7
Stained glass, 471
Standall, J., on standard samples of painters' work, 359
Stannus, Hugh, on counter change in colour, 390
Stratham, H. H., on architectural matters, 369; crushing load of Fletton bricks, 517; the British School at Athens, 69
Stevens, J. V., on labour matters, 205
Stone, Saxon, Nunbury, 188
Stones, inscribed, Pembrokeshire, 168
Street: litigation as to width of, 17; paving of, Leeds, 28
Street, W. C., on brickwork tests, 516, 518
Streets Works' Act, 1892, Private, 60
Style, evolution of, in architecture, 545
Sumner, J., on smoke abatement, 222
Sunderland, Municipal Engineers at, 447
Superannuation of sanitary inspectors, 237
Surrey Archaeological Society, 71, 110
Surveyors' Institution: Agricultural Holdings Act, 499; Manchester Ship Canal compensation cases, 445; President's address, 397
Sykes, Dr. J., on tenement buildings, 237
Taylor, H. W., on specifications of Tyneside road, 448
Technical: education in building trades, 305; instruction on the continent, 257
Temple Park, Carmelite remains at, 399
Tendering for painters' work, 359
Tenement buildings, 237
Thomas, R. J., on road system, Bucks, 54
Thompson, Sir E. M., on literature, 494
Thompson v. Tallerman, 35
Thomson, G., on art, 393
Thwaites v. Wilkinson, 299
Tidman, Mr., on typhoid fever at Maidstone, 286
Trades Training School, 453, 528
Trades Union Congress, Birmingham, 205
Tradition, the sum of, 488
Tramway haulage, 54
Tramways, electric, 171
Tribunal of Appeal cases, 326, 357, 376
Trust, the National, 49
Tucker v. Taunton Manufacturing Company, 27
Tyerman v. Marsland, 138
Unwin, Prof., on brickwork tests, 519
Valuations and compensations, 326
Ventilating fans, electric, 392
Ventilation and warming, 407
Ventilation in factories, &c., 222
Vestments, ecclesiastical, 446
Victorian era, architecture of, 308
Visit, Sanitary Inspectors' Association, to Belgium, 209
Vital, Society of Engineers, to Erith Iron Works, 74
Visits, Architectural Association: Fever Hospital, Tooting, 258; Holy Trinity Church, Roehampton, 256; Oxford, 96
Visits, Institution of Junior Engineers: Cambridge engineering laboratories, 54; Islington Vestry electricity works, 446; Shoreditch electric lighting works, 96
Waddington, H., on the Workmen's Compensation Act, 453
Wade, M. J., on restoration, 202
Walker, W. G., on electric fans, 372
Wall, C., on the Builders' Benevolent Institution, 472
Wallis, J. D., on Manchester Ship Canal compensation cases, 445
Wallis, W., on Sir J. E. Millais, 119
Walton, churches, &c., in and near, 110
Ward & Goldfinch v. McElin & Freeman, 247, 314
Wareham Church and bridge, 108
Warming and ventilation, 407
Warming public buildings, 229
Water supply and pollution of water, 356
Waterworks, the Elan Valley, 187
Webb, Aston, on architectural matters, 493
Webb, Doran, on Milton Abbas Church, 130
West of England Master Builders' Federation, 454
White, A. G., on painters' work, 359
White, Mr., on wood pavement, Folkestone, 238
White, W., on brickwork tests, 518
Whitehouse, R., on the Workmen's Compensation Act, 472
Wicksteed, Mr., on smoke abatement, 223
Williams, Sir E. Leader, on Manchester Ship Canal, 402
Williamson, J. A., on architecture, 308
Willink, W. E., address to architects, 284
Wolfeaton House, 120
Womersley, Mr., on back-to-back houses, 237
Wood v. Mayor of Widnes, 96
Wood pavement, sanitary aspects of, 237
Woodward v. London County Council, 326
Woodward, W., on brickwork tests, 518
Workmen's Compensation Act, the, 453, 472
Workmen's dwellings, Belfast, 237
Worthington, W. B., on the Manchester culvert scheme, 478
Yaldham Manor House, 111
Yorkshire Master Builders' Federation, 156, 453

CORRESPONDENCE.

Subjects of Letters.

- Advertising for hands, 123
Architects, ambitious, 223
Birmingham Town Hall, 473
Builders' work, classifying, 313
Building Act and the spread of fire, 459
Buildings, fireproof, 524
Cardiff Town Hall and Law Courts, 153
Carters and carpenters' workshops, 353
Channel, open, in sanitary drainage, 287, 310
Church v. West County, 285, 330; Twickenham, 113; St. Peter's, Derby, 113; tower, Liskeard, 57, 329
Classifying builders' work, 353
Cloisters, Salisbury, 113, 134
Commemorative stones, 153
Competition: Sarbiton Municipal Buildings, 473, 501; Tottenham School Board, 473, 501
Conduit, Mead Estate, 378
Contract, form of, 287
Correction, a, 524
Curves in Medieval Italian architecture, 31

Subjects of Letters (continued):—

- Danitic oak for window sills, 154, 172, 188
Decoration, mosaic, of St. Paul's, 264
Derby, St. Peter's Church, 113
Disclaimer, a, 206
Drainage, open channel in sanitary, 287, 310
Ecclesiastical sculpture, 15
Examinations: Municipal and County Engineers', 330, 376; and Fellowship of the Institute, 423, 426, 450
F.S.A., assumption of the initials, 310
Fellowship, the R.I.B.A., 403
Fire: rebuilding after the St. Mary Axe, 524; spread of, and the 1894 London Building Act, 450; the Cripplegate, 450
Fireproof buildings, 524
Flashings in 'Quantities', 330
Foundation stones, 153
Geary, Walker, & Co. v. Henry Young, 427
Glazed tile sewers, 206
Glazing, measuring lead-light, 264

Subjects of Letters (continued):—

- Institute of Architects and Surveyors, 223
Iron, effect of teak on, 205, 223
Italian architecture, Medieval, curves, 31
Lead-light glazing, measuring, 264
Liskeard Church tower, 57, 329
London signs and inscriptions, 330
London, use of slates in, 91, 172, 206, 242
Maidstone, 287
Milton Abbas Tabernacle, 223, 242, 288
Mosaic decoration of St. Paul's, 264
Municipal buildings, Sarbiton, 473, 501
Municipal and County Engineers' examinations, 330, 378
National Free Wiring Company, 113
Office routine, 242
Oxford, St. Mary's Church, 263
Peterborough Cathedral, 74, 91
Porosity of roofing tiles, 501

Subjects of Letters (continued):

- Quantities, 242, 330, 378
References in tendering, 330
Roofing tiles, porosity of, 501
R.I.B.A. Fellowship, &c., 403, 426, 450
St. Mary's, Oxford, 263
St. Michael's, St. Albans, new tower, 426
St. Paul's, mosaic decoration of, 264
Salisbury Cloisters, 113, 134
School Board offices competition, Tottenham, 473, 501
Sculpture, ecclesiastical, 15
Sewers, glazed tile, 206
Sheffield architecture, 310
Signs and inscriptions, London, 330
Slate trade, the, 450, 473
Slates, use of, in London, 91, 172, 206, 242
Slates' Column, 242, 330, 378
Sarbiton Municipal Buildings, 473, 501
Surrey Archaeological Society, 135
Tabernacle, Milton Abbas, 223, 242, 288
Teak, effect of, on iron, 205, 223

CORRESPONDENCE—Subjects of 'Letters' (continued):

Tendering, 153, 177, 188, 221, 257, 330
 Tottenham School Board Officers competition, 287, 333
 Tower, St. Michael's, St. Albans, 426
 Town Hall, Birmingham, 473; Cardiff, 153
 Twickenham Parish Church, 113
 West Country church, a, 288, 330
 Window sills, Dantric oak for, 154, 274, 188
 Wirmg Co., the National Free, 113
 Workshops, carvers and carpenters, 333

Writers of Letters.

Bousfield, E. H., the Tabernacle, Milton Abbas, 293, 288
 Brewell & Bailey, a disclaimer, 206
 Broadbent, C. H., the slate trade, 450
 Case, Thomas, St. Mary's, Oxford, 253
 Clarkson, S. F., classifying builders' work, 333
 Cockrill, J. W., glazed tile sewers, 203
 Collins, A., Free Wiring Company, 113
 Croke, J. D., Liskeard Church tower, 27
 Crofts, J. N., 'The Student's Column,' 242

Writers of Letters (continued):—

Dutch, L. H., flashings in 'Quantities,' 330
 Ettridge, J. J., jun., the slate trade, 473
 Ferguson, C. J., curves in Medieval Italian architecture, 31
 Flockton, Gibbs, & Flockton, Sheffield architecture, 310
 Forsyth & Maule, Surbiton municipal buildings, 473
 Garbett, E. L., Salisbury cloisters, 113
 Geary, Walker, & Co., re Geary, Walker, & Co., v. Henry Young, 427
 Glennie, F., Forbes design for a West Country church, 133
 Griffiths, H., Municipal and County Engineers' examinations, 378
 Grimthorpe, Lord, St. Michael's, St. Albans, new tower, 416
 Gritton, C. E., open channel in sanitary drainage, 287
 Hansom, J. S., Birmingham Town Hall, 473
 Harston, A. & C., Dantric oak for window sills, 172

Writers of Letters (continued):—

Hens, H.: a West Country church, 288;
 Dantric oak for window sills, 172
 Hope, W. H. St. John, assumption of the initials 'F.S.A.,' 310
 Johnson, C. V., Tottenham School Board Officers competition, 153
 Jones, J. L., the Institute and examinations, 427
 Keen, A., fireproof buildings, 524
 Lee, F., rebuilding after the St. Mary Axe fire, 324
 Lloyd, W. H., St. Peter's Church, Derby, 113
 Martindale, J. H., effect of teak on iron, 206
 Merryweather & Sons, the City fire, 450
 Mickelthwait, J., Peterborough Cathedral, 91
 Norman, Philip, 'London signs and inscriptions,' 230
 Oliver, Andrew, Conduit Mead Estate, 378
 Phillips, R.: Dantric oak for window sills, 188; effect of iron on oak, 223

Writers of Letters (continued):—

Plimpton, R. T., porosity of roofing tiles, 153
 Pocock, A. W., Surrey Archaeological Society, 135
 Potter, W. F., use of slates in London, 153
 Prior, E. S., Peterborough Cathedral, 74
 Roberts, Adlard, & Co., use of slates in London, 174
 Scorer, G. O., Salisbury Cloisters, 134
 Scott, J. Oldrid, Twickenham Parish Church, 113
 Seth-Smith, W. H., the Institute Fellowship and examinations, 401, 450
 Shenton, J., use of slates in London, 206
 Spon, E. & F. N., a correction, 524
 Stone, P. G., the Institute and examinations, 429
 Waterhouse, A., Cardiff Town Hall, 153
 White, W.: Maidstone, 287; rejection of lowest tenders, 177
 Wilkinson, M. H., Municipal and County Engineers' examination, 330

GENERAL.

Abattoirs, public, Barry, 249
 Aberdeen: Building Federation, 191; City Surveyors, 34, 175; Municipal Bldgs., 334
 Academy: Banff, 549; Broughty Ferry, Dundee, 289; Dumfries, 223
 Alhambra, Blackpool, 208, 525
 Alms-box, Smith Church, 357
 Almshouses: Buckingham, 428; Bungay, 189; Loughton, Bucks., 245; Plymouth, 313; Stockton, 73
 Altar: Ardagh, 191; Dublin, 197
 Antiquarian discoveries at Goshforth, 275
 Appointments, 34, 77, 156, 157, 209, 330, 331, 335, 378, 396, 403, 454, 502, 524, 547
 Architecture, ancient, of Ireland, 356
 Art Galleries, &c., Glasgow, 245
 Art Gallery: Newcastle, 326; Reading, 379
 Arts and crafts of Russian peasantry, 505
 Asylum: Carlisle, Glasgow, 16; Grayling-wells, 155; London, 408; Winkfield, 454
 Bank: Brinscall, Chorley, 207; Knighton, 405; London, 206; Newcastle, 174; Fwithell, 428; Southampton, 526
 Barracks, Volunteer, Darwen, 355
 Baths: Dumfries, 217; Dundee, 390; Harrogate, 24, 355; Lambeth, 285; Plaistow, 425; Tunbridge Wells, 15; West Bromwich, 155; Wolverhampton, 380
 Beckett's hrescape ladder, 59
 Bells: Langham Church, 292; waterlight electric, 315
 Birkenhead Building Society, 34
 Birmingham: architecture of, 249; church, sale of a, 504; meat market, 266, 292, 373; old & new, 227; and its sewers, 193
 Blackpool Tower, 115
 Blinds, opaque, for artschools, 175
 Blinds, engraved, measurement of, 203
 Book-ale, 175
 Brent, the River, 380, 427
 Brewery extension, Southbridge, 189
 Brick: a new fixing, 157; industry, Peterborough, 334
 Bridge: Ascham, 267; Brisbane, 406; Cape Colony, 267; Edinburgh, 246; Glasgow, 526; Lowestoft, 331; Kilmnash, 156; Swansea, 477; Talycafa, 333; Tay, 246
 Brighton, sea defences, 291
 Brine electricity meter, 430
 Builders' Benevolent Institution, 479
 Building by-laws: Halifax, 59; Leeds, 407; Stockton, 34
 Building: construction classes, Glasgow, 209; estate, a new, Coventry, 334; estate, Barrow, 328; estate, Cheshire, 177; Trade Association, Peterhead, 137
 Building in: Aberdeen, 34, 244, 265, 452, 502, 525, 550; Blackpool, 506; Dundee, 530; Edinburgh, 355; Forres, 227; Greenock, 428; Halifax, 264; Kilmnash, Perth, 266; Staffordshire, 60, 95, 121, 227, 267, 403, 549
 Burnet, Mr. J., presentation to, 34
 Bust: Dublin, 177; Manchester, 257; West Smithwick Park, 293

Capital and Labour: Aberdeen, joiners' dispute, 505; Barnstable, masons' wages, 17; Belfast, plumbers' strike, 34, 157; Birmingham, building trades' wages, 455; Bodmin, building trade wages, 455; Bolton, building trade wages, 384, 408; Bourne-mouth, carpenters' and joiners' strike, 255; Colchester, bricklayers' strike, 203; Dewbury, plasterers' strike, 601; Dundee, masons' strike, 551; Dunfermline, joiners' wages, 277, 209; Durham, East, building trades' wages, 247; Edinburgh, building strike, 177; Exeter, building strike, 34, 293; Fleetwood, plumbers' strike, 601; Glasgow joiners, and

American timber goods, 455; Huddersfield, masons' labourers' strike, 157; Ipswich, building dispute, 17, 60, 77; Kilmarlock, joiners' strike, 157; Leeds, wages in building trade, 247, 408; Leith, strike in building trade, 157; Liskeard, building trade dispute, 314, 382; Liverpool, plasterers' strike, 176, 247, 314; Manchester, building trade dispute, 335, 382; Manx plasterers' dispute, 345; Morley, joiners' dispute, 17; Nelson, plumbers' strike, 263; Newcastle, bricklayers' wages, 241; Newport, bricklayers' wages, 409; Northwich, stonemasons' wages, 408; Oldbury, brickworkers' strike, 157; Oxford, carpenters' and joiners' strike, 31; Paisley, masons' dispute, 34; Paisley, plumbers' wages, 157; Penryn quarrymen's strike, 157; Peterborough, carpenters' and joiners' wages, 247; Plymouth, building trade strike, 17, 34, 157, 408; Portsmouth, building trades' wages, 408; Preston, bricklayers' strike, 59; Runcorn, bricklayers' wages, 479; St. Helens, joiners' wages, 328; Staffordshire, brickmakers' strike, 177; Tunbridge Wells, building strike, 34; West Bromwich, carpenters' wages, 34; Weston-super-Mare, masons' strike, 31; Winstown, bricklayers' wages, 208; York, Corporation wages, 454
 Carbide of calcium, 91
 Carcinomum avarianus, 381
 Cardiff Town Hall, 77
 Carpenters Company: Examinations, 505; and King's College prize winners, 136
 Castle: Baughham, 422; Danstunburgh, 245; Chichester, 191; St. Paul's, 245; Wakefield, 524
 Catholic Building News: Chapel, orphanage, Bismarck, Dublin, 31; church, Belfast, 32, 151; church, Bolton, 225; church, Castletownroche, 115; church, Denaby Main, 355; church, Dublin, 327; church, Glasgow, 476; church, Goring, 427; church, Herons Ghyll, 265; church, Monmouth Ash, 267; church, Newtonbutler, co. Fermanagh, 155; church, Paisley, 427; church, Redhill, 268; church, Snelidun, 208; church, West Kirby, 65; college, Blairs, Aberdeen, 231; convent chapel, Edinburgh, 269; convent church, Cork, 76, 90; school, Alowick, 174; school, Cardiff, 266; school, Ufford, 257; school, Ilkeston, 174; school, Sharnell, 371; school and church, Burslem, 317; Chandler's safety ladder grip, 547
 Chichester Cathedral, 191
 Christmas holidays, 516
 Church Building News: Aberdeen, 475; Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr, 378; Alresford, 244; Arklow, 400; Auchtermaler, Perth, 190; Ballynaghe, 33; Barnet, 355; Bassett, 201; Basingstoke, 549; Beccles, 451; Belfast, 266; Birmingham, 244, 477; Blyth, 244, 355; Bocking, 16, 244; Boothby Pagnell, 244, 244; Brant Abington, 590; Ayr,

...

GENERAL (continued):—

Colwyn Bay, 30; Douglas, 166; East Retford, 137; Eccles, 406; Eiland, 450; Exeter, 201, 477; Frinton, 236, 405; Glasgow, 400, 503; Harrogate, 246, 420; Kilfin, 100; Kirby-in-Ashfield, 312; Leeds, 76; Liverpool, 156; Manchester, 58, 350, 380; Mansfield, 333; Middleton, 201; Newport Pagnell, 76; Northfield, 477; Old Trafford, 59; Oldham, 201; Plymouth, 58; Portlough, 450; Rotherham, 312; Rotherham, 312; Salford, 58, 267; Sidmouth, 520; Thurstone, 156; Tonbridge, 16; Tring, 477; West Riding, 312; Willesden, 320; Wilden, 312

Sewers, local, in London, 33, 76, 499, 477

Shoot-up Hill, Cricklewood, 268

Shoreditch dust destructor, 28

Silver paint, 'Pegamoid', 34

Sites, Board School, London, 407

Skating-pond, Aberdeen, 291

Slate trade, the, 431

Smithfield Markets, 37

Society of Arts, 408

South Kensington School of Art Wood Carving, 226

Southampton-row, widening, 420

Stained glass and decoration: Aberdeen, 33, 209; Abingdon, 478; Alexandria, 420; Ayr, 209; Barking, 190; Belfast, 246; Biddenham, 312; Birmingham, 267, 292, 478; Brighton, 406; Brockmoor, 209; Brompton, 333; Burton Latimer, 109; Cheetam, Manchester, 156; Chelmsford, 16; Cleve, 209; Coningsby, 156;

Coseley, 526; Crumpsall, 95; Derby, 50; Douglas, 420; Downham Market, 406; Dublin, 209; East Markham, 201; Egham, 137; Ellersay, 526; Everton, 201; Froyle, 246; Good Easter, 16; Gosle, 526; Grantham, 156; Great Eastor, 246; Great Longstone, 478; Harlestone, 406; Hasely, 509; Hazlebeach, 381; Heckington, 333; Higham Ferrers, 420; Hints, 267; Holt, 176; Landscope, 190; Leeds, 267; Lichfield, 380; Lincoln, 381; Liskeard, 267; London, 226, 333, 380, 381, 406, 503; Longridge, 77; Loughington, 333; Louth, 526; Lundie, 267; Melling, 333; Neilston, 479; New Swindon, 125; Newcastle, 267; Newport, 454; Norwich, 246; Nursing, 453; Oving, 161; Pontefract, 292; Rottingdean, 478; St. Leonards, 381; Scarborough, 526; Sheffield, 381, 526; Spalding, 478; Staines, 95; Standish, 420; Sutton, 526; Theydon Bois, 267; Thorpe Achurch, 156; Titherington, 420; Uddington, 246; Wallsend, 478; Waterhead, 526; West Hartlepool, 381; Winchester, 156

Statue: Queen's, Belfast, 209; Queen's, Brighton, 476; the Dr. J. Dorrain, Bolton, 420; Thomas Hughes, Rugby, 36

Step-falling, a new, 313

Stone, &c., trade, Aberdeen Harbour, 430

Strand improvements, 59

Street lighting, Liverpool, 57

'Students' Column' article, 453

Subsidence: at Northwich, 138, 357; in the City, 314

Sulway: Greenwich to Millwall, 59; to the Law Courts, Strand, 175

Surveyors' fees, Bristol, 478

Surveyors' appointments, 77, 156, 310, 311, 317, 378, 403, 451, 502, 521, 549

Synagogues: Leeds, 190; Leicester, 94; London, 243

Tablet, memorial: Aberdeen, 33; Eton College, 175; Justice Kay, Scale, 453; Richmond, G., the late, 551

Tate Gallery, the, 503

Technical: College, Darlington, 312; College, the East London, 238; College, West Hartlepool, 290; education for artisans, 453; Institute, Wandsworth, 313

Technical Schools: Bilston, 174; Brighton, 266; Handsworth, 311; Leicester, 289; Llanberis, 311; London, 233; Lowestoft, 324; Northwich, 94; Oldham, 16; Paisley, 241; Preston, 274, 244; Swansea, 404; Witney, 263

Tendering for Hull Corporation, 429

Thames foreshore, prevention of, 452

Theatres and Music Halls: Aberdeen, 549; Afterlife, Sheffield, 189; Birmingham, 428; Blackpool, 208, 525; Bradford, 353; Deftford, 540; Dublin, 406, 476, 525; Hull, 525; Kingston-on-Thames, 289; Leeds, 476; Liverpool, 137; London, 215, 246, 100, 226, 476; Manchester, 253; Morecambe, 115; Newport, 350; Nottingham, 189, 502; Perth, 380; St. Leonard's, 502; Swansea, 115; Tunbridge Wells, 525; Worthing, 113

Tivoli Restaurant, Strand, 380

Tomb, memorial, Archbishop Benson, 350

Tower: Blackpool Town Hall, 289; clock, Exeter, 247; clock, Exmouth, 265

Town Hall: Baldock, 502; Cardiff, 16, 77; Colchester, 381; Eastleigh, 372; Kilton Lindsay, 15; London, 96; Prestonpans, 155

Trade news, 475

University College prizes, 191

Viaduct buildings, Aberdeen, 355

Warehouses: Aberdeen, 174; Belfast, 58; Leith, 75

Water-closet, new form of, 454

Water supply works, &c.: Barry, 526; Bedworth, 10, 201, 312; Bilston, 156; Brighton, 503; Cardiff, 201; Cheltenham, 452; Cullen, 267; Desborough, 226; Eastbourne, 138; Evesham, 503; Folkestone, 405; Haverfordwest, 333; Holmfirth, 209; Kilmarnock, 209; Kingsteignton, 176; Kirkcaldy, 312; Kork Bucky, 76; Looe, 246; Newport, Mon., 212; Newport Pagnell, 420; Perth, 333; Roscrea, 503; St. Helens, 208; Shoburness, 76; Stromness, 246; Whitby, 320; Woodburn, 406

Well, artesian, Aberdeen, 115

Winchester College memorial buildings, 15

Window sash, Kendall's, 334, 357

Widley Surrey, 451

Wood paving, Cardiff, 551

Workhouse: Aston, 428; Birkenhead, 526; Gloucester, 151; Lichfield, 137; Pontefract, 495; Willesden, 155

York House, Twickenham, 353, 551

ARCHITECTS, ETC., OF BUILDINGS ILLUSTRATED.

Anderson, Dr. Rowand, the McEwan Hall, Edinburgh, 496

Appelbee, H. R., study for municipal buildings, 470

Archer, —, St. Philip's Church, Birmingham, 437

Ayling, R. S., baths, Bethnal Green, 522

Bateman & Bateman, house, Cannon-street, Birmingham, 441

Begas, Reinhold, Emperor William Memorial, Berlin, 223

Belcher, J.: Colchester town-hall, 186, 187; stalls, &c., Kington Church, 152

Bidlake, W. H., St. Oswald's Church, Birmingham, 446

Blomfield, Reginald, design for girls' school, Hammer-smith, 329

Blomfield, Sir A., St. Werburgh's, Derby, 51

Brewell & Baily, warehouse, Nottingham, 164

Bridgale, Miss E. F., 'Spring,' design for decorative wall painting, 345

Bromley, A. N., schools, higher-grade, Nottingham, 171; warehouses, Nottingham, 171

Brooke, J., parish church, Handforth, 263

Brydon, J. M.: council chamber, Bath municipal buildings, 30; Roman baths, Bath, 328

Cappon, T. M.: hotel extension, Edzell, 375; Meffan Institute, Forfar, 372

Carrie, W. D., St. Stephen's Church, Nottingham, 263

Carter, G. C., design for lead font, 425

Cash, J., directors' room, Messrs. Macmillan's new premises, 240

Chatwin, —, Lloyd's Bank, Birmingham, 447; St. Augustine Church, Birmingham, 446

Clark & Hutchinson, design for Memorial church, 152

Clarke, R., St. Catharine's Church, Nottingham, 171

Corder, J. S.: Gateway, Parham Hill, 233; Parham Hall, 309; Smallbridge Hall, 299; Tower, St. Mary's Church, Swilland, 300

Corlette, H. C., design for church, Exeter, 72

Crickmay & Sons, 'Holmwood,' near Wimborne, 247

Cutler, T. W.: Convalescent Home, Epping Forest, 425; Hotel Metropole, Folkestone, 91; Vicarage, High Beech, Epping Forest, 425

Dalou, M., monument to Jean Léclaire, Paris, 400

Deane, Sir T. N., & Son., design for hotel, Cork, 374

Domaine & Brierley, bank, Doncaster, 37

Douglas, Mr.: Bank of England, Birmingham, 447; Cobden Hotel, Birmingham, 447; street doorway, Birmingham, 440

Drury, A., sculpture: 'The Age of Innocence,' 308

Duncan, Mr., the Grant Mausoleum, New York, 240, 241

Edis, R. W., Dog-iron, Chiveley Park, 209; Edis, Nield, & Goodman: premises, Birmingham, 447

Everard & Pick, engine-house, Swithland reservoir, Leicester, 30

Falguère, M., sculpture: 'Le Poète,' Paris Salon, 205

Ferguson, C. J.: Clive Church, restored, 11

Figgis, T. Phillips, houses, Harrow, 209

Fletcher, B. F., sketches illustrating Prize Essay, 65, 84, 85, 86, 87, 93, 103, 104, 113, 125, 126, 137, 145, 153, 182, 183, 187

Fletcher, B. F., premises, 8, F. chapel, and schools, Old Kent-road, 37

Flockton, Gibbs, & Flockton: Flockton, T. J., and the late W. Flockton & Gibbs, and Flockton & Abbott: Sheffield buildings, 274, 284, 285

Formigé, M., monument to Léclaire, 400

Forbergall, W., bank premises, and Daily Express offices, Nottingham, 171

Frasi, H. C., house, 'Wentley Wood,' 425

Freeman, R. K., Free Library, Derby, 51

George, Ernest, & Peto, house, Harrington-gardens, 370

Gibbs, J., All Saints' Church, Derby, 50

Glenzie, F., Forbes, design for a West country church, 263

Gotch & Saunders, St. Mary's Church, Kettering, 350

Gwatkin, A., design for frieze, 497

Hadfield, C., Sheffield bldgs., 278, 284, 285

Hadfield, H. E., the late, St. Mary's Church, Sheffield, 277

Hadfield, M. E., the late, and C. Hadfield, Corn Exchange, Sheffield, 281

Hale, W., premises, Birmingham, 447

Hall, E. T., Park Hospital, Lewisham, 48

Hansom & Welch, Town Hall, Birmingham, 446

Hare, H. T., Municipal bldgs., Oxford, 274

Hezsell, —, University Coll., Nottingham, 170

Horsell, A. E.: Cappella Palatina, Palermo, 470; San Cataldo, Palermo, 523

Hovitt, —: King John's Chambers, and warehouse, Nottingham, 165

Injalbert, M., sculpture on piers, Pont Mirabeau, Paris, 240

Innocent & Brown, schools, Sheffield, 279

Jaggard, W. R., sketches of Cornish church towers, 95

Jones, M., design for school, Scarborough, 497

Jones, M., Roman remains, Chester, 153

Kitsell, T. Rogers, fountain, Bury, 209

Lanchester, Steward, & Rickards, selected design for Cardiff Municipal Buildings, 544

Legg, H. S., & Son, ball-room, Royal Palace Hotel, Kensington, 401

Lockwood & Mawson, University College, Nottingham, 170

Lofthouse & Sons, vicarage, Middlesbrough, 478

Lovell, R. J., police-bldgs., Rotherham, 41

Maclaren, Mr., the late, houses, Palace-court, W. 26

Mansell & Mansell: house front, Edmund-street, Birmingham, 439

Marrin & Chamberlain, school of Art, Birmingham, 440

Mericie, M., sculpture: Monument to Mme. Carvalho, Paris Salon, 205

Monk, W., Bayham Abbey, 9, 10

Moore, Esther M., sculpture: 'At the gates of the past,' 308

Mountford, E. W.: Badger Memorial Hospital, Shipston-on-Stour, 329; municipal buildings, Sheffield, 112, 275, 276; premiated design, Colchester Town Hall, 222, 223; St. Michael's Church, Southfields, Wandsworth, 72

Naylor & Sale: Gas offices, Derby, 51

Nicholson, C. A.: Design for church, Exeter, 400; foot, Cockington Church, 11

Osborn, F. B., Birmingham Joint Stock Bank, 438

Osborn & Reading, Edgmont Assembly Rooms, 440

Parker, R. Barry, artisans' room, 351

Parker, R. Barry, & R. Unwin, living room, 'Woodcote,' Church Streeton, 351

Paul, R. W.: Athelhampton House and Wolfeton House, 113; Bayham Abbey, plan and sketches, 10, 11, 12; interior, E. Lyng Church, Somerset, 131; Pershore Abbey, view, plan, and sketches, 261, 262, 263; sketches in Dorsetshire, 17, 112

Payley, C. J. C., design for iron gates, Westminster, 523

Pearson, J. L., St. Alban's Church, Birmingham, 441

Perry & Bulmer, Yorkshire Penny Bank and Albany Hotel, Sheffield, 235

Perks, S., house near Banstead, 241

Perrin, R., hotel, Swansea, 523

Pite, Berekford, London street fronts, 112

Pitt, W. A., house, Hindhead, 471

Plumbe, Rowland, ceremonial key, 372

Pond, W., Church of St. John the Divine, Ford, 471

Potter, Tennant, 'Mercy': design for Illumination, 497

Pyrrone, G. P., church, Eiland, 132

Pugin, A. W.: St. Chad's Cathedral, Birmingham, 439; St. Mary's Church, Derby, 50; tower, Catholic Cathedral, Nottingham, 163

Quennell, C. H. B., design for church tower, Liskeard, 11

Rabel, M., Pont Mirabeau, Paris, 240

Ravenscroft, W., house, &c., 'Maidenhatch,' Pangbourne, 401

Ridge, Lacy W., St. Leonard's Church, Turner's Hill, 375

Robson, E. R., Park College and Central Schools, Sheffield, 285

Ryley, E.: Deaf and Dumb Institution, Derby, 50; Poor Law Offices, Derby, 42

Sachs, E. O., sketch of Paris Bazaar, 344

Scorer, G. O., measured drawing, three bays, Salisbury Cloister, 52

Scott, J., Oldrid, south transept and tower, Selby Abbey, 222

Scott, Sir Gilbert, St. Andrew's Church, Derby, 51

Shaw, J. J., design for bronze gates, 328

Shaw, R., Norman, house, Queen's Gate, 465

Shute, C. M., memorial chancel, All Saints Church, Grays, 241

Silcock & Reay, Hall, Claverton, 205

Skinner, G. J. & F. W., Hotel de Paris, Cromer, 523

Smith, Brodric, & Lowther, Catholic Church, Beverley, 93

Smith, J., Osborne, plans, &c., High School for Girls, 438, 446

Spooner, C., Church of St. Michael and All Angels, Little Ilford, 305

Stephens, C. W., the Farm House, Pont-street, 110

Stevenson, J. J., houses, Mayfair, 456

Stokes, L. A. S., house, Palace Court-road, W. 203

Sugden, Larner, house, Buxton, 471

Taylor, E., Ingram, design for painted frieze, 174

Taylor, F., sketches in Worcestershire, &c., 73

Thomason, V.: Municipal Buildings, and Union Club House, Birmingham, 447

Townsend, C. Harrison, St. Martin's Church, Blackheath, 351

Verity & Hunt, Guildhall, Nottingham, 170

Vieret, M., monument to Maupassant, Paris, 450

Vigers, A. F., house, at Rowgardens Wood, 351

Waller & Son, Technical College, Derby, 51

Walters, F. A., St. Peter's Church, Epsom, 72

Warren, E. P., design for Cabot Memorial, Bristol, 309

Waterhouse, A., Prudential Assurance Offices, Nottingham, 170

Watt, J. C., design for mausoleum, 350

Webb, Aston, additions to 'Paddockhurst,' Surrey, 204

Webb, Aston, and Ingress Bell, Police Offices and Law Courts, Birmingham, 446, 447

Webb, E. Doran, Hotel, Salisbury, 401

Webb, Philip, house, Lincoln's Inn-fields, 258

Wilson, J. B., U.P. Church, Perth, 375

Young & Hall, the Infirmary, Derby, 51

ILLUSTRATIONS.

[The Illustrations will be found on, or immediately following or preceding, the pages indicated.]

- ABBEY, Bayham: Plan and Sketches: Drawn by R. W. Paul, 10, 11, 12; Views: Drawn by W. Monk, 9, 10; Abbey, Melrose: Side of Nave, 321
 Abbey, Pershore: View, Plan, and Sketches: Drawn by R. W. Paul, 267, 268, 269
 Abbey, Selby: South Transept and Tower: J. Oldrid Scott, Architect, 221
 Amiens Cathedral, Interior View, 132
 Arbroath Abbey, Details, 330
 Architectural Association in Lancashire: Sketches on Line of Route, 128, 133, 148, 153, 197
 Architecture, Ancient, of Ireland, 215, 216, 217, 233, 234, 252, 253, 254, 268, 290, 300, 322, 323, 353, 364
 Architecture, Influence of Material on (see Material)
 Architecture, London Street (see Street Architecture)
 Art Gallery, the, Mappin, Sheffield: Flockton & Gibbs, Architects, 284
 Artisan's Room, an: R. Barry Parker, Architect, 351
 Assembly Rooms, Edgworth: Osborn & Reading, Architects, 440
 Assurance Offices, Nottingham: A. Waterhouse, Architect, 170
 Athelhampton House, Dorsetshire: Drawn by R. W. Paul, 107, 111
 Auction Mart, Sheffield: Flockton & Gibbs, Architects, 274
 BALL-ROOM, Royal Palace Hotel, Kensington: H. S. Lloyd, London, Architects, 401, 402
 Bank, Doncaster: Demaine & Brierley, Architects, 73
 Bank, Joint Stock, Birmingham: F. B. Osborn, Architect, 438
 Bank, Lloyd's, Birmingham: — Chatwin, Architect, 447
 Bank, Nottingham: W. Fothergill, Architect, 171
 Bank of England, Birmingham: Mr. Doubleday, Architect, 447
 Banks, Sheffield: Perkin & Bulmer, Architects, 285; T. J. Flockton, Architect, 285
 Bath: Municipal Buildings, Council Chamber: J. M. Brydon, Architect, 30; Roman Bath, as architecturally interesting, 30
 Baths, &c., Bethnal Green: Selected Design by R. S. Ayling, 522
 Bayham Abbey: Plan and Sketches: Drawn by R. W. Paul, 10, 11, 12; Views: Drawn by W. Monk, 9, 10
 Bazaar Fire, Sketches of the Paris, 343, 344, 345, 347
 Beamish Church Tower, Lancashire, 133
 Berlin: Monument to Emperor William I.: Reinhold Hegas, Sculptor, 223
 Bethnal Green Baths, &c.: Selected Design by R. S. Ayling, 522
 Beverley, Catholic Church: Smith, Brodrick, & Lowther, Architects, 93
 Birmingham, Architecture of, 436, 437, 438, 439, 440, 441, 446, 447
 Borwick Hall, Lancaster, 128, 133
 Bridge, Autcuil, Paris: M. Rabel, Engineer, and M. Injalbert, Sculptor, 240
 Bridges, Leicester Corporation Waterworks, 30
 Bristol, Cabot Memorial: Design by E. P. Warren, 309
 British Museum, Capital, &c., of the Mausoleum, 113
 Bury Fountain: T. Rogers Kitzell, Architect, 309
 Buxton, 'Maison Rouge': Lamer Sugden, Architect, 471
 CABOT, SEBASTIAN: Memorial to, Bristol: Design by E. P. Warren, 309
 Cairns Buildings, Sheffield: C. C. Hadfield, Architect, 285
 Capital, &c., of the Mausoleum, British Museum, 113
 Capella Palatina, Palermo: Pulpit, &c.: Drawn by A. E. Henderson, 470
 Cardiff Municipal Buildings: Selected Design: Lancaster, Architects, 93
 Cardwell Hall, Lancashire, 133
 Carmel Church, Lancashire, 133
 Castle, Thurford, 133
 Cathedral, St. John's, Birmingham: Sketch of, 430
 Cathedral, St. John's, Valletta: Monuments, &c., in, 424
 Cathedrals: Aments, Coutances, Westminster, &c., 132
 Catholic Church, Beverley: Smith, Brodrick, & Lowther, Architects, 93
 Cemetery Gateway, &c., Sheffield: C. C. Hadfield, Architect, 285
 Chairs: Sketches of, at South Kensington, 220, 221
 Chancel, All Saints', Grays: C. M. Shiner, Architect, 241
 Chapel, St. Mary's Bridge, Derby, 40
 Chapel and Schools, Old Kent-road: Banister Fletcher and B. F. Fletcher, Architects, 31
 Charnister Church: Sketch by R. W. Paul, 107
 Chester, Roman Remains at, 51, 153
 Chicago: Exhibition Roof, 183; Schiller Opera House, 187
 Chiveley Park, Dog-iron for Gate: Designed by R. W. Edis, 109
 Church, Beverley: Catholic: Smith, Brodrick, & Lowther, Architects, 93
 Church, Birmingham: St. Alban's: J. L. Pearson, Architect, 446
 Church, Birmingham: St. Augustine's and St. Martin's: Chatwin, Architect, 446
 Church, Birmingham: St. Oswald's: W. H. Bidlake, Architect, 446
 Church, Birmingham, St. Philip's: — Archer, Architect, 437
 Church, Blackheath, Womers: St. Martin's: C. Harrison Townsend, Architect, 351
 Church, Charnister: Sketch by R. W. Paul, 107
 Church, Clive: C. J. Ferguson, Architect, 11
 Church, Cyprus: 'St. Nicholas of the English', Nicosia, 129
 Church, Derby, All Saints': J. Gibbs, Architect, 50
 Church, Derby, St. Andrew's: Sir G. Scott, Architect, 40
 Church, Derby, St. Augustine's: Naylor & Sale, Architects, 11
 Church, Derby, St. Mary's: A. W. Pugin, Architect, 50
 Church, Derby, St. Werburgh's: Sir A. Blomfield, Architect, 51
 Church, East Grinstead, St. Peter's: F. A. Walters, Architect, 72
 Church, Eland: G. F. Fryne, Architect, 132
 Church, Exeter, Design for: By C. A. Nicholson, 400; By H. C. Corlette, 72
 Church, Ford, St. John the Divine: C. E. Ponting, Architect, 471
 Church, Fortress, St. Martial-de-Viveyrol, 109
 Church, Handforth Parish: J. Brooke, Architect, 263
 Church, Kettering, St. Mary's: Gatch & Saunders, Architects, 350
 Church, Kington, Stalls, &c.: J. Belcher, Architect, 152
 Church, Little Ilford, SS. Michael and All Angels: C. Spooner, Architect, 308
 Church, Memorial, design for: Clark & Hutchinson, Architects, 152
 Church, Nottingham, St. Catherine's: R. Clarke, Architect, 171
 Church, Nottingham, St. Mary's, 162
 Church, Nottingham, St. Stephen's: W. D. Caroe, Architect, 263
 Church, Perth, Wilson U.P.: J. B. Wilson, Architect, 375, 376
 Church, Sheffield, St. Mary's: The late M. E. Hadfield, Architect, 277
 Church, Swilland, St. Mary's: J. S. Corder, Architect, 309
 Church, Turner's Hill: St. Leonard's: Lucy W. Ridge, Architect, 375
 Church, Wandsworth: St. Michael's, Southfields: E. W. Mountford, Architect, 72
 Church, West Country, design for a: By F. Forbes Fleming, 263
 Church Tower: Heatham, Lancashire, 133
 Church Tower, Catholic: St. Barnabas, Nottingham: A. W. Pugin, Architect, 163
 Church Tower, Liskeard: Design by C. H. B. Quenell, 11
 Church Towers, some Cornish: Sketches by W. R. Jaggard, 93
 Churches: Birmingham, 436; Carmel, 133; Derby, 30, 40; East Lyng, 131; Hornby, 133; Kirby Lonsdale, 133; Nottingham, 162; Oxford, 166, 167; Sheffield, 277; Tunstall, 133
 Cloughton Hall, Lancashire, 133
 Clouston Public Hall: Silcock & Ray, Architects, 21
 Cloister in La Chartreuse, Villeneuve-les-Avignon, 22
 Cloisters, Salisbury: Measured Drawing by G. O. Scorer, 92
 Club House, Birmingham: T. Thomson, Architect, 447
 Cockington Church, Font: C. A. Nicholson, Architect, 13
 Colchester Town Hall: Premiated Design, by E. W. Mountford, 222, 223; Selected Design, by J. Belcher, 185, 187
 College, Firth, Sheffield: E. R. Robson and Flockton & Abbott, Architects, 285
 College, Technical, Derby: Waller & Son, Architects, 51
 College, University, Nottingham: Lockwood & Mawson and Hewell Architects, 170
 College, Wesley, Sheffield: the late W. Flockton, Architect, 285
 Corfe, Sketches in, 107, 108
 Corn Exchange, Sheffield: the late M. E. Hadfield and C. Hadfield, Architects, 284
 Cornish Church Towers: Sketches by W. R. Jaggard, 93
 Council Chamber: Bath: J. M. Brydon, Architect, 30
 Sheffield, E. W. Mountford, Architect, 112
 Coutances Cathedral, View of, 132
 Criptidegate Fire, Plan of Site, 486
 Cromer, Hotel de Paris: G. J. & F. W. Skipper, Architects, 253
 Cuyper, Dr. P. J. H., Portrait of, 10
 Cyprus, Church of St. Nicholas-of-the-English, Nicosia, 129
 DEAF AND DUMB INSTITUTION, Derby: E. Kiley, Architect, 30
 Decoration, Design for Wall Painting: 'Spring': By Miss E. Porteus Brickdale, 545
 Derby, Architecture of, 39, 40, 41, 42, 43, 44, 50, 51
 Diagrams: Chandler's Safety Ladder Grip, 537; Concrete Sowers, 184, 267; 'Industrial' Lamp, 268; Kendall's Reversible Window Sash, 334; Method of Raising Great Obelisk, 371; New Fixing Brick, 157; Student's Column, 214, 135, 425, 473
 Directors' Room, Messrs. Macmillan's Premises: J. Cash, Architect, 240
 Dog-iron for Gate, Chiveley Park: Designed by R. W. Edis, 109
 Doncaster Bank: Demaine & Brierley, Architects, 73
 Doorway, a Street, Birmingham: Mr. Doubleday, Architect, 440
 Dorsetshire, Sketches with Archaeological Institute: By R. W. Paul, 107, 108, 113
 EAST ANGLIA, Sketches in: By J. S. Corder, 309
 East Grinstead, St. Peter's Church: F. A. Walters, Architect, 72
 East Lyng Church, Interior, 131
 Ecclesiastical Architecture of Scotland, 320, 321
 Edinburgh, McEwan Hall: Dr. Rowand Anderson, Architect, 496
 Eland, New Church: G. F. Fryne, Architect, 132
 Emperor William, Monument to, Berlin: Reinhold Hegas, Sculptor, 223
 Engine House, Swilland Reservoir, Leicester: Everard & Pick, Architects, 30
 Epping Forest: Convalescent Home, and Vicarage: T. W. Cutler, Architect, 475
 Exeter, Design for Church: By C. A. Nicholson, 400; By H. C. Corlette, 72
 FIRTH COLLEGE, &c., Sheffield: E. R. Robson and Flockton & Abbott, Architects, 285
 Folkestone, Hotel Metropole: T. W. Cutler, Architect, 92
 Font, Cockington Church: C. A. Nicholson, Architect, 11
 Font, Lead, Design for: By G. C. Carter, 425
 Ford, Church of St. John the Divine: C. E. Ponting, Architect, 471
 Forfar, Meffan Institute: T. Martin Cappon, Architect, 375, 376
 Forth Bridge, 187
 Fortress Church, St. Martial-de-Viveyrol, 109
 Fountain, Bury: T. Rogers Kitzell, Architect, 309
 Friars, Design for: By A. Gwatkin, 497
 Frieze, Design for Painted: By E. Ingram Taylor, 374
 Furniture: Sketches from South Kensington, 220, 221
 GAS OFFICES, Derby: Naylor & Sale, Architects, 51
 Gate and Well, Ancient, Villeneuve-les-Avignon, 31
 Gates: Design for Bronze: By J. J. Shaw, 328
 Gates: Design for Wrought Iron, Buckingham Gate: By C. J. C. Pawley, 523
 Gates, Old Silk Mill, Derby, 44
 Gateway: Lancaster Castle, 148; Parham Hall, 133
 Grammar School, Derby, 43
 Grant Mausoleum, New York: Mr. Duncan, Architect, 240, 241
 Grays, Memorial Chancel, All Saints': C. M. Shiner, Architect, 241
 Guildhall, Nottingham: Verity & Hunt, Architects, 170
 HALL: Borwick, 128, 133; Cark, 133; Cloughton, 133; Levens, 131; Lavesey, 397; Samsbury, 133
 Hall, Parham: Drawn by J. S. Corder, 309
 Hall, Public, Claverton: Silcock & Ray, Architects, 205
 Hall, Smallbridge: Drawn by J. S. Corder, 309
 Hammermith: Design for Girls' School: By Reginald Blomfield, 329
 Handforth Parish Church: J. Brooke, Architect, 263
 Harrow, Houses: T. Phillips Flegg, Architect, 349
 Hindhead, House: W. A. P. Figg, Architect, 471
 Highton Towers, Lancashire, 148
 Home, Convalescent, Epping Forest: T. W. Cutler, Architect, 475
 Hotel, Nurses', Sheffield: C. Hadfield, Architect, 278
 Hornby Church, Lancashire, 133
 Hospital, Badger Memorial, Shipton-on-Stour: E. W. Mountford, Architect, 329
 Hospital, Collin's, Park-street, Nottingham, 164
 Hospital, Park, Lewisham: E. T. Hall, Architect, 48
 Hotel, Birmingham: Mr. Doubleday, Architect, 447
 Hotel, Cork, Design for: By Sir T. N. Deane & Son, 374
 Hotel de Paris, Cromer: G. J. & F. W. Skipper, Architects, 253
 Hotel Metropole, Folkestone: T. W. Cutler, Architect, 92
 Hotel, Pamure, Amers, Edzell: T. Martin Cappon, Architect, 375
 Hotel, Salisbury: E. Doran Webb, Architect, 401
 Hotel, Sheffield: Perkin & Bulmer, Architects, 285
 Hotel, Swansea: Perry & Reed, Architects, 223
 Hotel, the Royal Palace, Extension: H. W. Legg & Son, Architects, 401, 402
 House, Athelhampton: Drawn by R. W. Paul, 107, 113
 House, Banstead, near: S. Perks, Architect, 241
 House, Birmingham: Bateman & Bateman, Architects, 441
 House, Buxton: Lamer Sugden, Architect, 471
 House, Derby: Wardwick, 44
 House Front, Edmund-street, Birmingham: Mansell & Mansell, Architects, 439
 House, Harrington-gardens: Ernest George & Peto, Architects, 370
 House, Hindhead, The Heights: W. A. Pite, Architect, 471
 House, 'Holmwood,' near Wimborne: Crickmay & Sons, Architects, 241
 House, Lincoln's Inn Fields: Philip Webb, Architect, 258
 House, Nottingham, Smithy-row, 161
 House, 'Paddockhurst,' Sussex, Additions: Aston Webb, Architect, 204
 House, Palace Court-road, W.: L. A. S. Stokes, Architects, 203
 House, &c., Pangbourne: W. Ravenscroft, Architect, 401
 House, Pont-street: C. W. Stephens, Architect, 110
 House, Queen's Gate: R. Norman Shaw, Architect, 465
 House, Rowdards Wood: A. F. Vigers, Architect, 351
 House, 'Wentley Wood,' Yorkshire: H. C. Frasi, Architect, 425
 House, Wolfeton, Dorset: Drawn by R. W. Paul, 113
 Houses, Harrow: T. Phillips Flegg, Architect, 349
 Houses, Mayfair: J. J. Stevenson, Architect, 400
 Houses, Palace Court, W.: The late Mr. MacLaren, Architect, 26
 IFLEY CHURCH, Oxon, 113
 Illumination Design: 'Mercy': By Tennant Potter, 497
 Imperial Institute, Jubilee Presents at, 351
 Infirmary, the, Derby: Young & Hall, Architects, 51
 Institute, the Meffan, Forfar: T. Martin Cappon, Architect, 375, 376
 Insurance Buildings, Royal, Sheffield: Flockton & Gibbs, Architects, 285
 Ireland, Ancient Architecture of, 215, 216, 217, 233, 234, 252, 253, 254, 268, 290, 300, 322, 323, 353, 364
 Ironwork, Paris Exhibition, 1889: Sketches, 182, 183, 187
 JUBILEE PRESENTS at the Imperial Institute, 351
 KENDALL'S Reversible Window Sash, 334
 Kettering, St. Mary's Church: Gatch & Saunders, Architects, 350
 Key, Ceremonial: Designed by Rowland Plumbe, 374
 Kington Church, Stalls, &c.: J. Belcher, Architect, 152
 LANCASTER CASTLE, Gateway, 148
 Lancaster Church, Carved Stall Canopies, 153
 Law Courts, &c., Birmingham: Aston Webb and Ingress Bell, Architects, 446, 447
 'Le Ponce,' Sculpture: By M. Fauguère, 205
 Leicester Corporation Waterworks: Engine House, &c.: Swilland: Everard & Pick, Architects, 30
 Levens Hall, Lancashire, 133
 Lewisham Hospital: E. T. Hall, Architect, 48
 Library, Free, Derby: R. K. Freeman, Architect, 51
 Liskeard Church Tower, Sketch of: By W. R. Jaggard, 93
 Lead, Design for New Church Tower: By C. H. B. Gossnell, 11
 Little Ilford, SS. Michael and All Angels: C. Spooner, Architect, 308
 Livesey Hall, 397
 London Street Architecture (see Street Architecture)
 London Street Fronts, Three: Beresford Pite, Architect, 112
 McEwan Hall, Edinburgh: Dr. Rowand Anderson, Architect, 496

ILLUSTRATIONS (continued).—

- Macmillan's, Messrs., Premises: Directors' Room: J. Cash, Architect, 240
- Malta, Renaissance Architecture in, 424
- Mappin Art Gallery, Sheffield: Flockton & Gibbs, Architects, 284
- Marshalsea Prison, Portions of, 390
- Material, Influence of, on Architecture, 65, 84, 85, 86, 87, 93, 103, 104, 113, 125, 126, 132, 145, 153, 182, 183, 187
- Maupassant Monument, Paris: M. Verlet, Sculptor, 400
- Mausoleum, Capital, &c., of the, British Museum, 113
- Mausoleum, Design for a: By J. C. Watt, 350
- Mausoleum, the Grant, New York: Mr. Duncan, Architect, 240, 241
- 'Mercy' Illumination Design: By Tennant Potter, 407
- Middlesbrough Vicarage: R. Lofthouse & Sons, Architects, 31
- Monument, Jean Léclaire, Paris: M. Dalou, Sculptor, 400
- Monument, Maupassant, Paris: M. Verlet, Sculptor, 400
- Monument, Sculpture, Paris Salon: By M. Mercié, 305
- Monument to Emperor William, Berlin: Reinhold Begas, Sculptor, 223
- Monuments to Grand Masters, St. John's Cathedral, Valletta, 424
- Municipal Buildings, Bath: Council Chamber: J. M. Brydon, Architect, 30
- Municipal Buildings, Birmingham: V. Thomason, Architect, 441
- Municipal Buildings, Cardiff: Selected Design: Lanchester, Steward & Rickards, Architects, 544, 545
- Municipal Buildings, Oxford: H. T. Hare, Architect, 204
- Municipal Buildings, Sheffield: E. W. Mountford, Architect, 119, 275, 276
- Municipal Buildings, Study for: By H. R. Appelbee, 470
- NEW YORK, the Grant Mausoleum: Mr. Duncan, Architect, 240, 241
- Nottingham, Architecture of, 162, 163, 164, 165, 170, 171
- Nottingham, St. Stephen's Church: W. D. Caröe, Architect, 263
- Nurses' Home, Sheffield: C. Hadfield, Architect, 278
- OFFICES, Bank and Newspaper, Nottingham: W. Fothergill, Architect, 171
- Offices, Daily Express, Nottingham: W. Fothergill, Architect, 171; Sheffield Independent: Flockton & Gibbs, Architects, 284
- Oratories, Ancient, Ireland, 298, 300
- Oxford, Church of St. Mary the Virgin, 196, 197
- Oxford Municipal Buildings: H. T. Hare, Architect, 204
- PADDOCKHURST, Sussex: Additions: Aston Webb, Architect, 204
- Padstow Church Tower: Sketch of: By W. R. Jaggard, 93
- Palermo: Cappella Palatina: Pulpit, &c.: Drawn by A. E. Henderson, 470; San Cataldo: Drawn by A. L. Henderson, 522
- Pangbourne, House, &c., 'Maidenhatch': W. Ravenscroft, Architect, 402
- Parham Hall: Sketches of: By J. S. Corder, 133, 309
- Paris Bazaar Fire, Sketches: 343, 346, 347
- Paris Exhibition, 1889, use of iron work at, 152, 183, 187
- Paris: Monument: to Jean Léclaire: M. Dalou, Sculptor, 400; to Maupassant: M. Verlet, Sculptor, 400
- Paris: Pont Mirabeau: M. Rabel, Engineer, and M. Injalbert, Sculptor, 240
- Paris Salon: Sculpture at the (see Sculpture)
- Park Hospital, Lewisham: E. T. Hall, Architect, 48
- Pershore Abbey: View, Plan, and Sketches: Drawn by R. W. Paul, 261, 262, 263
- Perth, U. P. Church: J. B. Wilson, Architect, 375, 376
- Plan: Bayham Abbey, to: Cripplegate Fire, 486; Pershore Abbey, 262
- Police Buildings, Rotherham: R. J. Lovell, Architect, 73
- Police Offices, &c., Birmingham: Aston Webb & Ingress Bell, Architects, 446
- Pont Mirabeau, Paris: M. Rabel, Engineer, and M. Injalbert, Sculptor, 240
- Poor Law Offices, Derby: E. Ryley, Architect, 42
- Premises, Business, Birmingham: W. Hale, Architect, 447
- Essex, Nicol, & Goodman, Architects, 447
- Premises, Business, Sheffield: Flockton & Abbott, Architects, 285; Flockton, Gibbs, & Flockton, Architects, 285; Flockton & Gibbs, Architects, 285; C. Hadfield, Architect, 284
- Premises, Messrs. Macmillan's: Directors' room: J. Cash, Architect, 240
- Presents, Jubilee, at the Imperial Institute, 351
- Prudential Assurance Offices, Nottingham: A. Waterhouse, Architect, 190
- Pulpit, &c., Cappella Palatina, Palermo: Drawn by A. E. Henderson, 470
- ROMAN BATH, Bath: As architecturally treated by J. M. Brydon, 398
- Roman Remains, Chester, 51, 153
- Room, Artisan's: R. Barry Parker, Architect, 351
- Room, Living, 'Woodcote', Church Streeton: R. Barry Parker and R. Unwin, Architects, 351
- Rotherham, Police Buildings: R. J. Lovell, Architect, 73
- Rouen Cathedral, View of, 132
- Royal Academy: Design for Decorative Wall Painting: By Miss E. Fortescue Brickdale, 545
- Royal Academy Sculpture: 'At the Gates of the Past': By Esther M. Moore, 308; 'The Age of Innocence': By A. Drury, 308
- ST. MICHAEL'S, St. Albans, Details, 388, 389
- Salisbury Cathedral, Interior View, 121
- Salisbury Cloisters, Three Bays: Measured Drawing by G. O. Scorer, 92
- Salisbury County Hotel: E. Doran Webb, Architect, 401
- Samsbury Hall, Lancashire, 123
- San Cataldo, Palermo: Drawn by A. E. Henderson, 522
- Schiller Opera House, Chicago, 187
- School, Central, Sheffield: E. R. Robson and Flockton & Abbott, Architects, 285
- School, Grammar, Derby, 43
- School, High, Scarborough: Design by A. S. Jones, 497
- School, Nottingham: A. N. Bromley, Architect, 171
- School of Art, Birmingham: Martin & Chamberlain, Architects, 440
- Schools, Girls', Hammersmith: Design by Reginald Blomfield, 309
- Schools, High, for Girls: Plans, &c., Illustrating Paper by J. Osborne Smith, 488, 489
- Schools, Sheffield: Innocent & Brown, Architects, 279
- Scotland, Ecclesiastical Architecture of, 320, 321
- Screen, Silver, St. John's Cathedral, Valletta, 424
- Sculpture: 'At the Gates of the Past': By Esther M. Moore, 308; 'The Age of Innocence': By A. Drury, 308
- Sculpture at the Paris Salon: 'Le Poète': By M. Falguère, 305; Monument to Mme. Carvalho: By M. Mercié, 305
- Sculptures on Piers, Pont Mirabeau, Paris: M. Injalbert, Sculptor, 240
- Selby Abbey: South Transept and Tower: J. Oldrid Scott, Architect, 222
- Sheffield Architecture, 274, 275, 276, 277, 278, 279, 284, 285
- Sheffield Town Hall: E. W. Mountford, Architect, 222, 275, 276
- Sturston-on-Stour, Badger Memorial Hospital: E. W. Mountford, Architect, 329
- Skellig Michael, 215, 216, 233
- Sketch: Black Bear and Bridge, Tewkesbury, 416
- Sketches in East Anglia: By J. S. Corder, 309
- Sketches in Worcestershire, &c.: By F. Taylor, 73
- Smallbridge Hall: Drawn by J. S. Corder, 309
- Soane Museum, Lincoln's Inn Fields, 533, 534, 535
- South Kensington: School of Art Wood Carving, 395; Sketches of Furniture from, 226, 227
- 'Spring', Design for Wall Decoration: By Miss E. Fortescue Brickdale, 545
- Stall Canopies, Lancaster Church, 153
- Stalls, &c., Kington Church: J. Belcher, Architect, 152
- Street, A, in Nottingham, 171
- Street Architecture, Sketches of London: 'Farm House', the, Pont-street: C. W. Stephens, Architect, 110; House, Harrington-gardens: Ernest George & Peto, Architects, 370; House, Lincoln's Inn Fields: Philip Webb, Architect, 258; House, Palace Court-road, W.: L. A. S. Stokes, Architect, 203; House, Queen's Gate: R. Norman Shaw, Architect, 465; Houses, Palace Court, W.: the late Mr. McLaren, Architect, 26
- Street Fronts, three: Beresford Pite, Architect, 112
- Swansea, Hotel: Perry & Reed, Architects, 523
- Swiland Church Tower: J. S. Corder, Architect, 309
- TECHNICAL COLLEGE, Derby: Waller & Son, Architects, 51
- Tewkesbury, Black Bear and Bridge, 416
- Thurland Castle, Lancashire, 133
- Tower, Church, Liskeard, Design for: By C. H. B. Quennell, 11
- Towers, Sketches of Cornish: By W. R. Jaggard, 93
- Town Hall, Birmingham: Hansom & Welch, Architects, 446
- Town Hall, Colchester: Premiated Design, by E. W. Mountford, 222, 223; Selected Design, by J. Belcher, 186, 187
- Town Hall, Derby, 50
- Tunstall Church, Lancashire, 113
- Turner's Hill, St. Leonard's Church: Lacy W. Ridge, Architect, 375
- Turner's House, Twickenham, 219
- UNIVERSITY COLLEGE, Nottingham: Lockwood, Mawson & Heazell, Architects, 170
- VALETTEA, St. John's Cathedral, Details of, 424
- Vestibule, Sheffield Town Hall: E. W. Mountford, Architect, 112
- Vicarage, High Beech: T. W. Cutler, Architect, 425
- Vicarage, Middlesbrough: R. Lofthouse & Sons, Architects, 31
- Victoria Buildings, Sheffield: the late W. Flockton, Architect, 285
- Villeneuve-les-Avignon: Cloister in La Chartreuse, 22; Ancient Gate and Well, 31
- WALL-PAINTING, Design for: 'Spring': By Miss E. Fortescue Brickdale, 545
- Wandsworth, St. Michael's Church, Southfields: E. W. Mountford, Architect, 72
- Wareham, Sketches in, 107, 108
- Warehouses, Nottingham: A. N. Bromley, Architect, 171; Brewill & Baily, Architects, 164; — Howitt, Architect, 165
- Waterworks, Leicester: Engine House: Everard & Pick, Architects, 30
- Wesley College, Sheffield: the late W. Flockton, Architect, 285
- West Country Church: Design by F. Forbes Glennie, 263
- Westminster Abbey, View of, 132
- Wolfeaton House, Dorset: Drawn by R. W. Paul, 113
- Womersley, St. Martin's Church: C. Harrison Townsend, Architect, 351
- Wood Carving: Sketches of, School of Art, South Kensington, 395
- Worcestershire, Sketches in: By F. Taylor, 73
- YORKSHIRE Penny Bank, &c., Sheffield: Perkin & Bulmer, Architects, 285



ILLUSTRATIONS.

The Abbeys of Great Britain, XXII.—Bayham.—Drawn by Mr. W. Monk..... Double-Page Tone Block.
 Plan of Bayham Abbey.—Drawn by Mr. R. W. Paul..... Double-Page Photo-Litho.
 Clive Church, Shropshire, as Restored.—Mr. C. J. Ferguson, F.S.A., Architect..... Two Single-Page Ink-Photos.
 Design for Font, Cockington Church, Devon.—Mr. C. A. Nicholson, Architect..... Single-Page Ink-Photo.
 Competition Design for New Church Tower, Liskeard, Cornwall.—By Mr. C. H. B. Quennell..... Single-Page Ink-Photo.

Blocks in Text.

Bayham Abbey: View from crossing into North-east Transept..... Page 9
 Bayham Abbey: Corbel and Wall on South Side of Choir, showing Scheme of Decoration..... " 12
 Bayham Abbey: The Chapter House..... " 12
 Bayham Abbey: The South Wall of the Nave from the Cloister..... Page 11
 Bayham Abbey: The Gate-house..... " 12
 Bayham Abbey: Plan of Gate-house..... " 12

CONTENTS.

A French Exposition of Ruskin.....	1	Font for Cockington Church.....	12	Stained Glass and Decoration.....	16
American Building Stones.....	2	Design for Church Tower, Liskeard.....	13	Foreign.....	16
Notes.....	3	National Association of Master Plumbers.....	13	Miscellaneous.....	16
The Royal Institute of British Architects.....	5	The London County Council.....	13	Capital and Labour.....	17
Congress of French Architects.....	6	Applications under the 1894 London Building Act.....	14	Legal.....	17
Association of Municipal and County Engineers.....	7	Ecclesiastical Sculpture.....	15	Meenagh.....	17
Architectural Societies.....	8	Obituary.....	15	Recent Patents.....	17
Bayham Abbey.....	9	General Building News.....	15	Some Recent Sales of Property.....	18
Clive Church, Shropshire.....	12	Sanitary and Engineering News.....	16	Tenders.....	2

A French Exposition of Ruskin.



WE all know, our friends across the Channel are rather slow to follow the productions of English art or the movements of English taste. If they give us any attention, they are apt to catch us up a generation behind. They have only just discovered, for instance, the existence of a painter called Turner, and do not know much about him yet. And it is not surprising to find, therefore, that after the popular enthusiasm about Ruskin has rather died away in this country, and a good many of his worshippers have begun even to doubt whether their idol is worth all they imagined, the French are just beginning to find out his existence, and to start afresh the cult which is somewhat languishing in England.

The book* which forms the latest and most noteworthy instance of this movement in France is the work of no ordinary writer. M. de la Sizeranne is one of the ablest and most thoughtful of modern French art critics, and moreover he is one who does know something of English art, of which he has treated very well and with much sympathy and insight in a recent important work—"La Peinture Anglaise Contemporaine," a book containing a great deal of well-considered criticism on the works and genius

of the leading English painters, and which may really be said to have thrown some new lights on modern English art, both in regard to its merits and its shortcomings. Therefore we turned with some interest to what he had to say about Ruskin.

In the critical sense, unfortunately, the book is disappointing. The calm and considerate analysis which characterised "La Peinture Anglaise" is wanting; there is little attempt at criticism; in fact, as far as we can gather, the author is too full of sympathy with and admiration for Ruskin to be willing to enter on his works in a critical spirit at all; the book is rather a statement of what Ruskin's teaching, in his eyes, means and amounts to, and is perhaps intended mainly as a kind of exposition, as we have called it, of the phenomenon called Ruskin for French readers, an outline intended to attract them to a study of his works. It is written with a good deal of enthusiasm, and though from our point of view it is a good deal behind the times, and represents a phase of thinking which a good many of us have been through and come out of again, it is of some interest to meet again our old enthusiasms in a French dress.

M. de la Sizeranne has, in a minor degree, what may be said to be one of Ruskin's chief merits; he is a very picturesque writer, and makes one interested in his subject. In his introduction he tells us in a piquant manner how he himself came to be interested in it. Studying the frescoes of Memmi and Gaddi in Santa Maria Novella, his attention was aroused by the sound of something like reading, and he became aware of certain "silhouettes des jeunes femmes au

profil giottesque" collected round one who held the book called "Mornings in Florence," and after reading the Latin inscription on one of the paintings proceeded to read an English comment or paraphrase of it (which the author quotes—and a very fantastic one it is), and hearing this æsthetic service going on for some time over one and another picture, he was interested to know the name of the book, and was told "Ruskin." He next came across this name at a "congrès d'économistes" in London, where complaints were made as to the decline in the durability of certain machine-woven goods, and the hostess vaunted the superior ware of her goods of "Langdale linen," while her husband avowed that his coat was "du drap de Saint-George's Guild." Having learned that these good people and their friends would use only hand-woven stuffs made at considerable expenditure of time and labour, and finding that the person "qui entreprenait de faire ainsi rebrousser chemin à son siècle" was also Ruskin, he came to the conclusion that the man who could effect this must be a power to be studied, and he appears to have entered on the study systematically, not merely by reading the English writer's books, but by going over his tracks, so to speak, and comparing his commentaries with the objects which gave rise to them. The book was not written till after some years of such study; it has therefore been conscientiously done, and is not a hurried testimony.

All this should give it value, and yet one cannot help thinking that the French critic has allowed himself to be deceived at the outset as to the importance of Ruskin and his effect on the English mind. As to the

* "Ruskin et la Religion de la Beauté." Par Robert de la Sizeranne. Paris: Hachette et Cie. 1897.

episode of Santa Maria Novella, it might have occurred to him to consider, first, whether the book which the English girl was reading to her friends conveys after all any real information at all about Florence, except as to the author's fancies in regard to it, and secondly, whether the fact of a set of people being willing to go round various works of ancient art with the written opinions of some one else in their hands, and take his opinions for their own, says much for the intellectual power and independence of thought of the sight-seers. And as to the economical question, M. de la Sizeranne is deceived in thinking that Ruskin's plea for employing only handwork in the manufacture of articles of daily wear has affected any but a small section, a coterie, of English society. How could it do any more than this? The requisite supply could not be furnished; and the people who follow Ruskin's lead in this respect are in the absurd position of adopting, to please their own fancy, a system which, if its general application for the requirements of the whole nation were attempted, would break down in a week.

In the introduction to his second chapter, "Ses Paroles," the French critic has hit, though he hardly seems aware of it, on the real secret of Ruskin's power—

"A philosopher who makes himself read by the masses, in the nineteenth century, is not a common spectacle. But when this philosopher is an 'esthéticien,' and when works of art form the subject of the pretext of his writings, the phenomenon becomes astonishing. For of all kinds of literary criticism that of art is, by a singular fortune, that which authors love most to enter on, but of which their readers are most shy, for by long experience they are assured that they will generally find only superficial and pedantic verbiage. And if, to explain the popularity of the Ruskinian literature and its charm even for women and children" (that "even" is rather unkind), "one adds that in fact it treats not always of questions of art, but at times also of the problems of political economy, the phenomenon becomes a miracle, and the explanation more strange than the fact itself."

The author goes on to say that we shall find a better explanation in the study of "ses paroles," which we may take in other words to mean his style, or perhaps rather his way of expressing things. There we are entirely with M. de la Sizeranne. What we have always maintained as the real secret of Ruskin's power and popularity is that he is the first art critic, in this country at least, who has possessed real literary genius, who has been able to write in a manner so striking and original in itself that people must read it and enjoy it, for its own sake, whether they care for the subject or agree with the writer or not. This is the great glory and at the same time the great danger, in one sense, of his writings. They carry away the unwary and ill-informed reader with a sense of having got new ideas on a subject, when in reality he has only got new expressions. Speaking of the Venice book, the French author observes, "Il nous semble, à feuilleter ses livres, que nous tournions les pages des manuscrits de Léonard de Vinci, pages touffues, riches et hachées d'éclairs, où un notation de balistique suit un document myologique, où les croquis chevauchent sur les calculs, où les caricatures s'insinuent parmi les essais sur l'aviation, et la mécanique parmi les paysages." That is a capital description, and perfectly true, (though nearly untranslatable in English); but then, if we come to the central or

ostensible object of the book, the architecture of Venice, "The Stones of Venice" is one of the most misleading books that ever was written; it gives a perfectly false and strained view of the subject; if one may use an Irishism, it may be said that there is no information in it about Venetian architecture, and what there is is not correct. As to the frequent contradictions of opinion and principle in Ruskin's writings, M. de la Sizeranne says the best thing that can be or has been said for them, viz.: that as some ancient sage observed that "we never go twice down the same stream," so it may be said that "we never read twice the same Ruskin." He is like a river or, says the author (turning the metaphor the other way) like a flame, which takes all kinds of fantastic shapes, but it is still the same flame; "il ne se ressemble jamais; il se renouvelle sans cesse; et il est le même toujours," only "he has different thoughts on the same subject at different times." But when those "different thoughts" amount to a statement of an absolutely different artistic principle in art, the matter becomes rather more serious than M. de la Sizeranne seems to recognise. If Ruskin's works are to be read for the enjoyment of the continual changing and flashing light of literary genius and brilliant sayings, well and good; we are not sure that it is the highest or most wholesome of intellectual pleasures (wholesome morally Ruskin always is); but if people are to take him as an art teacher, what is one to say to a teacher who in one page tells us to go humbly to nature, "selecting nothing, rejecting nothing, and scorning nothing," and on another page expends his eloquence on the genius evinced by Turner in totally altering a natural scene to make it suit his pictorial requirements? But into this kind of critical question M. de la Sizeranne does not enter. Speaking of Turner, we may add that we are inclined to think that he quite overrates Ruskin's influence in establishing Turner's position in England, and in leading to the purchase of his pictures and the formation of the Turner Room at the National Gallery. Other people understood Turner as early as Ruskin did, and in fact it is probable that Turner did more for Ruskin's fame than he for Turner's, and that Ruskin got up, as it were, behind Turner's carriage for a drive into popular fame; and there is some reason to think that Turner himself was of this opinion, and did not altogether enjoy Ruskin's too demonstrative partisanship.

However, we may congratulate the French critic on having, though rather late in the day, produced a monograph on Mr. Ruskin's genius which is in itself full of eloquence, of picturesque language, and of an enthusiasm for which the countrymen of a remarkable English writer may very well thank him, even if they do not altogether follow him. We should not be surprised, indeed, if M. de la Sizeranne's book were to be translated into English as an example of foreign homage to Ruskin, though it would be almost impossible to preserve its special quality of style in a translation.

It is worth notice that, so far as we have observed, M. de la Sizeranne does not make the slightest reference to Ruskin's own water-colour drawings, which, though comparatively few, are perhaps more solid titles to fame than his comments on the works of other artists.

AMERICAN BUILDING STONES



TEXT-BOOKS on building stones are few in number and chiefly of German and Austrian origin; the volume by Mr. G. P. Merrill* before us is the most exhaustive account of building and decorative stones in the English language, and though it deals chiefly with materials raised in the United States, short descriptions of foreign stones are given, and those from England come in for a goodly share of recognition.

The first stone quarries opened in the United States are believed to have been in Massachusetts—the clay-slates of the vicinity of Boston having been worked at the end of the sixteenth or beginning of the seventeenth century. Stone buildings were first erected in that city about the year 1650, from the granite boulders near at hand, and from this commencement the author traces the rise and development of the stone industry of the United States. The various materials are classified under three heads: (1) crystalline siliceous rocks, including the granites, gneisses and diabases, or trap-rocks; (2) the calcareous rocks, including limestones and dolomites, both crystalline and compact common varieties; and (3) the fragmental or clastic rocks, including sandstones and clay-slates. The author, though he is Curator of Geology in the United States National Museum, does not appear to advantage when attempting short descriptions of the broad outlines of this classification, which in some cases are absolutely incorrect. Thus, in reference to the first group mentioned above we are told that the rocks falling within it "result either as erupted molten matter from the earth's interior, or the metamorphism of siliceous sediments." It would have been far better to have described them simply as "igneous" and "altered igneous" rocks, without attempting a shallow definition. Again, limestones and dolomites, we are told, originate "mainly as deposits of calcareous mud from the breaking up of shells, corals, and the remains of other marine animals on an old sea bottom"—surely Mr. Merrill would not have us believe that dolomites originated from such materials!

Passing to the section devoted to the minerals of building stones we notice much looseness of expression, calculated to mislead. Thus, after explaining the arrangement adopted in classifying rock-forming minerals, the meaning of the term "essential mineral" is given, and, as an example, it is stated that "quartz is an essential constituent of granite; without the quartz the rock becomes a syenite." Now, the three essential minerals of granite are quartz, orthoclase feldspar, and mica, and by the definition thus given in the book we are led to believe that syenite is, mineralogically, composed of orthoclase feldspar and mica; but that is not the case, though on p. 275 the author is careful to state that "Under the name of syenites are here included those rocks consisting essentially of orthoclase, with or without one or more of the accessory minerals, mica, hornblende, or augite." A true syenite is a holo-crystalline rock, composed essentially of orthoclase feldspar and hornblende; it is mere jugglery to play with the term in the manner above indicated. Of course considerable shelter is afforded by

* "Stones for Building and Decoration," by George P. Merrill. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 2nd Edition, 1897.

stating what is "here included," as syenite, but if the author desires to be original in that respect he should adopt a new term, and not twist and contort an old one. And there is much more of the same kind of treatment of technical terms in the book, but we do not desire to pursue the subject further. The author unquestionably knows better; in endeavouring to render the science popular he has not been successful in his generalisations.

Let us turn to the section devoted to the physical and chemical properties of building stone. In ascertaining the weight of a cubic foot of stone from the specific gravity of a small sample we are directed to multiply the specific gravity figures by 62.5, calling the result lbs. Would it not be more correct to multiply by 62.42? The use of the microscope in regard to stones employed for building purposes is insisted upon, though we do not find that the author has used the instrument as a means of identifying stones of closely similar character—its most practical use from the architect's point of view. It is easy enough to determine the difference between an ordinary granite and a statuary marble, or an oolite, or a sandstone, without appealing to the microscope. The types of structure given by the author are interesting, and his generalisations in regard to the connexion between the minute structure and the weathering of a stone are admirable, so far as they go. The user of stone, however, will feel inclined to pass over that section as interesting only to the geologist. The author has lost a good opportunity of bringing the real practical uses of the microscope before American architects.

Running rapidly through the recorded occurrences of divers building and ornamental stones in the United States, in order to give some idea of the wealth of the country in that respect, we may make the following summary:—

Serpentine.—In California inexhaustible quantities of serpentine of a deep green or yellowish colour occur in the neighbourhood of San Francisco, but none of the material, as at present in view, is of such a quality as to render it of value for ornamental work. Connecticut, Maine, and Maryland also have extensive outcrops, but that in Massachusetts appears to be the best known. The most extensive bed in that State occurs in Middlefield, and it has been traced for five or six miles. In the west part of Westfield, and extending into Russell, the rock is dark in tint and contains green talc; this has been used in a few instances, and has a rich appearance when wrought. A curious kind of "serpentine" occurs in parts of New York State: it is an altered dolomitic and pyroxenic limestone, obtainable in sound blocks of fair size. The serpentinous portions are deep green in colour, whilst the calcareous granules are faint water-blue, or whitish, affording a pleasing contrast. Pennsylvania is noted for serpentines, though very few of them are suitable for decorative work. At the same time, important quarries occur at West Chester, but the author remarks that the stone even there occurs in a badly jointed condition; though, owing to its softness and consequent facility of working, it has come into very general use for building purposes, particularly in New York, Philadelphia, Baltimore, Washington, and Chicago. In spite of its softness this stone is said to be durable, though in the majority of cases the faces of blocks exposed in a wall turn

whitish, or fade to a light green. The Roxburg stone in Vermont is described as one of the most beautiful of American serpentines, well adapted for interior decoration. The colours are deep bright green, traversed by a coarse network of white veins. Mineralogically, it is a mixture of serpentine, talc, and ferri-ferrous carbonate of magnesia.

Gypsum and Alabaster.—Gypsum occurs in several States, but in the form of alabaster it appears to be rare, so the author has recourse more particularly to foreign localities. The ornaments of satin spar sold at Niagara Falls, he says (on the authority of G. F. Kunz) mostly come from Wales. We did not know that satin spar was raised in the Principality, and we cannot find that the material is polished or made into ornaments there; perhaps that observation is on a par with the statement that an English alabaster, quarried in Devonshire, is on the New York market—the author, we presume, means Derbyshire or Staffordshire. The observations on Italian alabaster are very much out of date.

Limestones and Dolomites.—These are divided into crystalline limestone (marble), compact common limestone, lithographic limestone, bituminous limestone, hydraulic limestone, oolitic limestone, travertine, fossiliferous limestones, shell limestones, magnesian limestones, and dolomite. These subdivisions do not appear to be happy ones; for instance, shell limestones are fossiliferous, and so are the majority of oolites; many of these latter (at least in this country) have hydraulic properties, whilst common fossiliferous limestones are frequently bituminous. We are quite at a loss for the *raison d'être* of this classification.

Many States produce marble. The beds in Georgia occur in the form of thin partings of crystalline limestone intercalated in gneisses and micaceous schists. Fannin County produces a fine-grained stone, white or of tints of grey colours, frequently banded with black, and carrying accessory mica or hornblende. The marbles of Pickens County, in the same State, are coarsely crystalline in texture, often micaceous, and of white to white streaked or blotched with black, grey, and pink colours. They are said to acquire an excellent surface and polish, and seem to be best adapted for massive structures. The principal marble quarries of Maryland are situated near Cockeysville and Texas; the stone is, in reality, a dolomite of medium texture, and white; it is used extensively in Baltimore, Washington, and Philadelphia for general building purposes. The beds lie horizontally, and blocks 28 ft. by 10 ft. by 3 ft. have been quarried as monoliths. The belts of Archæan dolomite which lie to the north of New York City furnish fair qualities of white and grey marbles that have been extensively utilised. Pennsylvania marble was raised prior to 1840 in Montgomery County, and up to that date was the favourite, and almost the only material used in the better class stone buildings in and about Philadelphia. It has now almost ceased to be quarried for ornamental purposes by reason of the competition of the handsomer marbles of the Eastern States. Tennessee marbles have recently been introduced in great quantity into the market. In colour they are variable, the common variety being a highly fossiliferous dark chocolate coloured stone, variegated with white. A bright tinted stone immediately underlies the fossiliferous variety in the quarries, and this

is said to be in great demand. The leading marble-producing State, however, is Vermont, where white marbles not unlike the well-known statuary of Carrara are raised in enormous quantity. The quality of the majority of these American white crystalline limestones is inferior to the better grades of the Italian. Onyx marbles claim a considerable share of attention in Mr. Merrill's work; exceedingly beautiful stones come from Arizona.

It is unnecessary to allude in detail to the numerous common limestones and sandstones of the United States; they are found and quarried very extensively for building purposes in almost every State.

Granites and Gneisses.—These well-known stones occur in many parts of the United States, but the most important granite-quarrying centre is at Quincy, in Massachusetts. The Quincy granites are, as a rule, dark bluish-grey in colour, coarse-grained and hard; but a pinkish variety occurs to a limited extent. They are all hornblende pyroxene granites. Cape Ann, Rockport, and Brockton are amongst the numerous localities producing good and serviceable granite.

Slates.—Good slates are found in Maine, Pennsylvania, Vermont, and New York, and some of them have recently found their way to the British market. The best-known American slate, perhaps, is the "Peach Bottom," blue-black in tint, and occurring in great belts in Pennsylvania. It is said to be very strong and durable, and smooth in texture, taking a fine cleavage. It is less fissile, however, than the majority of the slates from the other States mentioned.

The machinery used in the different kinds of quarries is briefly glanced at by the author; and there is an excellent chapter on the weathering and qualities of stone. In some appendices are particulars concerning crushing strength, chemical composition, &c.

In spite of certain shortcomings, this work is the best text-book on Stone.

NOTES.

The Plumbers' Registration Bill.

NOTWITHSTANDING the opposition, and very well-grounded opposition, to this Bill in the debate on Wednesday, the amendment to the effect that it should be considered "this day three months" was negatived by a large majority; 200 to 77. The Bill appears to include just the same absurdity as the Architects' Registration Bill (of which we fortunately hear no more now), viz.: that it is to register all existing plumbers, as a preliminary to keeping the ranks of plumbers more select for the future. As Mr. John Burns said, the Bill was "a ring fence and a protectionist enclosure round the small master plumber," and would interfere with the educational authority of the many institutions that had sprung into existence in connexion with technical education. However, the House of Commons seems to have accepted the conditions under the impression that the Bill was one to improve plumbing, in regard to which we doubt if it will have any effect; and it is to be hoped, at all events, that every effort will be made in Committee to minimise its defects.

The County Council and the London County Council Jubilee.

AT their meeting on Tuesday the London County Council was properly congratulated by their Chairman on the efficiency of the work

done in connexion with the Jubilee show by the architect, his officials, and the District Surveyors. We doubt if sufficient credit has been given by the public to these officers. The smallest oversight in regard to the temporary galleries and other structures might have given rise to bad accidents. As it was, nothing of the kind occurred. When we bear in mind the natural temptation to inefficient work under the great temporary pressure, it speaks volumes for the efficiency of the District Surveyors that every structure stood the strain upon it. It was also frequently said that the contractors charged exorbitant sums; but the public got good value for their money, and if the contractors' charges were high, their work was, at any rate, sound. We have often adversely criticised the London County Council; therefore on this occasion we desire to call attention to the thorough and efficient manner in which their duties were performed.

ON Saturday the 10th the Académie des Beaux-Arts of France is to meet to elect a successor to the late Duc d'Aumale. The committee which has been considering and classifying the candidates has placed M. Charles Yriarte's claim in the first rank, and we hope he will be elected; he is a very remarkable and learned writer on art, of whose work France may well be proud, and there could hardly be any one better fitted to fill the place of the great connoisseur and art collector who has departed.

THE most important architectural competition in Germany during the present year has just been decided at Leipzig, where fifty-one designs were sent in for the proposed Town Hall, which has now been under consideration for many years. An influential committee of assessors was selected, among whom were Professor Wallot, of Dresden, and Professor Thiersch, of Munich. The result was that the first premium of 600*l.* was awarded to the City Architect, Herr Hugo Licht, who has been so conspicuously associated with the development of Leipzig. The second premium (of the value of 400*l.*) was awarded to Herr R. Slawski, of Carlsruhe, and H. Jennen, of Munich. There was a third premium of 250*l.*, a fourth of 150*l.*, and a fifth of 100*l.*, and five smaller amounts. The result looks rather as if it had been a foregone conclusion; and if it was desired that the City Architect should carry out the work, it is a pity that so much money was spent in premiums, and so many architects incited to waste their time in competing.

THE *Journal* of the Society of Arts draws attention to the fact that in Belgium, since May 1, the time for railways, posts, and telegraphs has, by official order, been reckoned from 0 to 24, noon being represented by 12, and midnight by 0 or 24 according to circumstances; i.e., a train arriving at midnight appears in the timetable as arriving at 24; a train starting at the same time as starting at 0. This distinction would, we presume, only apply to railway times, and marks the distinction between arrival and departure. The station clocks are completed by the addition of the figures "13, 14," &c., below or outside the

ordinary clock figures from 1 to 12. This is not so convenient or logical, of course, as a 24-hour clock figured accordingly, but the fact that existing clocks can be adapted in this way gets rid of one of the obstacles opposed by conservative people to the change—the supposed necessity of ordering new clocks for the whole railway system at once. The change was to have taken place at New Year, but was delayed till May owing to some administrative difficulties. Belgium is to be congratulated on having led the way in this reform of official time, the need for which has been long obvious. When is England going to follow? The present system of railway time-tables for long journeys, where day and night hours are mixed up in so confusing a manner, is an absurdity, and the Board of Trade ought to take up the matter, and insist on the 24-hour time for the railways of the country; as of course separate railway companies, however willing, cannot move in such a matter.

THE opening by Lord Kelvin of the electric lighting station at Shoreditch marks the beginning of an interesting experiment. The Vestry are using the heat generated in their dust destructors to heat the feed water of the boilers required for the engines of their electric station. As the dust destructors are burning night and day, and many of the engines are required only for a few hours in the evening, Mr. Halpin's system of thermal storage by means of hot water in cylinders surrounded by a non-conducting composition is adopted. The idea is a good one, but a great many popular writers attach undue importance to it. Compared with secondary battery storage, for example, there are many drawbacks to it. Electrical storage equalises the load on the dynamos and engines; thermal storage only affects the boilers; and hence the capacity of the electrical plant must equal that required for the maximum load. The prime cost and floor space required for thermal storage is, therefore, much greater than that required for electrical storage. Of course, the ideal system would be a judicious combination of the two. At present we have very few data concerning the depreciation of the plant in a system of feed-water thermal storage, and the Shoreditch experiment will be watched with interest by other Corporations. The Vestry calculate that they will save 2*s.* a ton by burning the refuse instead of having it carted away, and as they expect to burn on an average a hundred tons a day, this asset is not to be overlooked.

THE Shoreditch Vestry propose to charge 6*d.* a unit for the first two hours and 4*d.* a unit afterwards, while during the daytime the charge will be only 2*d.* a unit. These charges are very reasonable. In addition, the Vestry have entered into contracts with two syndicates, one of which supplies free fittings to consumers who are ready to pay 6*d.* a unit on the penny-in-the-slot principle; the other will do the same thing for those who will pay the Vestry 3*d.* extra for every unit consumed. The Vestry are thus collectors of the syndicate's debts. What we fail to see is how these syndicates expect to pay their way. Supposing the fixing of each lamp costs on an average 1*l.*, and that it consumes twenty units per annum

(an outside limit), then the income on this lamp will be 1*s.* 3*d.*, or 6½ per cent. on the initial outlay, which is far too small for such a precarious business. Suppose that they fit a shop with thirty lights, and that the shopkeeper, finding his electric bills excessive, prefers to use gas, how are they to get their interest? It seems to us also a wretchedly unjust system whereby the small and constant users are fined for the benefit of those who like a great illumination on special occasions. The class for whom the Vestry ought to cater are discouraged, and unprofitable users are attracted. Surely a far more equitable arrangement would be to charge so much per lamp installed, and not per unit consumed. Consumers had better have independent tests made of the quality of the work put in, and then use the light sparingly, as they will find that it will cost as much as gas at 5*s.* per 1,000 cubic feet, and not 2*s.* 10*d.* as stated by Lord Kelvin.

THE *Town and Country Journal*, Sydney, in its issue of May 15 gives an illustration of a group of sculpture selected to decorate the new City Markets at Sydney, with some account of the work. The group consists of three figures, a draped female figure with a battlemented crown, in the centre, representing the "Guardian Genius of the City," with a shield with the city crest at her feet, and a seated male figure on each side, representing respectively Industry and Commerce. The central figure looks too short, but this may be due to photographic distortion. The account of the mode of procedure is rather curious. It seems that in Australia, or at all events in Sydney, people do not give a direct commission to a sculptor for a design, but invite trading firms to tender for "an allegorical group," stating prices and sending designs, the firm (apparently) to find the sculptor; or else the sculptor is the furnisher of material and labour also. The selected group is said to be "Mr. W. P. Macintosh's design," and we presume we are to take it that he modelled the group. It is not, of course, what we should call in this country high-class sculpture, but, after all, it is the kind of work that an English municipal council would have been quite content with not so very long ago, and we must not forget that our own improvement in regard to decorative sculpture on buildings is of rather recent date. Another odd feature in the matter is that the same group is to be executed twice over, in marble, for the two opposite elevations of the building. As it is not a cast, and the labour of carving is the same in each case, it would surely have been as well to have a special design for each front, unless we are to suppose that the sculptor's invention was exhausted in the one group.

THE West Australian Jubilee Casket. THE casket which the Colony of Western Australia has presented to Her Majesty has been on view at Messrs. Gillow's show rooms. It was designed by Mr. E. N. Hamilton, of the Architectural Division of the Public Works Department, assisted by other officers in the public services of the Colony. The woodwork was executed by Messrs. Cohen & Madeley, and the goldsmiths' work by Mr. Jerger, and the whole design has been carried out at Perth, Western

The Académie des Beaux-Arts.

The New Town Hall for Leipzig.

The Twenty-Four-Hour Day.

Shoreditch Electric Lighting.

Free Wiring Syndicates.

Architectural Sculpture at Sydney.

The West Australian Jubilee Casket.

Australia. The body of the casket, of highly-polished wood, rests on large blocks of rich quartz, left in the rough, and containing about 40 ozs. of gold. Resting on these blocks are four swans, at the angles, with conventionally enriched wings. They are made of cast copper and tin alloy. The designer has sought to embrace all the characteristics of the Colony. Hence, on the face are placed pearl-shell medallions with representations of pearl-fishing, agricultural and pastoral industries. The lock, placed in the centre of the front, is framed in a gold plate, surrounded with the monogram V.R.I. The lid of the casket is of jarrah with sandal-wood edge, on the top being placed a large specimen of white quartz, from the top of which springs a golden emu. This is rather a heterogeneous collection, and no doubt the designer was hampered by the desire to make the work representative of the industries of the Colony and to use as many native materials as possible; but the result under these conditions is better than might have been expected; there has at all events been an evident intention to infuse some artistic feeling into the work, and it is the production of an individual designer and not a mere trade article, as so many of our ceremonial caskets are.

Decorations at
Covent Garden
Opera.

THERE was little opportunity during the past festivities for interior decoration on a large scale, but the one occasion afforded by the great gala performance at Covent Garden was made use of in such a manner as to almost eclipse anything else that was done during the Jubilee week in the way of temporary embellishments. The decorations of the auditorium consisted mainly of broad bands of roses, which hid the lines of the box-fronts; there were also narrow uprights of roses to mark the box-divisions. The colour scheme was dark red, pink, to white, the dark roses covering the bottom tier, and getting lighter towards the centre, so that the lightest treatment was in the centre of the highest tier. The broad plain lines were most effective, and the upright narrower strips most effectively divided up the groups of dresses and figures, which might otherwise have looked somewhat monotonous. When the lights were lowered in the auditorium proper, whilst the Royal Box remained illuminated, and showed off the bright uniforms against the yellow back-ground of tapestry, the result was most picturesque. The roses were fixed to light screens, which could be easily hung up and hidden by the foliage. A large number of the central boxes of the first tier had been knocked into one, to serve as the State Box, and several other sets of boxes were also knocked together so as to give suitable accommodation for distinct groups of notable visitors, such as the Colonial Premiers. It is a pity that (as usual in such cases) the operatic performance went for nothing in an artistic sense, being merely a *pastiche* of extracts from different works.

That the exhibition of about a dozen large water-colour drawings by Señor José Tapiró, at Messrs. Maclean's Gallery, did not seem to attract much attention on the private view day last Saturday, may easily be explained by the fact that people had their heads full of other things than art last week. Señor

Tapiró's drawings are the kind of work which one might expect to be popular, consisting of exceedingly brilliant and realistic representations of Moorish personages in picturesque costumes, painted with great force and ability, but with no artistic sentiment or effect, in the higher sense of the word. Perhaps the best works in the collection are the life size heads, especially that of a "Negro in Wedding Costume," a combination of a black face and a light saffron robe. The pictures are in effective white frames of Moorish design, and their combined effect is very decorative, but the type of art they represent is of the same nature as that of Madrazo, which was popular for a short time some years ago, until its essentially superficial character was recognised. These are better than Madrazo, in regard to force of execution, but otherwise they are not on a higher level.

Rebuilding of
a Paris Mairie.

ONE of the oldest of the Paris Mairies or District Town Halls, that of the eighth arrondissement, in Rue d'Anjou St. Honoré, is shortly to be pulled down, with the avowed object of erecting a larger building and one more suited to modern requirements. It is a matter of discussion whether the new mairie should be built on the Square Laborde, or whether the Pépinière barracks should be utilised for the purpose. In that case one cannot very well see why the old building should be destroyed at all. It may be observed in connexion with the subject, that M. Achille Hermant, the architect, exhibited at the Salon a few years ago a design, with a rather fine façade, for a modification of the Mairie in question on its present site, and retaining most of the old building.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

PRESENTATION OF THE ROYAL GOLD MEDAL.

A MEETING of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Regent-street, Professor Aitchison, A.R.A., in the chair. Among those present were his Excellency the Baron van Goltstein, Minister from the Court of the Netherlands; Mynheer Joseph Cuypers, the son of the presentee; Herr Muthesius, Architect to the German Embassy; and Mr. Sydney Lee, the editor of the "Dictionary of National Biography." The nine surviving Gold Medallists were represented by Mr. James Brooks, and the Hon. Associate class by Mr. Alma Tadema, R.A., Professor Baldwin Brown, and Mr. Hugh Leonard.

The minutes having been taken as read, the President delivered the following address:—
BROTHER ARCHITECTS, YOUR EXCELLENCIES, LADIES, AND GENTLEMEN,—

The last Monday in June is always a day when the members of the Institute feel proud and happy—happy because our meeting is graced by the presence of ladies, of distinguished visitors, and of old friends; and proud because it is the occasion when her Majesty the Queen is gracious enough to show her interest in architecture by giving her Gold Medal to a distinguished architect or writer. There is additional exhilaration this evening on account of her Majesty's Diamond Jubilee, when the whole Empire has rejoiced, and been thankful for the increase of liberty, knowledge, peace, and plenty under her fostering care, and for the example of the virtues she has shown; but also because the medal is to be bestowed on a foreign architect, for this shows the breadth of her Majesty's views and the largeness of her sympathies. Our great art, that Aristotle calls one of the master arts of the world, rules over a wide domain; for wherever man has cultivated his intellect and faculties and raised his contemplation to a supreme Being, sublime temples have been raised. In contemplating the glorious and captivating domain of art, we are

taken out of ourselves, and not only feel the ennobling flame that the fine arts kindle within us, but are forcibly reminded of brotherhood of man. More than half of our solaces and delights are due to the great creators and discoverers who lived in remote ages and in countries it has perhaps never been our good fortune to visit, though we now have the glories of architecture brought home to us, through the arts of drawing, engraving, and photography.

However we may be delighted with the works of nature, which she has sculptured and painted for our solace and instruction, however greatly we may be moved by the sublimity of her mountains or awed by the resistless force of her waters, there is a charm about architecture that touches us more closely, for in its works we see forms of beauty designed by man for man's delight; while the colossal structures that man has created, though insignificant as compared with nature's works, still astonish us, for they recall to our minds that they have been the works of countless pigmies like ourselves, raised to excite emotions that still tell of the builders' gratitude to superior powers. Even the Pyramids raised to the rulers of Egypt, whose outlines break the long line of the desert, show rather thankfulness for the honour once bestowed on their occupants than the pride of kings. The charms of certain masterpieces of architecture are not to be effaced from the memory, and vie with the recollection of nature's beauties, if they do not surpass them. I may mention the matchless perfection of the temples that crown the Acropolis of Athens, the hoary majesty of Nerva's forum, the sublimity of the interior of the Pantheon, the vastness, richness, and striking forms of Santa Sophia and of that jewelled casket St. Mark's, as well as the more refined features of the Palazzo Vendramin, Manzoni, and Cornaro-Spinelli, the Scuola de San Marco and the churches of Santa Maria della Salute at Venice, and Santa Maria dei Miracoli at Brescia, while the wonders of the cloud-piercing fronts and spires of the mediæval churches are equally ineffaceable.

Architecture not only throws a lustre on the reigns of kings, but in the monuments it erects sums up more completely than any other art the cultivation and tendencies of the nation, keeps its memory green, and when its glory has departed, and all else has been swept away, still points to the greatness and intelligence of its people.

I have now to introduce to you the distinguished Dutch architect, Dr. Cuypers, on whom you are about to bestow the Gold Medal. It is usual to give a slight sketch of the life and works of the Gold Medallist in the interest of those who cannot be here; and many of those who would be here to-night are in the uttermost parts of the earth. So I must ask Dr. Cuypers to bear with me a little longer.

I can hardly think of Holland as a foreign country, so intimate has been the relation between it and England, for did not Holland give us one of our revered kings, William of Orange, and many of our celebrated families? And so warm is still our sympathy with its soul-stirring efforts in the cause of freedom. Most of us when at school translated Grotrius and the dialogues of Erasmus, that friend of Sir Thomas More, whom he called "his darling." Who does not love the Dutch school of painting, and feel at home with its creations? Who has not been enchanted by the power of Rembrandt and the vigour of Frank Hals, with the crystal purity of the colour of Peter de Hooe, with the woods of Hobbema, the rushing waters of Ruysdael, and the beautiful architectural works of Van der Heyden? Who has not been fascinated by the dignity of those warriors and statesmen, and by the grace and loveliness of those high-born ladies that live for us again in the pencil of Van Dyck? Who has not in imagination shared in the hardships and rejoicings of such discoverers as Van Diemen and Tasman?

Dr. Cuypers follows a long line of distinguished Dutch architects to whom we owe the admired mediæval churches, town halls, and mansions, as well as the wondrous Cathedral of Antwerp, and, in Renaissance days, the Villa Borghese and the Portal of the Vatican, designed by Van Santen, under the name of Vasanzio, for Pope Paul V., when Floris, Philip Vingboons, Van Campen, and Post enriched their native country with their works, and Henrick built our Royal Exchange for Sir Thomas Gresham, all of which have been presented to us in the publication of Mr. Ysendyck.

It is not usual to give the age of our Gold Medalist, but on this occasion the arrival of Dr. Cuypers' seventieth birthday this year, has been the cause of almost national rejoicings in Holland; this points to something in his personality and career that has touched the hearts of his compatriots in a way that no mere quantity or excellence of his works could ensure.

Dr. Petrus Josephus Hubertus Cuypers was born on May 16, 1827, at Roermond. In his nineteenth year he became a student at the Antwerp Academy, and got the prize for excellence, and the gold medal for architecture in 1849. He began his practical career by the restoration of the minster of Our Lady in his native town, and built his first church 1853. In 1864 he was awarded a crown for the William I. Museum, and up to 1894 he had built a cathedral and sixty-one churches and chapels; he had restored fifty-seven ecclesiastical buildings, mostly cathedrals and churches, and built museums, railway stations, mansions, villas, private houses and monuments, besides his great work of the Royal Museum at Amsterdam, some 450 ft. long and 280 ft. deep, with a central hall 70 ft. wide and 250 ft. long; the whole building comprising two quadrangles 130 ft. long and 100 ft. wide; it is built of brick, with stone window jambs, mullions, and bands. The style adopted is late Gothic, just feeling the first breath of the Renaissance when cusps had been abandoned. This, however, is by no means all we have to be thankful for, as he started schools all over Holland where the innumerable handicraftsmen, who carry out architecture, were taught the elements of design belonging to their crafts.

His motto is, "I believe, I love, I hope," and he says, "The love which binds together my beliefs and my hopes makes up my life." In his own house he has inscribed an apothegm of architectural wisdom: "Study the old, in order to win strength and support to design the new."

It is clear that any architect who had carried out such an enormous mass of work must have been guided by fixed principles systematically employed; and when no detail has been allowed to pass without his own supervision, and is mostly from his own hand, it is obvious that his industry must be equal to his genius.

Turning to the recipient of the medal, the President said:—Sir, you are said by your contemporaries to be the one man in Holland who has done more than any other to point the way to higher things, and to follow out his own teaching. I gather from the admiration that you excite in Holland that your character is as much revered and loved as your genius is admired, for without the existence of peculiarly admirable qualities we cannot believe that you would have so endeared yourself to your countrymen, for you have falsified the poet's saying that:—

"He who surpasses or subdues mankind,
Must look down on the hate of those below."

I now beg in the name of the Royal Institute of British Architects to invest you with her Majesty the Queen's Gold Medal, and to enrol you amongst that company of Gold Medalists that sheds such lustre on our Institute and on our country, and to hope, both on behalf of the Institute and myself, that you may, like so many great architects, live long to enjoy the honours you have so well merited, and the love that you have called forth, and to add to the number of those works with which you have already so largely adorned your native land.

Dr. Cuypers, in reply, spoke in French, the following being a translation of his remarks:—

Mr. President,—Allow me to express myself in another language than in your national tongue, which I deeply appreciate and revere, but would fear to profane by speaking imperfectly before this august assembly. My own Dutch speech, although it partly has a common base with yours, in that old Saxon which, had it not been for Charlemagne, would have become the universal Germanic or Teutonic language, is familiar to only a minority of the inhabitants of Great Britain, and would not suffice to render me intelligible in this chamber. I have recourse to the French language, which has numerous relations with yours—witness the denominations of the province of Normandy and Brittany in France—and like English, but in a less degree, is heard in the most distant countries of the terrestrial globe, everywhere that civilisation and liberty have established their glorious reign.

I feel, Mr. President, that I must, before and above all, express to you my sincere thanks for

the words, too kindly and too flattering, which you have been good enough to address to me. If it is true that all approbation of our work flatters our pride, what satisfaction must we not feel when this approbation comes from those of our colleagues for whom we have reserved a place of honour in our esteem and our veneration?

Yes, at this hour I dare publicly and solemnly say that, if I have had any success in my career as an architect, the example which has been given me by my colleagues in Great Britain has greatly contributed to it. When I visited England for the first time, so as to study the great monuments of our neighbours, it was not only the ancient and majestic cathedrals, the characteristic churches of little towns and villages, the splendid colleges, and other monuments of bygone ages, which delighted and deeply impressed me, but, above all things, the wise lessons which my honoured colleagues, Pugin, Scott, Street, Burges, Clutton, and so many others—only to speak of those who have gone before us into eternity—had drawn from the work of the great architects of the Middle Ages and of antiquity. It was here that I saw applied, with that correct, sober taste which characterises your glorious nation, the pure, true, and unchangeable principles of our art, which must be true, utilitarian, and practical, and at the same time not offend against those elusive canons of beauty where-with God has endowed us, to be the immutable appanage of those who cultivate the arts. It was particularly in your country, my dear colleagues, that I learned to estimate at its just value the charm which proceeds from correct and persevering application of the difference between materials, as much with respect to their properties, nature, and qualities, as with respect to their colour and other aesthetic features. It was here that I learned to appreciate the great advantages that result from the survival of the old co-operative guilds of arts and crafts, by which you have been able to maintain for the execution of your works practical and capable craftsmen, worthy of the share in the work that is entrusted to them. It was in your country more than anywhere else that I noted and admired the happy application of the good principles of the past to the needs of modern society, in all the works of your great masters.

If, on the one hand, your fair and interesting land attracted me, with its rich monuments and its great analytical architecture, on the other, the welcome given me by my dear colleagues, from my very first visit, was such that I was able to profit by all the advantages that friendship and urbanity can offer. If the old masters were there to instruct me and to stimulate my ambition by the contemplation and the study of the masterpieces of great periods, the living masters, their worthy rivals, gave me their aid in procuring me access to, and serving as my guides in all hidden nooks of interest, in all celebrated museums, in the innermost of all sanctuaries of art. It was in 1866 that I had the honour of being elected Honorary Corresponding Member of the Royal Institute of British Architects—a title which is held in high esteem abroad, and in itself gives a certain influence and position to any architect.

And who will be astonished if it is known that this noble Royal Institute is the great school in which has been and is still being formed all that England can produce of that which is glorious and illustrious in architecture? The preservation and the restoration of the historic monuments of your ancestors, the imitation of ancient models, the assimilation therewith of new buildings, the formation of a legion of artists fighting, without ever losing ground, against those errors of every kind with which the depraved taste of certain periods threatened the sanctuary of art—these are the first-fruits of this glorious institution.

Another great service rendered by you to the whole artistic world is to be found in the important travels that you have undertaken so as to study the monuments of the most distant countries, without regard to the manifold sacrifices that such enterprises inevitably entail. The remarkable publications in which are printed the results of these artistic peregrinations are, and will remain, a splendid memorial of your Royal Institute. If on this day I have thought it behoved me to pay homage to the Institute for the great services which it has rendered to the artistic world in general, I will beg you to believe me, my honoured colleagues, when I add that I feel doubly happy in being able to express to you my keen appreciation of the

distinguished honour with which you have gratified me.

I venture to request the honourable President to be kind enough to act as interpreter for this foreign colleague before her Majesty the Queen of England, in order to express to her my deep gratitude for the fact that she has designed to confirm the choice of the Institute by honouring me with the Gold Medal in the very year when so many millions of faithful subjects are blessing Heaven for having given them as a sovereign the most accomplished woman who has ever worn a crown.

The Chairman then announced that a Special General Meeting would be held on July 12 to confirm the resolutions with regard to the additions to By-laws 9 and 15, carried at the meeting on June 14.

The meeting then terminated.

CONGRESS OF FRENCH ARCHITECTS.*

On Sunday morning, June 20, one party of the members took the quarter of an hour's railway journey from Lille to Templeuve to inspect the new Mairie, the work of M. Louis Bonnier, architect, of Paris, the design for which attracted much attention two years ago at the Champs-Élysées Salon, and also in the competition for the Duc prize, for its originality and practical character as well as for admirable constructive and decorative employment of the materials.

The remainder of the members stayed at Lille and took part in the annual meeting of the Société d'Assistance Confraternelle des Architectes Français. This Society, founded last year by a group of the older members of all the French architectural societies both in Paris and in the provinces, now numbers two hundred members, and is in a flourishing condition in regard to funds and subscriptions. Among its leading members are M. Frantz Blondel, of Versailles, (President), M. Paul Besnard, of Soissons (Secretary), and M. Poupinel, of Paris.

At three in the afternoon took place, in the large hall of the Société Industrielle of Lille, the formal distribution of "Récompenses" awarded by the Société des Architectes du Nord to building artisans ("personnel du bâtiment"). The system in France of thus formally recognising the manual workers on buildings is the result of a kind of democratic movement in connexion with architecture, which dates from the time when honours were bestowed on some of the artisans who co-operated in the international exhibition buildings of the earlier part of the century; and having been warmly taken up by the Société Centrale des Architectes, it became a very popular feature at architectural re-unions. Thus, on the present occasion, there was an award of "Récompenses" of this kind first at Clermont-Ferrand, then at Lille, and lastly at Paris. The ceremony at Lille went off very well, thanks to the official support given by the Préfecture du Nord and the Municipality of Lille, who presided over the meeting along with M. Etienne the Vice-President of the Société Centrale, and other architects holding official positions; and the fine band of the "Canoniers" of Lille lent its aid in celebrating the occasion.

In the evening, at a dinner which took place, M. Boileau announced, amid much applause, that the "Prix Guérinot" had been awarded to M. Vandenbergh, of Lille, in honour of a fifty years' career as architect; and the Comte de Marsy, as President of the Société Française d'Archéologie, expressed thanks to the Congress, in the name of the archaeologists, for the interest it had shown in ancient buildings, in giving them so large a place in its programme. It may be added that the Comte de Marsy was heartily congratulated on his recent election as an Honorary and Corresponding Member of the Royal Institute of British Architects.

During the Monday, June 21, the members were employed in visits to the monuments, ancient and modern, and to private houses in the important industrial centres of Turcoing and Roubaix, and on the morning of the following day they were still employed in the same manner. Indeed, the façades of the large mansions of the rich manufacturers of Lille, many of them admirably studied specimens of domestic architecture, offered me to look at than there was time for. On the Monday evening the last business meeting at Lille was held,

* Continued from page 567 of last volume, under date June 26.

at which M. F. Roussel, of Cambrai, read a paper on the ancient military gate-ways of the city ("portes militaires"), which have been saved from ruin by the efforts of the Archaeological Committee of the Société Centrale and the "Inspecteurs" of the "Commission des Monuments Historiques." M. Roussel further interested his audience by some particulars as to Villars de Honnecourt and his work; and the reading of a letter from the Association des Architectes Diplômés, relative to the question of architectural diplomas, closed the actual work of the Lille Congress.

The excursion into Belgium commenced, on Wednesday, June 23, by a visit to the charming town of Tournai, which, in spite of its modern extension and industrial development, is not yet too crowded and enlarged to spoil some of the original characteristic architectural grouping formed by the cathedral and other buildings on the banks of the river; and the modern railway station itself is a building worth attention. The party were met at Tournai by M. Dumortier, the President of the Belgium Société des Architectes, who did the honours of Tournai and accompanied them to Brussels. Arriving there to dinner, the Congress, including numerous members of the "Société Regionale des Architectes du Nord," were received at 9 p.m. by the "Société Centrale d'Architecture de Belgique," who gave a conversation in the large hall of the Bourse du Commerce. At 9 a.m. on the 23rd there was a drive in carriages round the town, a visit to the Chamber of Representatives, to the Palais des Beaux-Arts, and the church "du Sablon," where M. Ysendick made some interesting comments on the building, and to M. Poelaert's celebrated Palais de Justice, where the party were met by MM. Heynecque and Engels, architects-in-chief of the department of Bâtiments Civils. After this the members were received at the Hôtel de Ville by M. Buis, Burgomaster, with a discourse in which a little too much emphasis was laid on the historic fact that Brussels had been set on fire by French bombshells in 1693, but one could thus appreciate better the complete restoration of the Hôtel de Ville and its bellry, and the Maison du Roi, and the houses of the ancient corporation. The party next drove to visit the Exhibition, passing by the new north-east quarter of Brussels, which, with its houses in blue and white stone, brick turrets, and covered balconies, has a very bright and pleasing aspect. At the Exhibition the first visit was naturally to the French section, in a building designed by M. Jacques Hermant; then to the Palais d'Alimentation (designed by M. Gervais de Bourdeaux), the Habitation Arabe, &c.; but the principal sections of the exhibition could only be rapidly run over—the Sheffield steel exhibits attracting the most attention, and the party then met at the Pavilion or rather palace of the municipal exhibit of Brussels, where they were welcomed by its architect, M. Santenoy. This building was greatly admired, it is the central attraction of the Exhibition, and realises the programme given by M. Buis to the architect—"Recall the ancient appearance of Brussels by a building which should be a restoration of a monument which has disappeared, and at the same time an indication of the former artistic glories of the city."

On Thursday, June 24, took place the journey to Antwerp and return to Paris. At Antwerp the first thing visited was the railway station and its precincts, under the guidance of M. Van Bogaert, engineer-in-chief; the principal buildings of Antwerp were then visited—the Cathedral, the Musée Plantin, the Bourse, the New Museum, the latter the work of M. Winders, recently elected Honorary and Corresponding Member of the Institute of British Architects. At mid-day there was a reception at the Hôtel de Ville, after which the party left for Paris, where on Friday, June 25, was held the twelfth annual meeting of the Caisse de Defense Mutuel, presided over by M. Achille Hermant, Vice-President (in the absence of the President, M. Garnier). The treasurer, M. Bartaumiaux, presented the accounts, and the report of the year's operations of the Société was read by M. Lucas. The existing officials were re-elected, and some alterations were made in the By-laws with the view of increasing the number of members of the Council and of non-resident members of Committees.

On Saturday, June 26, the distribution of "Récompenses," already referred to, took place in the Hemicycle of the Ecole des Beaux-Arts, under the presidency of M. Rambaud, Minister of Public Instruction and Art, assisted

by M. Henri Roujon, Directeur des Beaux-Arts, and the President and all the Council of the Société Centrale des Architectes. The Minister gave a short address, and MM. Raulin and Boileau announced the names and merits of the "recompensed," among the most applauded of whom were M. Vandenberghe, of Lille (médaillon d'honneur), M. Alfred Vaudoyer, of Paris (médaillon d'architecture), M. Bartaumiaux (médaillon de jurisprudence), M. Tissandier (médaillon d'archéologie), and the artisans, to seven of whom was handed the medal-decoration of the Ministry of Commerce.

In the evening, at eight, the traditional banquet was held at the Hôtel Continental, with its almost equally traditional toasts; the President of the Republic and the Minister and Directeur of Fine Arts, both proposed by M. Chas. Garnier; M. Garnier and French architects, by M. Roujon; the architects of Lille, Roubaix, Turcoing, Brussels, and Antwerp, by M. Lucien Etienne; the "Conseil Judiciaire" and "the married ladies," both proposed by M. Achille Hermant (whether these toasts were coupled together, and if so, why, is not quite apparent); and "the Lauréats," or receivers of awards, by M. Boileau. And thus ended the Congress of French Architects for 1897.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A MIDLAND Counties District Meeting of the members of the Association of Municipal and County Engineers was held at the Council Chambers of the County Buildings, Stafford, on Saturday last. Mr. F. J. C. May, of Brighton, presided, and amongst those present were Messrs. J. P. Barber, Islington; J. T. Eayrs, Birmingham; Cameron, Exeter; S. S. Platt, Rochdale; J. Lobley, Hanley; Dorman, Armagh; Greatrex, West Bromwich; J. S. Pickering, Nuneaton, Hon. District Secretary; A. T. Davis, Shrewsbury; Gammage, Dudley; H. A. Coales, Market Harborough; Fiddian, Stourbridge; Willcox, Birmingham; Corbett, Salford; Mann, Sevenoaks; and others.

The Mayor (Alderman Greatrex) offered the members of the Association a hearty welcome to Stafford, which was acknowledged by the President on behalf of the Association.

Sewage Disposal by Artificial Filtration.

Dr. G. Reid, Medical Officer of Health for Staffordshire, then read a paper on "Sewage Disposal by Artificial Filtration." He said his special object was to call attention to a new filtering medium which had lately come into great favour in Staffordshire, and which appeared to excel all other media which had hitherto been tried. In fact, so satisfied was he with the results which were obtained from this filter that he felt that the time had arrived when an effort should be made to induce the Local Government Board to reconsider their position, and accept efficient artificial filtration as a satisfactory method of disposal without land in cases where suitable land could not be obtained at a reasonable cost. He would say at once, however, that he was no advocate of artificial filtration where it was possible to obtain land which was well suited for the purpose. This proviso, however, should receive far more attention than it had hitherto received. Land was a very excellent thing, but bad land was worse than useless, as too many authorities were now discovering to their cost. As regarded the principles of sewage disposal it was now known that there were certain conditions which were essential to successful treatment either by land or artificial filtration. The process of disinfection was brought about by myriads of organisms which were present in the air, the soil, and the sewage itself. Some organisms operated offensively and effected their purpose by a process which gave rise to what was termed putrefaction, while others brought about more wholesome changes and attained the desired end rapidly and in a wholesome manner. In the case of the first group—the putrefactive organisms—oxygen was a poison, whereas in the second—the nitrifying organisms—it was an essential, and the activity of each class of organisms was impaired by the other. For this reason it had been laid down as an axiom that success in sewage disposal could not be achieved unless the sewage was submitted to treatment before advanced putrefactive changes had taken place. Until quite recently this had been the important consideration in all modern sewage

disposal schemes, but some months ago the startling suggestion was made to employ both sets of organisms in the process—first, the putrefactive bacteria to disintegrate the sludge; and, secondly, the nitrifying bacteria to effect the disintegration process which converted the organic matter in solution into more stable inorganic compounds. He referred to the septic tank treatment of Mr. Cameron, of Exeter. He did not propose to discuss that method. He would merely remark that, from the first, notwithstanding the apparent enthusiasm with which it was received by engineers, he greatly doubted its claims to acceptance, mainly because it vitiated the great principle of sewage disposal just referred to. Time would prove whether he had misjudged the system, but so far its advocates had failed to convince him that he was wrong. It was to the well-known Massachusetts experiments, which were so lavishly conducted by the American Government, and to the work of Dibdin and others in this country, that they owed the present rapid advance in sewage treatment by artificial filtration. Certain proprietary materials, which had hitherto held the field would soon be, if they were not so already, matters of history. They could now obtain for shillings, in place of pounds, substances which would do the work as well, if not better, than the fancy articles with fancy names, which hitherto had been advertised as panaceas. It had been established that successful artificial filtration, be the medium what it might, was dependent like land treatment upon active bacterial life, and experience had shown that there was only a very fine line of demarcation between success and failure. The temporary water-logging of the filter, for example, would asphyxiate the organisms and greatly impair their nitrifying activity, and if the water-logging was allowed to continue for a day or two the filter was transformed into a mere mechanical strainer discharging an effluent which, although clarified, contained all the soluble impurity of the sewage. According to Dibdin, the most satisfactory results were obtained from his coke-breeze filters by allowing them to stand charged with tank effluent for a certain period, an interval being allowed for aeration after discharging and before refilling them again. He would state, as regarded the filter which he was about to describe, that the best results were obtained by the continuous flow method of feeding, allowing intervals of rest for aeration. With respect to the new Garfield filter, he said that a year or two ago Mr. Garfield, manager of the Wolverhampton sewage works, noticed the effect that a heap of coal slack appeared to have in purifying dirty water. This led him to construct a small filter of the coal in order to see what effect it would have in purifying the Wolverhampton tank effluent. From the first the effect, so far as appearance went, was very startling, and, ultimately, Mr. Garfield consulted Mr. Jones, the County Analyst, whose reports upon the purity of the effluent were highly favourable. Since then Mr. Garfield and Mr. Jones had worked together, and had continued the experiments on a larger scale with continued unqualified success. Hearing so very favourable an account of this coal filter, he determined to inquire into the matter for himself, and, as it happened, he was then engaged in experimentally testing the relative merits of three artificial filters in an urban district in the county with the view of inducing the Local Government Board to accept artificial filtration without land as a means of disposal in that particular case, where the circumstances were very exceptional. Accordingly he induced the Local Authority of the district to substitute coal for the other material in use in one of the filters, and Mr. Garfield was good enough to superintend the work of construction about four months ago. This coal filter since then had been continuously in use alongside the other two, and all three had been supplied with the same effluent from permanent tanks already in existence at the works. The sewage treated was ordinary weak domestic sewage from a town with only few water-closets, not like the strong Wolverhampton sewage, and precipitation was effected by alumino ferric and lime. The construction of the filter and the way in which it was worked were as follows:—First, on the top of the effluent drain pipes was a 6-in. layer of coal nuts in size about $\frac{1}{2}$ in. cube. This layer was blended with a layer of $\frac{1}{4}$ in. cube coal, above which was a 9 in. layer of $\frac{1}{4}$ in. cube, and above that 1 ft. 9 in. layer of $\frac{1}{16}$ in. particles, the top layer being composed of 2 ft. of coal

dust, which had passed a $\frac{1}{16}$ -in. mesh, the fine dust not being removed, as in the case of the other layers. The tank effluent was discharged continuously on to the filter for a period of twelve hours, thus allowing twelve hours for aeration. Experience had shown that a square yard of this filter would produce a highly purified effluent, if charged at the rate of 200 gallons per 24 hours, but that if this amount was exceeded a falling off in the quality of the effluent resulted. As in the case of other artificial filters the nitrifying property increased with time, but from the first this filter possessed exceptional purifying powers, apart from nitrification. The effluent was a highly stable one, for he had kept samples for months without detecting any signs of putrefactive changes as indicated by appearance or smell. The analytical results were as follow:—

"DIBDIN" AND "GARFIELD" FILTERS.

Mean Results in Parts per 100,000, with Percentage Purification.

Filter.	Oxygen absorbed in 4 hours at 80 deg. F.		Per-centage Purification.	Organic Ammonia.		Per-centage Purification.	Nitric Nitrogen in Filter Effluent.
	Tank Effluent.	Filter Effluent.		Tank Effluent.	Filter Effluent.		
"Dibdin," April, 1894, to September, 1895	5'303	1'154	78.5	0.555	0.151	72.7	0.660
"Garfield," Wolverhampton, June, 1896, to May, 1897	4.159	0.324	91.8	0.431	0.075	79.8	0.623
"Garfield," Dr. Reid's inquiry, March 6 to June 14, 1897	0.650	0.171	73.0	0.200	0.039	80.0	0.860

To put the matter shortly it would be noticed that the results were considerably in favour of the coal filter, and he called special attention to the extraordinary percentage of purification as indicated by the enormous reduction of oxygen consumed in the filter effluent compared with the tank effluent. To sum up, they had in coal a most valuable and cheap medium for sewage purification. He had seen no records from any system of artificial filtration (including the Massachusetts experiments) which came unvaryingly up to so high a standard, and he only knew of one instance in which an equally good result was obtained by land filtration. It had occurred to him that in mining counties the immense areas now covered by shale from the mines could be turned to good account for sewage filtering purposes. The experiment was well worth trying by those authorities who were conveniently placed for putting it to the test. He thought the time had come when they ought to unite in an effort to reconsider their untenable position as to artificial filters and land treatment.

The President said the paper threw a new light on a very old subject. Sewage disposal had been one of the burning questions for many years past, and, from the knowledge they possessed, was likely to remain so for some years to come; therefore, they were glad to receive any information which was likely to throw further light upon this important subject. The use of coal as a filtering medium was certainly a new idea, and further experiments would be watched with a good deal of interest. He would like to ask Dr. Reid whether he had noticed any chemical change in the coal which would account for the result, or whether it acted as a mechanical filter only.

Mr. Cameron, Exeter, said the subject of sewage disposal was a very wide and complex one, and he sometimes thought its complexity was not realised by those who had to deal with it from the critical side. What struck one most was the entire absence of practical data. They had, it was true, the researches of Dr. Frankland for the Rivers Pollution Prevention Commission, but he did not think Dr. Frankland himself would contend that it covered a fraction of the ground. This was the stumbling block to progress in the disposal of sewage. Finding such to be the condition of their knowledge, he submitted to Dr. Reid that it was somewhat absurd to speak of the principles of sewage disposal, for without such data no principle could be laid down or law stated. He greatly sympathised with Dr. Reid in clinging to land disposal, but they could not shut their eyes to the fact that the land must perform the functions of a filter before the plant life could assimilate the sewage. Dr. Reid had divided the organisms into two classes—the putrefactive as anaerobic and the non-putrefactive as aerobic. This must

have been done on the spur of the moment, for it must be known to Dr. Reid that not all, perhaps not even the majority of the putrefactive organisms were anaerobic. Taking one of the best known and most virulent, the bacillus of anthrax, it was found to be most dangerous in its aerobic condition. In anthrax the malignant putrefactive organism acted the beneficial part, not only destroying, but preventing the reproduction of the anthrax bacillus. Passing to the question of filtration he thought Dr. Reid and Mr. Garfield were to be congratulated for calling attention to the new filtrant—an old friend that had for centuries carried on its oxidising work in another way. Coal was not a substance that at first struck one as being suitable for this purpose, but when one came to think of it, provided exactly the nature of surface required. It would be interesting to

if the coal did not undergo any change that it acted only as a mechanical filter; it was a fact that coal was a most suitable medium for the growth of the nitrifying organisms. With reference to the preliminary treatment of sewage there was the greatest possible hope for the future in the roughing tanks which were coming into use.

Mr. W. Blackshaw, A.M.Inst.C.E., Borough Engineer, contributed a long paper, giving particulars of some municipal engineering works designed and carried out at Stafford, which, owing to time, had to be taken as read, and was not discussed.

Mr. Blackshaw then entertained the members to luncheon, and the afternoon was devoted to visits to the sewage farm and works, the town depot, the municipal offices, and the gas and electricity works, where the members were entertained to light refreshments by Alderman Peach, Chairman of the Electricity Committee.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The annual excursion of this Society took place on Saturday, to Chatsworth House. The aim of the Society on these occasions is not, of course, mere ordinary sight-seeing. The Duke of Devonshire placed the whole of Chatsworth and its grounds at the disposal of the members, and there was no check whatever upon the party seeing anything that could interest them as professional men and lovers of art. Mr. B. Bagshaw, who is a "lay" member of the Society, and has a full knowledge of Chatsworth, its history, its architecture, and its many treasures, conducted the party to the places of the greatest interest to them. Peculiarities of the stonework at the entrance having been commented upon, a visit was made to that portion of the house usually shown to the public, and the members then visited the library. Among the numerous valuable books examined were Claude's "Liber Veritatis," several of Inigo Jones's sketch books, one including a diary of his stay at Rome, and another containing designs for masque costumes, &c.; early Caxtons, and the first book printed in the English language, valuable illuminated books, a volume of surveys of the Cavendish estate at the end of the sixteenth and the early part of the seventeenth century, early plans of Chatsworth House, and sketches and manuscript memoranda of Watson, the person principally engaged on the carved stone and woodwork at Chatsworth at the end of the seventeenth and the beginning of the eighteenth century. The suite of private apartments was traversed, and an opportunity was given of examining the works of Holbein, Titmote, Rembrandt, Reynolds, Lawrence, also the wall and ceiling decorations, wood-carving, china, &c. The party then visited the two galleries containing the valuable collection of original drawings by old masters, including works by Raffaielle, Michelangelo, Rembrandt, Rubens, Leonardo da Vinci, Poussin, Claude, Salvator Rosa, Correggio, Luca Signorelli, Vandyke, and many others, with which the two galleries are filled; also two private rooms containing water-colour drawings by David Cox and William Hunt. The sculpture gallery, the gardens, with their many artificial wonders, and the electrical apparatus (for which water power is utilised) for lighting the whole of the house, were examined. Subsequently a long discussion took place regarding the exterior of the house, and the cheap rate at which much of the carving was executed. The tour concluded with a visit to "Queen Mary's Bower," the date and original object of which were also discussed, with the result, at all events, of a general agreement that the building was erected before the time of Queen Mary. This concluded the tour, and the Vice-President, Mr. Joseph Smith, proposed a hearty vote of thanks to the Duke of Devonshire for the privilege he had accorded the members, and to Mr. Gilson Martin, the Duke's steward, for his kindness in personally conducting the members through the house, to Miss Martin the librarian, and to Mr. Bagshaw. The excursion was considered to have been an exceptionally successful and interesting one.

WESLEYAN CHURCH, SOUTHPORT.—Ten memorial stones of a new Wesleyan church, to be known as the Victoria Church, were laid recently at Blackwell, Southport. The architects are Messrs. Green & Brockbank, Liverpool, and the contractors Messrs. Duxfield Brothers, Southport. The church will have 850 sittings, and will cost 4,500l.

The President, in closing the discussion, expressed satisfaction at finding the medical officer and the municipal engineer working side by side for the public benefit.

Dr. Reid, in reply, said it did not follow that



Bayham Abbey: View from crossing into North-east Transept.

Illustrations.

ABBEYS OF GREAT BRITAIN.—No. 22: BAYHAM ABBEY.*

THE number of houses of Premonstratensian Canons was small when compared with those of the Benedictine and Cistercian order. Tanner mentions about thirty-five as existing in England, and of these many were small establishments. Two however—Easby and Bayham—were on a considerable scale, and the remains of both are highly interesting and valuable. The rule was, according to Dugdale, that of "St. Austin as

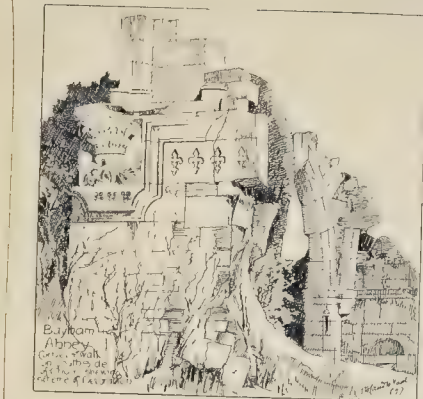
reformed by St. Norbert, afterwards Archbishop of Magdeburgh, who set up this regulation about 1120 at Premonstratum, in the diocese of Laon in Picardy, a place so called because pointed out, as it was said, by the blessed Virgin to be the head of the reformed order." Dugdale gives their habit as "a white cassock with a rochet over it, a long white cloak and white cap," and they were thus known as White Canons. The earliest foundation in England was at Newhouse, in Lincolnshire, about 1140.

It was not until about 1200 that monks came to Bayham, or Beaulieu, as it is sometimes called,* although from architectural evidence the buildings had probably been begun before that date. A monastery had been formed at

Otham, in Sussex, by Ralph de Dene, and had afterwards been removed to Brockley, in Deptford. They were about the date mentioned transferred for the second time to Bayham with the consent of Ela de Sackville, daughter of the founder Ralph de Dene, and of Robert de Turnham, the latter granting all his land at Begeham to build an abbey to the Virgin. Geoffrey de Sackville confirmed their licence for removal, and their possessions were afterwards confirmed by charter in 10th and 12th of King John, and 6th of Edward III. At the Dissolution, Bayham was suppressed and handed over to Cardinal Wolsey as a portion of the endowment of his great foundations of Ipswich and Christchurch, Oxford, and it was then valued at a little over 150*l*. It reverted to the Crown about four years afterwards, and appears to have remained Crown property until the days of Elizabeth, when it was granted to

* The series of the "Abbeys of Great Britain" is continued this month with illustrations of "Bayham Abbey." The next of the series (Perschore) will appear in the number to be published on October 21, 1897.

* Not to be confused with Beaulieu Abbey in Hampshire.



Anthony Browne, Viscount Montague. John Pratt became its owner in the time of George I., and through his descendant John Jetties, Marquis Campden, it passed into the hands of its present owners. The house of the Marquis Campden formerly adjoined the ruins at their south-west angle. A new house has, however, been built some distance north-west of the abbey, and a portion of the older house is now used as the residence of the vicar of the private church which stands in the grounds hard by.

The situation of Bayham is a very beautiful one, and must originally have been still more secluded. On its north side runs the small River Teise, which rises not far off in the hills between Bayham and Tunbridge Wells, and flows eastward to Lamberhurst, and then northward to the Medway. Besides beauty of position, Bayham Abbey is noteworthy for considerable peculiarity of plan, and also for delicate detail. The former was the outcome of a later extension of the church, the latter largely due to the soft nature of the local stone which has been used. From some of the details of the south transept that part of the church cannot be ascribed to a later date than the latter part of the twelfth century, and no doubt formed a portion of the work completed before the monks were transferred from Brockley, about 1200. The work and detail is distinctly transitional in character, and undoubted forms, with parts of the walls of the cloister, the earliest portion of the buildings.

The church, as at first designed and completed, appears to have consisted of a nave (possibly with an aisle on its north side), transepts with two eastern chapels in each wing, and an aisleless presbytery. South of the transept, on the east side of the cloister, were sacristy, chapter house, and cellars below the doric; on the south was the frater, standing on a vaulted substructure or cellar; and on the west side was the guest-house, also over cellars, with a passage at its southern end communicating with the cloister. The plan of the monastery differed but slightly from the ordinary plan of the Austin Canons, of whom they were an offshoot, and the peculiarly haphazard arrangement and apparent contempt of anything of the nature of a right angle, which is such a feature of the monastery at Easby, is absent at Bayham. Nothing could be more symmetrical than the arrangement here, and in later times, this character was not departed from to any great extent. As far as can be now ascertained, the chapter house and the upper portions of the monastic buildings come next in date to the remains of the first church—they are of Early English date, simple in character, but with no trace of Norman influence. Before, however, the enlargement of the church was made.

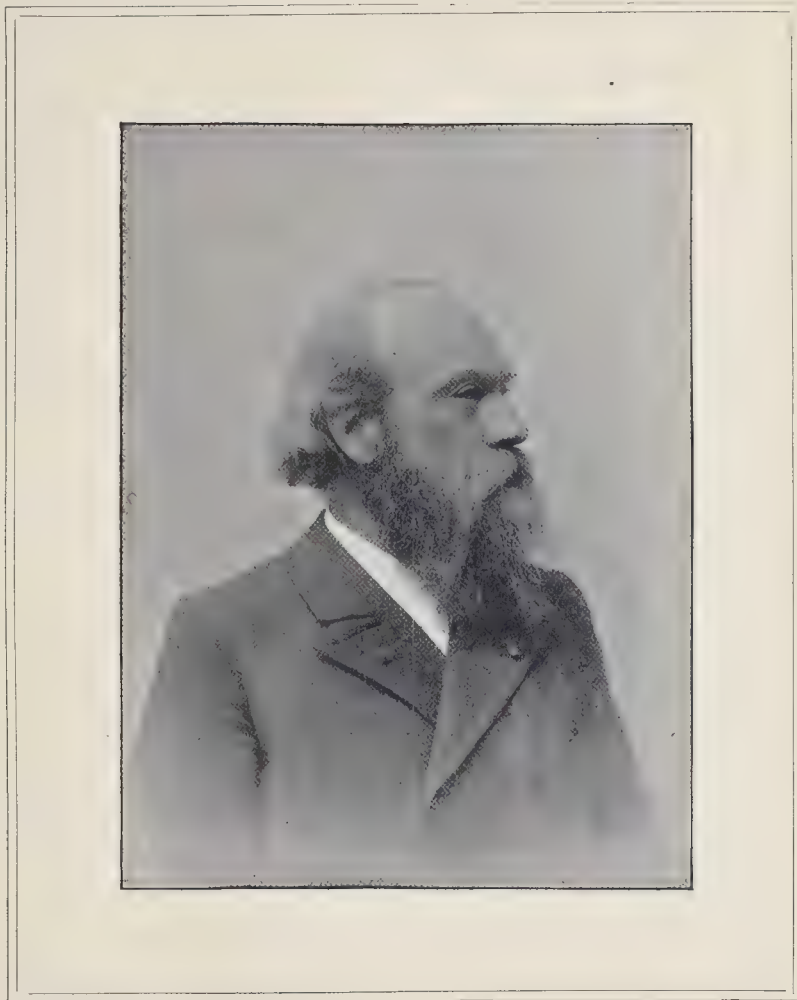
Immediately eastward of the original presbytery a fresh "crossing" was built, with wing, and an aisleless presbytery, finishing in a semi-hexagonal apse. Narrow aisles were added to the original presbytery, filling the space between the east walls of the inner chapels of the original transept, the west wall of the new transept. Finally—for, as will be seen on reference to the ground plan, all this



work could be, and probably was, done without interfering with the then existing church—the east walls of the original presbytery and the two inner chapels were removed and the whole thrown into one, resulting in a distinctly remarkable ground plan. The original north transept, if it ever existed, seems to have been partly demolished; this point could be easily settled by careful digging. With the exception of this, however, the plan remains symmetrical, and is a highly interesting example of the enlargement of a Mediaeval church. Although the area within the church is now kept in good order, there is a great accumulation of fallen masonry, and a growth of weeds and bushes outside the walls, which it would be of great importance to remove. Many points in the details of the north side of the church, which it is now impossible to determine, would be easy to settle, such as the form of the stair turret at the north-west angle of the nave, the projection of the nave buttresses on that side, the width of the north aisle, and the extent of the probable north transept as originally constructed. The north side of the presbytery again might be cleared with but little trouble, and the foundations of the buttresses exposed.

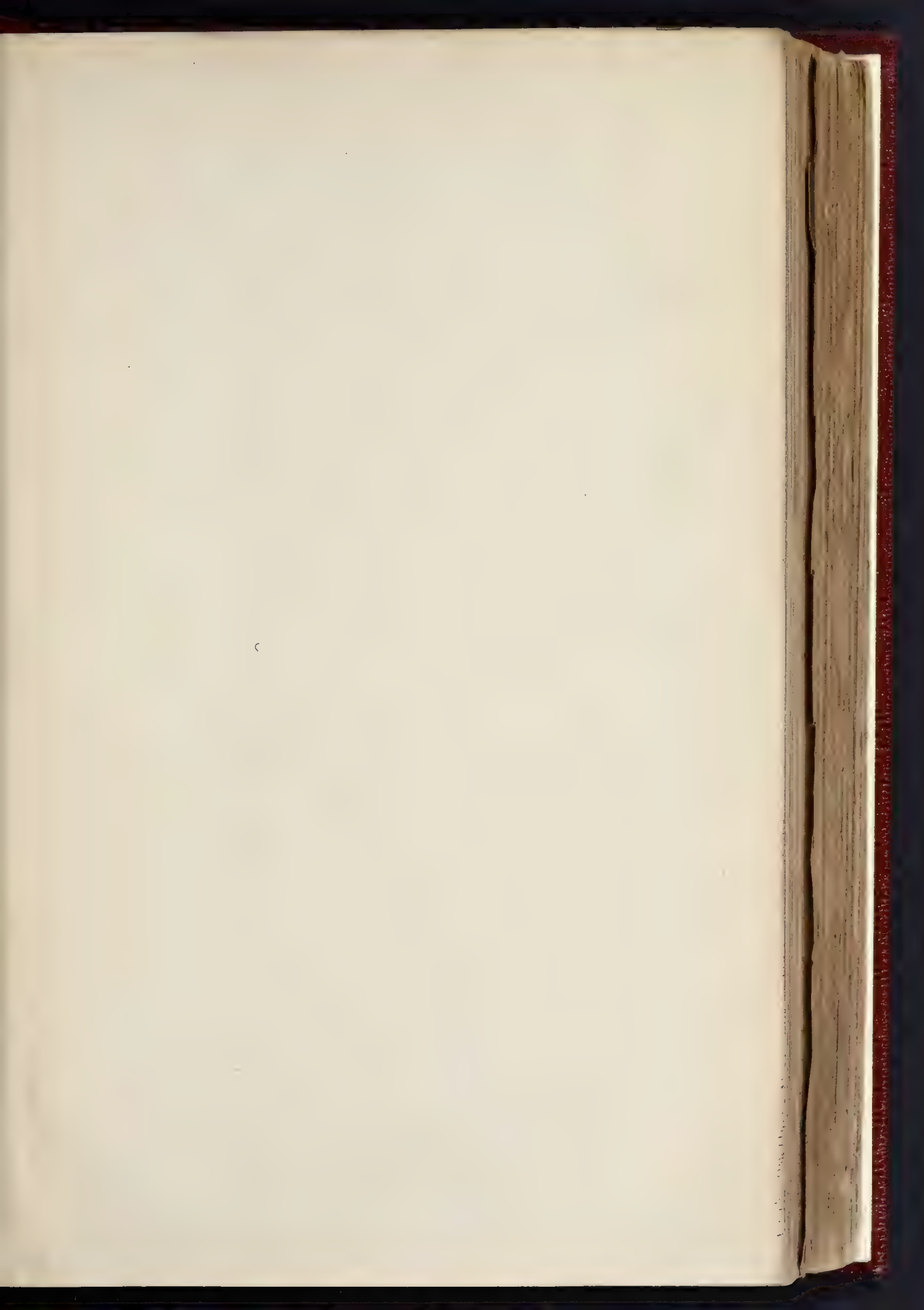
The ritual choir was, by this extension, moved eastward, and a rood screen was constructed across the church just east of the original "crossing." The north and south aisles were apparently filled up at this time, provided, however, with doorways giving access to the aisles and south transept for processions, &c. In these aisles were lesser altars, the pincina of which remain in several places. The exact date or period over which this work of extension was carried cannot be ascertained, but the presbytery windows and those in the transepts have Decorated tracery and the probability is that everything was not complete until the early years of the fourteenth century. Later, in Perpendicular times, considerable alterations were made to the nave and cloister. Whether the north aisle, the existence of which is conjectural, was destroyed at this time is uncertain, but the whole rebuilt, and windows and vaulting shafts were introduced on the south side to agree with the new design. Enough remains of this part of the church to give a very fair idea of its appearance, and the view on entering the church from the west with its total length of 257 ft., emphasised by a breadth of only about 20 ft., must have been very impressive.

We now pass to a more detailed description. Beginning at the west end of the church there are traces of the jambs of the west doorway about 6 ft. in width. Against the inner face of this wall, and on both sides of the nave as far as the original "crossing" was a stone seat, with breaks at intervals for doorways, at the north-west corner for the staircase, for a doorway on the north side in the third bay from the west, and on the south for two doorways leading to the cloister. This part of the nave was divided into six bays by slender groups of vaulting shafts of somewhat curious section. The sills of the windows were about 11 ft. above the stone bench, and the windows themselves, although the tracery has now disappeared, were, according to a curious view by Buck, dated March 25, 1737, of three lights, the head of each light being cusped. On the south side three of these windows remain standing, and over them is still a small portion of the parapet. On the north side only the jamb of one window remains. The lower part of the south wall is probably as old as the first foundation, and is pierced at either end by doorways to the cloister. The one at the east is now blocked up with fragments of worked and carved stone. At the east end of the north wall is a projection which may possibly be a part of the former rood screen. On the opposite side is a mass of fallen masonry. Going further eastward, we have on the north a doorway leading to the narrow north aisle of the ritual choir, and on the south the jambs of the old south arch of the crossing curiously filled in with masonry of uncertain date. What was evidently a piscina remains on the side towards the nave, while on the side towards the transept is a recess splayed inward on plan which might possibly have been a "squint" to admit of a view of the transept altars from the nave, after the "crossing" had been blocked by the then new screen walls. A little beyond this, against the south wall, are the remains of the return wall of the later rood screen which marks the eastward termination of the ritual nave. Immediately east of this the walls are ruined on both sides, and the width of the church between this point and the "crossing" is 4 ft. more than that of the nave. On the south side, near the centre is a highly interesting fragment of the side wall of the choir, and corbel for the vaulting shaft, showing the way in which the wall was ornamented. The choir stalls stood against these walls and were returned against the back



Dr. F. J. M. Snijders.

ROYAL GOLD MEDALLIST, INSTITUTE OF ARCHITECTS, 1897.



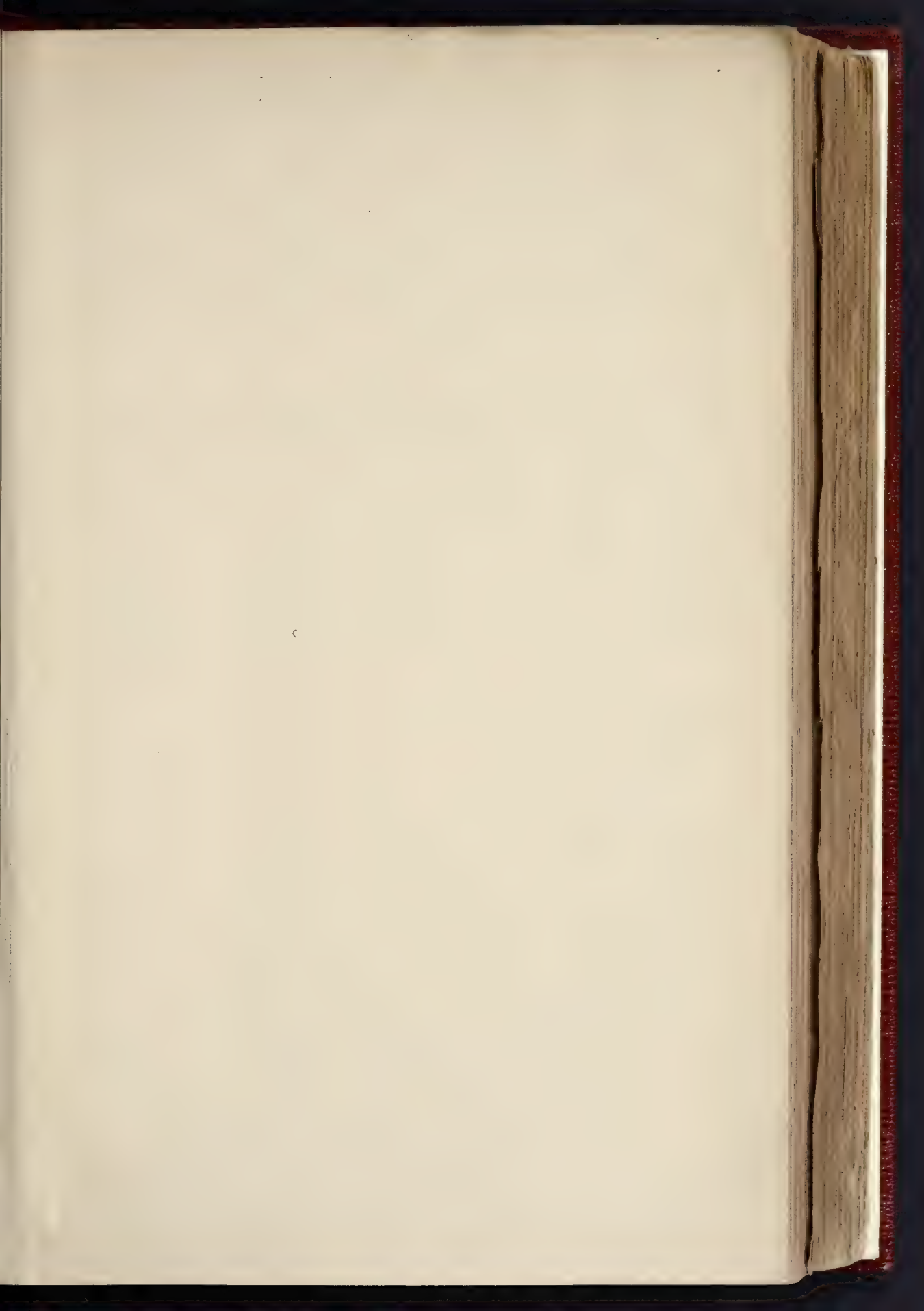
THE BUILDER, JULY 3, 1897.

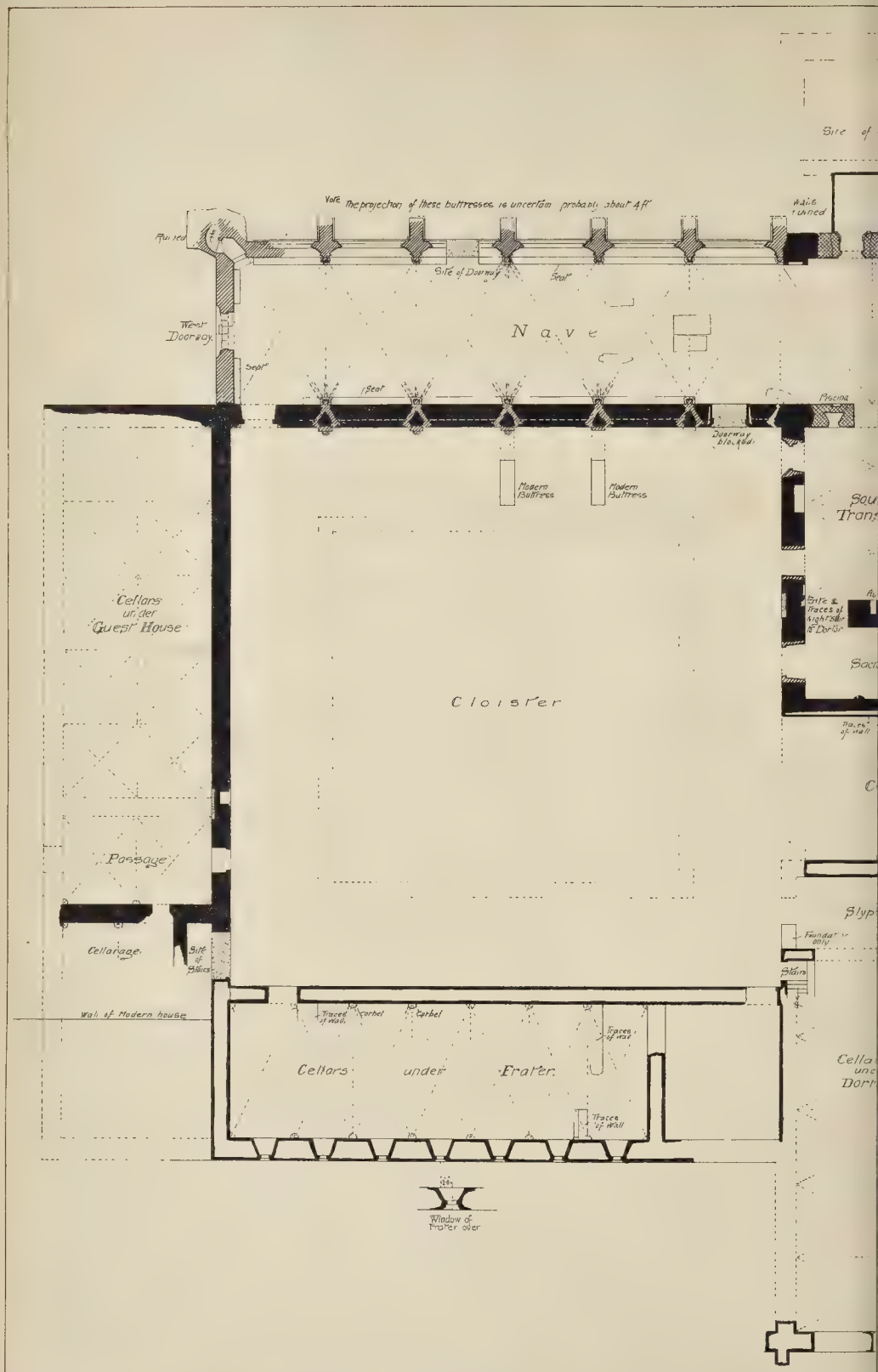


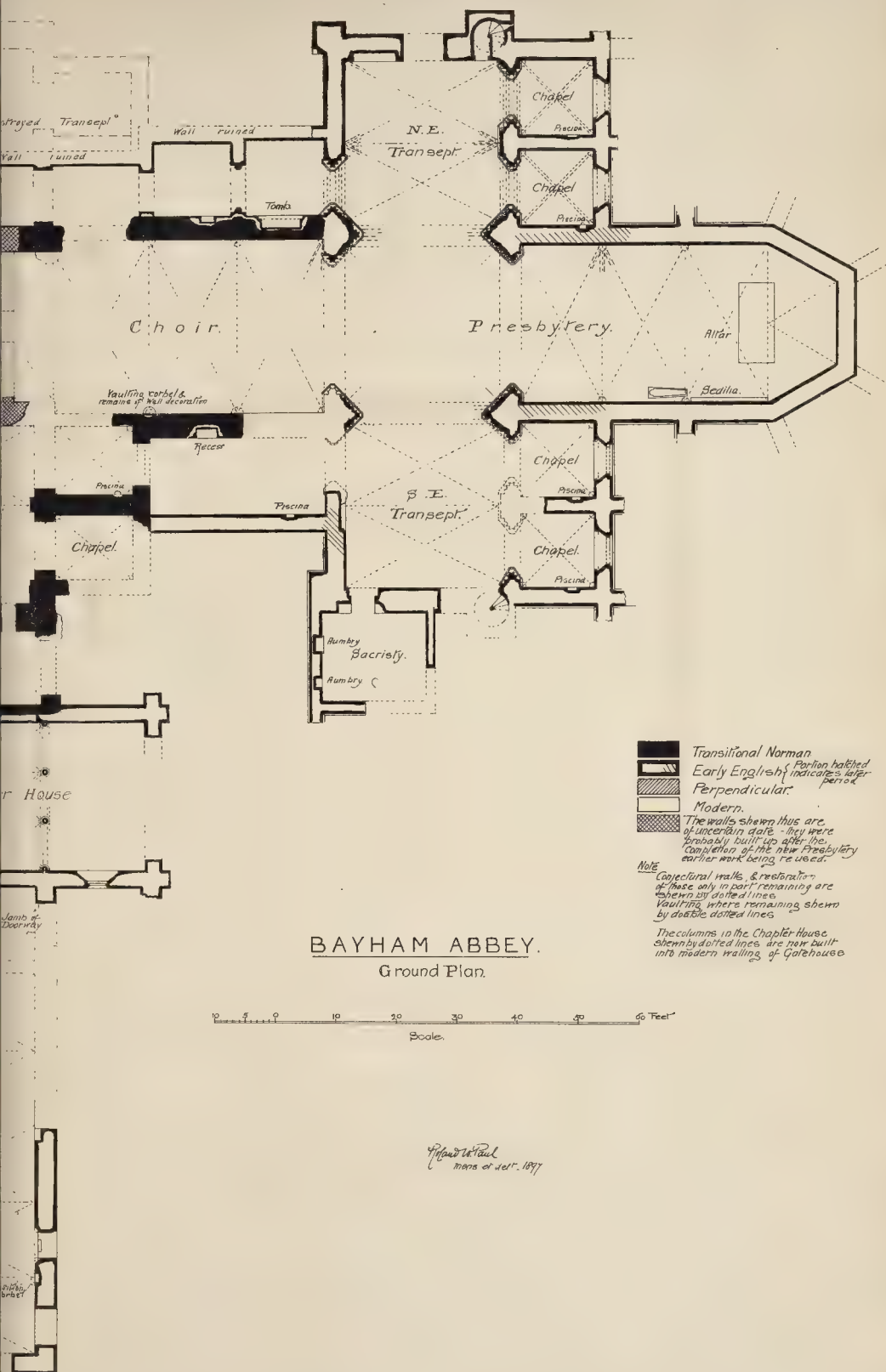


THE ABBEYS OF GREAT BRITAIN. No. 22. BAYHAM.

DRAWN BY MR. W. MONK.

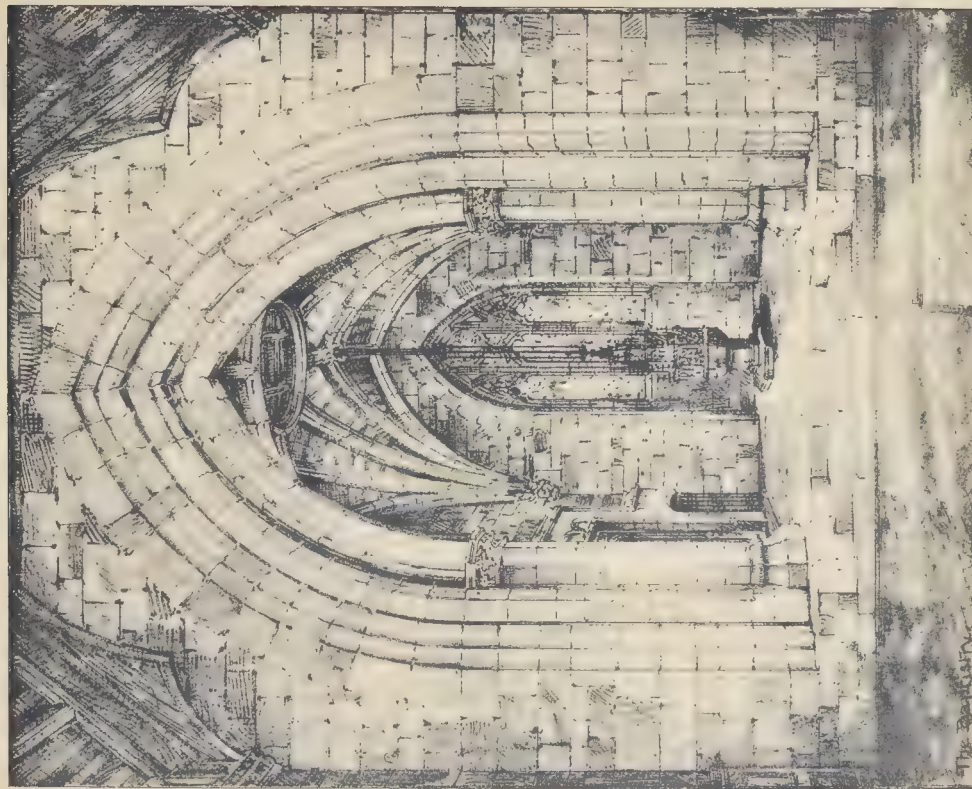
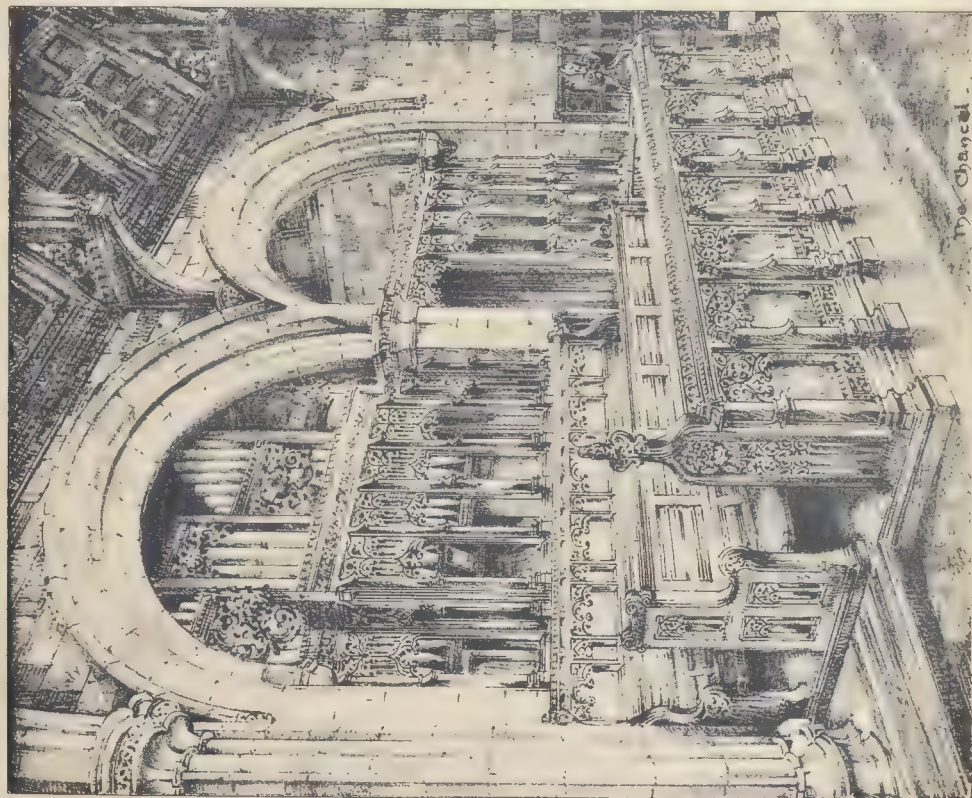




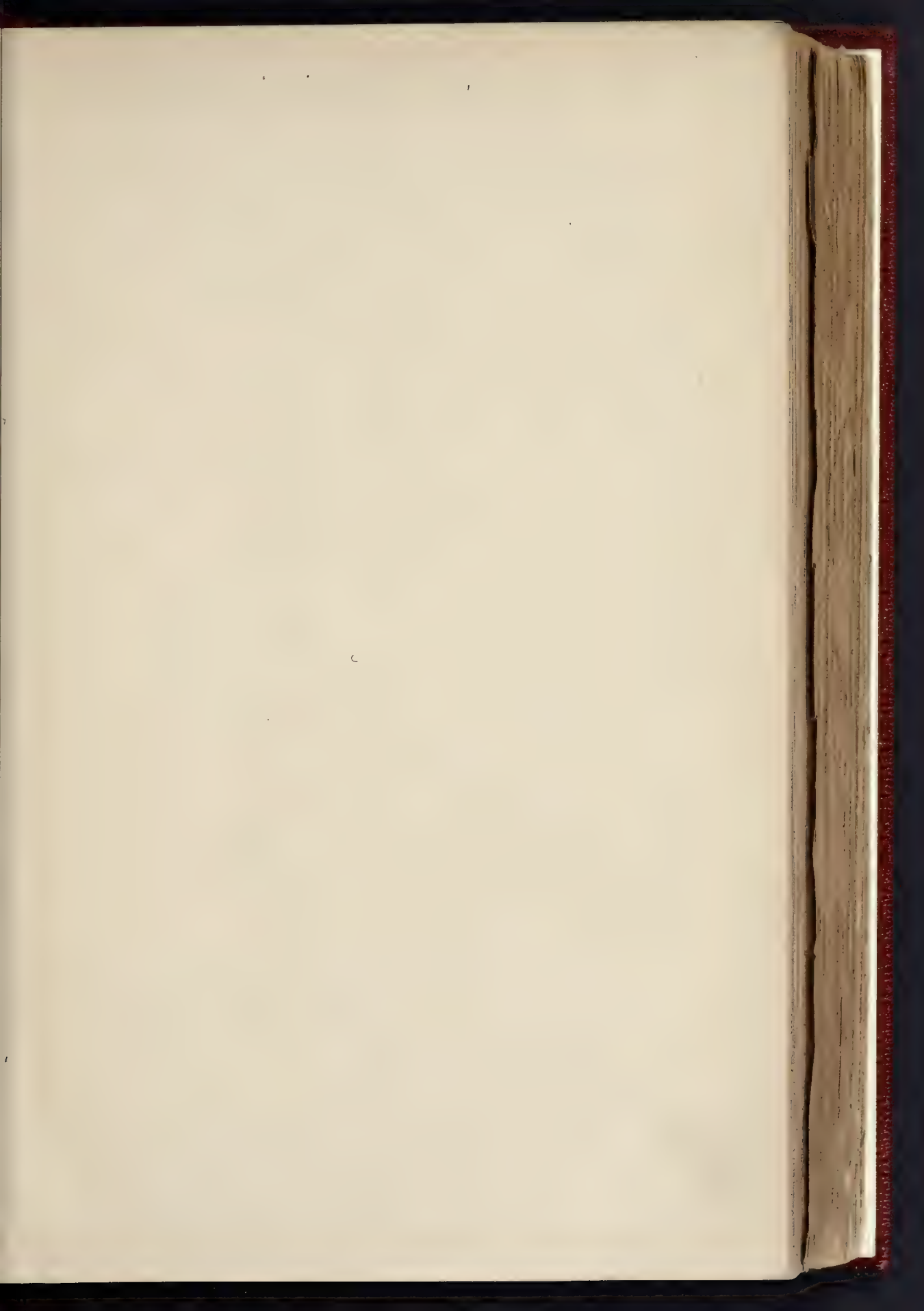


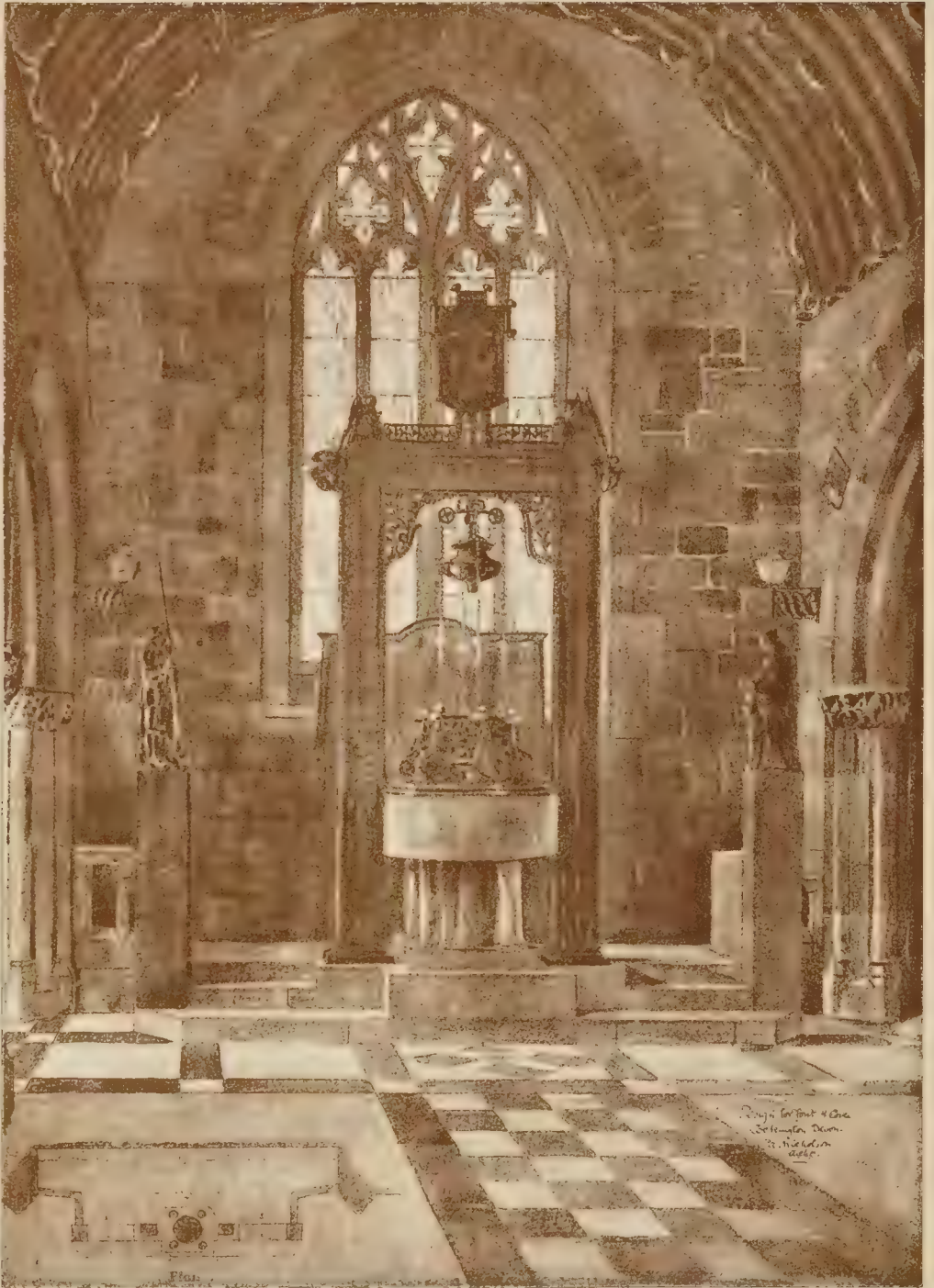


CLIVE CHURCH, SHROPSHIRE: AS RESTORED AND TOWER AND SPIRE ADDED.
MR. CHARLES J. FERGUSON, F.S.A., ARCHITECT.



CLIVE CHURCH, SHROPSHIRE: PART OF INTERIOR AS RESTORED AND REFITTED.—MR. CHARLES J. FERGUSON, F.S.A., ARCHITECT.

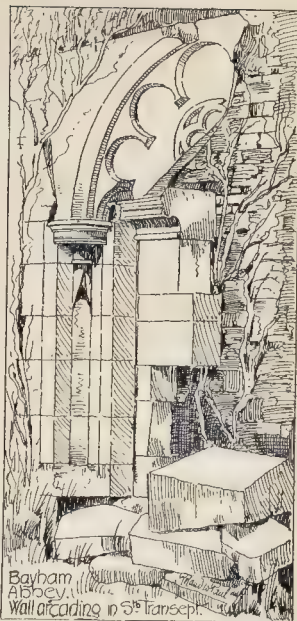




DESIGN FOR FONT, COCKINGTON CHURCH, DEVON MR C A NICHOLSON, ARCHITECT



COMPETITION DESIGN FOR NEW CHURCH TOWER, LISKEARD, CORNWALL—By Mr C H B QUENNEL



of the rood screen. As far as can now be ascertained the panelling of the stall-work reached to a height of 8 ft. 6 in., and above this the wall was ornamented with three rows of fleurs-de-lys, sunk very slightly from the wall face, and probably filled in and coloured. The whole was enclosed in a moulding which at the vaulting corbels in each bay was brought down to the level of the stalls, the space between the corbel and the moulding being filled with three roses also treated in colour. The corbels themselves were elaborately carved with foliage, and the abacus was continued throughout the entire length of the side walls as a string-course. Over this were windows, the vaulting being carried on groups of triple shafts springing from above the corbels. There are also remains of this work at the N.E. angle of the choir at the junction of the choir with the N.W. pier of the crossing. This scheme of decoration will be best understood from the sketch here given of the fragment in the south side of the choir.

On either side of the choir were aisles. The western half of these aisles retains the old width of the transept chapel; the eastern, or later half, was made about 3 ft. wider, doubtless to allow for side altars, without interfering with the use of these aisles as a procession path. The western half on the north side has been much ruined, and a great deal of the outer or north wall has evidently been built up in comparatively recent times. It most probably—supposing that the original north transept was equal in dimensions with the south—was the same width as the south chapel, about 10 ft. 6 in. There is a large mass of masonry at its western end, which suggests a double wall, or perhaps a staircase, but it is necessary to clear it of weeds and accumulated stone. The eastern half of the aisle has a piscina in the first bay, and in the second (or easternmost) bay an arched recess for a tomb. The width of this later portion is increased to 12 ft. 6 in. With the exception of the old transept chapel remaining in its original state—the east wall was, of course, pierced—the south aisle was of the same dimensions as the north. In its north

wall is an aumbrey or recess, and at its south-east corner a piscina.

Everything eastward of this point belongs exclusively to the Early English and Early Decorated extension. The tower arches have gone, but three of the four piers are standing, and the base of the south-west pier is to be made out pretty clearly. Over the arches into the chapels were large windows, and two more lighted the ends of the transepts. There was a doorway in the centre of the north wall, and in the south wall one at the south-west angle leading to a sacristy. Staircase turrets were placed at the north-east and south-east angles. All four chapels retain their piscinæ and the rear arches of their windows, and the vaulting remains perfect in the two chapels of the north transept.

The presbytery was of three bays, with a semi-hexagonal apse. The westernmost bay was divided from the transept chapels by solid walls, ornamented with a panel with a sextifoiled circle, and high up in the wall was a window with Decorated tracery. The remaining bays, and probably the apse, were lighted by long windows filled with similar tracery—a portion of a jamb of one remains on the north side adjoining the north transept chapel. The apse wall stands about 6 ft. above the ground at the present time, and a mass of masonry still marks the site of the High Altar. The outside plinth remains and traces of the buttresses, but, as before noted, it is necessary that this part of the church should be cleared of the growth of weeds and small trees that encumber the walls on the outside. The seat of the sedilia remains on the south, and near it a stone coffin and lid with a floriated cross. The only points of interest in the south transept not common to the north is a vestry or sacristy at its south end with two aumbries in the west wall, and a portion of an arcaded recess near its junction with the south aisle of the choir. The buttresses of this part of the church are much ruined.

Retracing our steps to the original south transept, the night stairs to the dotor can be traced in the west wall at the south-west angle, and a jamb of the doorway still remains.

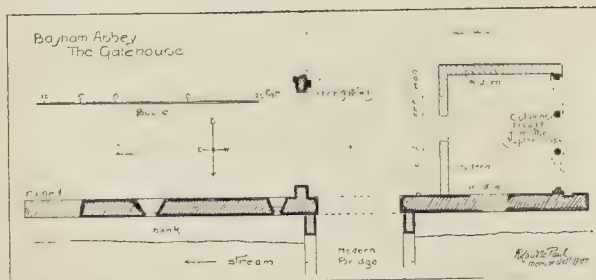
There is a double aumbrey in the south wall, with semicircular heads. South of the transept is a sacristy, which retains no features of interest. The chapter house, which comes next, is an oblong apartment, 44 ft. by 24 ft. It was originally divided into three divisions by a double line of three arches. One of these arcades remains *in situ*, and is here illustrated; the other columns have been removed, and now form part of a modern room adjoining the gatehouse (see plan of gatehouse). A lancet, with a broad inner splay, remains on the south side. The east and west walls are ruined. The carving on one or two of the vaulting corbels is very beautiful, and remains in a very perfect state, retaining in addition some of the original colouring.

The remainder of the east side of the cloister was taken up by a passage or slype, and the day stairs to the dotor, which ran south some considerable distance over cellarage. Some part of the east and south walls remain.

The cloister is 94 ft. square, and nearly the whole of this length on the south side was occupied by the frater, which also stood over a vaulted substructure. This cellar was subdivided by cross walls at intervals, and traces of these still exist, and are noted on the ground plan. It was lighted on its south side by a series of small square-headed windows, with broad inner splays. The frater itself was lighted by lancets, one of which remains on the south side. There are traces of entrances at either end of this cloister wall.

The entrance to the frater seems to have been by a staircase at its western end, the doorway being in the west wall of the cloister near its south-west angle. North of it was an approach or passage to the cloister from the outer court, vaulted in two bays. The remainder of this west side of the cloister was occupied by the guest-house, 25 ft. in width and 62 ft. in length, also standing on cellarage. But little of this is left beyond portions of the north wall. It was probably, as shown on the plan, divided into two aisles by a row of columns down the centre.

The cloister court is now a well-kept lawn. There are still some interesting remains of the cloister on the north side against the nave wall. Three of the responds remain with caps and bases of similar section to those of the nave vaulting shafts, and the weathering of the cloister roof still exists below the windows of the nave, and is returned on the side of the buttresses. The buttresses themselves are fairly perfect in two instances, but modern masonry has been built up against them to prop up the nave wall. The cloister arches



have disappeared. Doubtless the outer walls exist below the turf. These remains of the cloister are of Perpendicular date, and were evidently rebuilt at the time the nave itself was altered.

At some little distance north-west of the church stands an interesting fragment of the gatehouse, close to the river Teise, over which a modern bridge has been thrown. Over a segmental arch, with grotesque heads introduced at the centre and sides, was an ogee-headed window of two lights transomed midway. Considerable remains of the wall are on either side of the gable, and a fragment of the jamb of the inner doorway. Inside the north wall is the jamb of a doorway to an upper room. Two modern walls have been built on the west side, and the columns before noted have been introduced to form an open arcade

with a view westward over the ornamental water in the Park—probably constructed as a summer-house.

The whole of this gateway appears to be fourteenth century work, and is a very picturesque fragment. We illustrate its north front, and give a ground plan of what remains. Excavation would probably reveal the foundations of walls now destroyed.

We believe that Bayham Abbey has never been explored, and doubtless much of interest could be found, but great care would have to be exercised, and the work only entrusted to one who was well versed in the peculiarities of the buildings erected by the Premonstratensian Canons. There are no monuments of much interest. Besides the tomb recess in the north choir aisle, and the coffin and its lid in the presbytery, there are only a few flat grave-

stones in the centre of the nave. There is, however, a great deal of worked and carved stone lying in heaps in various parts of the ruins, and fragments of cusped window tracery. Much of the walling in the transept is in a dangerous condition, and it should be attended to without delay, or much of the beautiful design of this part of the church will be lost.

For the benefit of those wishing to visit the ruins, we may add that they are thrown open on Mondays and Wednesdays—on other days they are closed to the public. Frant is the nearest station, from which the Abbey is rather over two miles distant.

CLIVE CHURCH, SHROPSHIRE.

THE church at Clive, of which we give an illustration, occupies a fine site, above the well-known quarries of Grinshill, about seven miles from Shrewsbury.

The church contains some traces of Norman work in its doorways, but repeated restorations in the early part of the century have almost obliterated all other traces of early work.

To this fabric a chancel and north chancel and vestries were added, about ten years ago, by the joint efforts of the late Mr. Bibby, of Hardwicke, Mr. Mears, of the Clive, and the vicar, the Rev. J. Cooper Wood. Several modern windows were replaced by others of better character; a new porch was built, the building lined with stone, with new roofs of oak, a pavement of rare marble to the chancel, and sumptuous screens and fittings of English oak to the chancel. Recently a tower and spire has been added at the west end at the sole expense of the late Mr. Bibby, as a memorial of his wife.

The tower is of ashlar throughout, and has a vaulted basement, which forms the mausoleum of the Bibbys of Hardwicke. The ground story is vaulted, and forms a baptistry, with a modern font and cover of wrought iron some 12 ft. in height. The ancient font had long since disappeared.

The windows of the tower are filled with stained glass by Messrs. Clayton & Bell, and the tower contains a good peal of six bells by Messrs. Taylor and Co.

The whole of the works were carried out from the designs of Mr. C. J. Ferguson, F.S.A., architect, of London and Carlisle.

FONT FOR COCKINGTON CHURCH.

THE completed portion of the new church at Cockington, Torquay, was opened in 1886. It is built mostly of local red sandstones inside and out, the windows being of Douling stone. The font is to be of dull polished green polyphant stone; the steps of a close-grained grey stone, and the side-screen walls of the same material, or of polyphant stone. The cover, its supports, and their cresting will be of oak, carved, and slightly painted. The figures are to be of bronze. The cost will be about 150*l*. It has been designed by Mr. Charles A. Nicholson (Nicholson & Corlette).

DESIGN FOR CHURCH TOWER, LISKEARD.

THE design for new church tower, Liskeard, was mainly influenced by a wish of the committee of management—which found expression in the conditions of the competition—that the main characteristics of the old tower should be preserved in the new.

The peculiar scalloped cornice, enriched with carved heads, was, therefore, reused; and for style, that of the general body of the church itself—late Decorated—was accepted with modifications in the detail sufficient to save one from the sin of perpetrating "mock Gothic."

The accommodation provided was a choir vestry opening into the nave, a ringer chamber and belfry over, and the turret stairs led to a walk contrived between the battlements and the copper roof which was kept back for the purpose.

The general walling in granite with a limestone for the arch work, the whole being dominated by the copper roof.

The sketch is taken from the south-west; on the right is the gable terminating the south aisle.

C. H. B. QUENNEL.

PREMISES, CARDIFF.—Messrs. David Rees & Co. are rebuilding the Hayes Market, Cardiff, which was destroyed by fire about two years ago. The work of reconstruction is entrusted to Messrs. William Thomas & Co., contractors, from plans prepared by Messrs. J. P. Jones, Richards, & Budgen.

NATIONAL ASSOCIATION OF MASTER PLUMBERS:

ANNUAL DINNER OF THE LONDON BRANCH.

The annual dinner of the London Branch of the recently formed National Association of Master Plumbers was held on Tuesday in the Caledonian Salon, Holborn Restaurant, the chair being occupied by Mr. R. A. Marshall, President, who was supported by Messrs. A. E. Biggs, C. Thomerson, J. Peattie, Hon. Treasurer of the Association; D. T. Bostel, G. J. Chatterton, and others.

The usual loyal and patriotic toasts having been honoured,

Mr. Thomerson, Vice-President, proposed "The National Association of Master Plumbers," and in doing so he paid a tribute to the work—all of a voluntary character—done by the officers of the Association. The membership of the Association was nearly 800, and he hoped that the London branch would soon have as large a membership. They all had one object in view, viz., to raise the status of the plumbing craft.

Mr. A. E. Biggs, late President, and now honorary organising officer, responded, and in the course of his remarks he said that the movement was of a trade-protection character, but the Association was by no means hostile towards the operatives. The difficulties of the trade were well known, but he was glad to notice that there was a growing disposition not to hide plumbing work behind wood casing, and, altogether, a better day was dawning, both from a sanitary and decorative point of view. The importance of the trade was recognised now as it never was before, and the success which the Association had met with showed that it was fulfilling its object. The speaker then referred to some of the many excellent specimens of Roman plumbing work which had been discovered in the course of excavations in the country, and which showed how advanced the Romans were in their knowledge of plumbing. As had been stated the object of the Association was to raise the status of the plumbing trade, and they also desired: to effect an improvement in the system of contracting, so that plumbers would tender direct to architects; to secure to master plumbers the legitimate profits on plumbers' goods supplied on jobs on which they were engaged; confining plumbers' work to plumbers, and preventing, if possible, merchants and manufacturers from supplying goods at wholesale prices to persons not in the trade; and to unite, by a system of federation, all master plumbers for purposes of mutual protection. A Board of Conciliation, consisting of master and operative plumbers, had recently been formed, with the object of preventing strikes and lock-outs, and already good results had followed its formation. That was a satisfactory achievement, he thought, for an association which had been in existence so short a time. He was also glad to say that arrangements had been made with some of the principal manufacturers and merchants to grant favourable terms to all members of the Association. In conclusion, he referred to the advantages of the Association, and in particular to the good fellowship between tradesmen which such an association was calculated to promote.

Mr. G. J. Chatterton then proposed the toast of "The London Branch," and in doing so said that it was important to maintain the continuity of excellence in plumbing work of the present day, and that could only be done by properly instructing young plumbers.

The Chairman, in response, said that the plumber's trade should, in his opinion, be separate from all other trades, and the master plumber should be responsible for his work to no one but the architect. The Association had been recognised by the Worshipful Company of Plumbers, as well as by many architects.

Other toasts were, "The Visitors," proposed by Mr. Johnson, and coupled with the name of Mr. Hellyer, jun., who replied; "The Secretary," proposed by the Chairman and responded to by Mr. Bostel; and "The Press," proposed by Mr. Thomerson, and responded to by the representative of the *Builder*.

PRIMITIVE METHODIST CHAPEL, HEMSWORTH.—It is proposed to erect a new chapel near to Hemsworth, in Yorkshire, for the Primitive Methodist Connexion, with seating accommodation for 200 people. Ultimately, a much larger building will be erected, when the present proposed building will be used for school purposes. The architect is Mr. J. P. Earle, of Sheffield.

THE LONDON COUNTY COUNCIL.

A SPECIAL meeting of the London County Council was held on Monday at the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Islington Vestry 1,750*l.* for paving and other works; the Fulham Vestry 7,252*l.* towards the cost of the extension of Bishop-park; the Wandsworth District Board 6,600*l.* towards the cost of widening parts of Lower and Upper Richmond-roads; the Guardians of Bethnal Green 25,000*l.* towards the cost of erecting a new infirmary; the Guardians of St. George-in-the-East 11,510*l.* for purchasing property forming part of the workhouse, for the erection of casual wards, and for alterations at the laundry; the Guardians of Hampstead 15,000*l.* for alterations and additions to their workhouse; the Guardians of Holborn Union 3,200*l.* for the erection of a laundry and for alterations and additions at the City-road Workhouse; and the Wandsworth Burial Board 15,000*l.* for purchasing additional land for their cemetery.

The Works Department.—Discussion was then resumed on the report of the Special Committee on the Works Department. The Committee recommended: "That a Works Board be substituted for the Works Committee, such Board to be elected forthwith, one member to be nominated by and from each of the following Committees—Finance, Asylums, Bridges, Fire Brigade, Highways, Improvements, Main Drainage, Parks, and Housing of the Working Classes; and that in future years the election of members of the Board do take place at the meeting of these Committees next to March 31."

In the absence of Lord Onslow, Mr. Porter moved, "That, as the Council is divided in opinion on the question as to the permanent maintenance of the Works Department, it is inexpedient to discuss the question of substituting a Works Board for the Works Committee; and that it be referred to the General Purposes Committee to consider and report, in conjunction with the principal officers concerned, on the steps which should be taken with a view to carrying on the business of the Works Department with as little loss as possible to the ratepayers until after the election of the new Council." He declared that he was animated by no opposition to the Works Department. The question was, Should the Works Department be rehabilitated and put upon a permanent basis in the form of a Works Board controlling? Next March there must be a new Council, and the wisest course was to preserve the thing as it stood at present until the electors had an opportunity of pronouncing judgment. He had no confidence in mere change of name from that of a "Works Committee" to a "Works Board." They were not justified in putting an end to the Department, nor were they justified in putting the Department on a permanent basis for the same reason. The course recommended by the amendment was a prudent course, under the circumstances.

Mr. Campbell seconded the amendment, and contended that the labour policy of the Council was a mistake.

Sir A. Arnold said he had by no means abandoned the hope which he expressed at the last meeting, viz., that the Council might arrive at an amicable agreement. He thought that the adoption of the amendment would involve the Council in a grave and serious dereliction of duty, for one reason, that the manager of the Works Department was on a temporary engagement, and for another reason, that none of the evils which had characterised the Works Committee had been amended. The Committee was at present just as much divided against itself as it was when eminent members of its body gave evidence before the Special Committee. He, therefore, urged upon the Council that it was its imperative and imminent duty to deal with this matter in one form or another at once. On the occasion of the last election of the Council, in 1895, the Works Committee was in full operation, and the ratepayers were acquainted with its operations. He had done all he could to bring about agreement. Since the last meeting he had been favoured with interviews by the leaders of the Progressive and Moderate parties, but he had not been able to come to any definite conclusion. But now, speaking for himself only, he made a proposal and offer to the Council, which he hoped would be accepted. There was upon the agenda-paper the following amendment in the name of Mr. E. White:—"That all works

ordered by the Council to be carried out without the intervention of a contractor shall in future be carried out by the manager of the Works Department, who shall be responsible to the Spending Committee in the same way as a contractor would be; and that the Finance Committee shall have control of the finances of the Department." If there was a practical and substantial agreement on both sides of the Council to accept that amendment, he (the speaker) would accept it. That was a great personal concession, because Mr. White's amendment practically involved many, if not all, of the conclusions which were arrived at by those of his colleagues on the Committee who dissented from his (the speaker's) opinions. He hoped that might lead to a substantial agreement, because he felt that the Works Department could not possibly operate with any success at all unless it had in connexion with it a united Council. It was impossible for it to go on satisfactorily if it was to be the shuttlecock of party, and if it was to be directed, as at present, by a Committee divided into two hostile parties. He trusted that the amendment now before the Council would be withdrawn.

Sir Blundell Maple, M.P., opposed Mr. Porter's amendment, being of opinion that the burden of formulating a new scheme ought not now to be thrown upon the General Purposes Committee, because it was ten to one that the Works Department would be abolished at the next election, and meanwhile it ought to be allowed to run its course.

Mr. Freak complained of the waste of time in these discussions of the Works Department, and declared that as a representative of the working classes he would accept no compromise with those whom he regarded as the working man's enemies.

Dr. Longstaff said he was indifferent whether the amendment was carried or not, but was sure that the policy which it foreshadowed would ultimately have to be carried out by the Council.

After some further discussion, Mr. Porter asked leave to withdraw his amendment; but leave being refused, it was negatived on a show of hands.

Mr. E. White then moved his amendment. To bring the Department to a sudden stop would, he said, entail a serious loss, but his amendment would give the Department a last chance of putting its affairs on a sound commercial basis.

Mr. Antrobus seconded the amendment.

Mr. McKinnon Wood said the amendment did not commend itself to the majority of the Progressives as a satisfactory solution, but this much might be said in its favour, that it was not a dilatory amendment, and that it would enable the Department to be carried on. He therefore advised his colleagues of the Progressive party to accept it.

Mr. Roberts opposed the amendment, which was denounced by Mr. Burns, M.P., as a "delusive dodge" on the part of the Moderates. He advised his party to fight Mr. White and his amendment and to go to the electors on the question of direct employment.

The amendment was adopted on a show of hands.

The next recommendation of the Special Committee, after amendment by Mr. E. White, was agreed to as follows:—"That any Committee desiring to propose to the Council the carrying out of any works without the intervention of a contractor shall in the first instance obtain an estimate from the proper officer, and then refer such estimate to the manager of the Works Department for his examination and report before reporting to the Council."

It was further agreed:—"That the Works Manager shall be responsible to the Spending Committee, and the Committee shall report from time to time to the Council."

The next resolution agreed to was to refer to the General Purposes Committee the necessary amendments of the standing orders, with an instruction to insert in them words which should include the unions of employers, where such existed, with the trades-unions, in reference to the settlement of wages, rates, and labour hours.

The Special Committee also recommended:—"That it be referred to the General Purposes Committee to make further amendment of the standing orders by omitting provisions giving powers to the Clerk of the Council to direct examination of the books of any one contracting with the Council for the execution of works other than the time-sheets or books or wages sheets or books."

To this Mr. E. White moved, and Mr. Anstob seconded, the addition of the following words:—"And to make such other alterations in the conditions of contract as will ensure fair and just treatment of contractors, and to remove the objections which many of the best London firms have to tender for the Council's work."

Mr. Burns opposed the amendment as a veiled attack upon the trades-union clauses.

Mr. White disclaimed Mr. Burns's suggestion, but accepted a modification of his amendment by Colonel Ford as follows:—"And the General Purposes Committee is also to have power to consider and report to the Council any other alterations they think desirable."

The recommendation as amended, and with the addition of the words "not affecting the rates of wages and conditions of labour," was then agreed to.

A number of excess votes for works already carried out by the Council were then agreed to.

The Holborn to Strand Improvement.—On the reception of the report of the Improvements Committee with reference to the annual budget of proposed improvements,

Mr. Robinson asked whether the omission of the High-street, Kensington, improvement merely meant that it was postponed or that it was abandoned.

Mr. Westcott inquired as to what had become of the scheme for the proposed new street from Holborn to the Strand.

Mr. William Davies, Chairman of the Committee, replied that the Council having sanctioned the widening of the Strand by the removal of the Holywell-street block of houses the Holborn to the Strand scheme was in abeyance. They had numerous proposed improvements before them, from which they made a selection of the most urgent, and the others had to stand over. The widening of High-street, Kensington, was one of those that had to stand over, but the Committee was anxious to proceed with it at the earliest possible moment.

Improvements.—On the recommendation of the Improvements Committee, it was agreed to seek powers to continue Roehampton-street to the proposed new street at Millbank, to widen the Albert Embankment to 60 ft. between Vauxhall-walk and Upper Kennington-lane, and to widen York-road, Battersea, between Falcon-road and John-street.

Result of Legal Proceedings.—Formation of Street.—The Building Act Committee reported as follows:—

"Proceedings were taken by our direction against the builder of certain houses in a street leading out of Carysfort-road, Stoke Newington, for having commenced the formation of the street, the plan for which the Council refused to sanction in January, 1895. When the case was before the magistrate the defendant contended that the street was commenced to be formed and laid out in November and December, 1894, and that, as this was before the London Building Act came into operation, the formation of the street came within the exemption of Section 212 of that Act as work commenced before, and was in progress at, the commencement of the Act, and could therefore be completed in accordance with the previously existing law. The magistrate adopted this view, and dismissed the summons, with twelve guineas costs against the Council; but expressed his willingness to state a case for the opinion of the High Court. The magistrate based his decision upon the fact that spaces, intended for street openings, had been left between certain of the houses in Carysfort-road, and that for a certain distance the carriageways and footways in such openings were defined; but we are advised that this was not a commencement to form and lay out a street within the meaning of the Acts in force immediately prior to the passing of the Act of 1894. The magistrate has stated a special case, and we have directed the solicitor to take the necessary measures for obtaining a decision of the High Court upon the point involved."

Battersea Park River Wall.—The Parks Committee recommended that the Battersea Park River Wall should be constructed of granite at a cost of 43,000l., but the consideration of the matter was postponed.

The Council's List of Wages.—The Works Committee reported as follows:—

"The Central Association of Masters Builders of London has informed us that at a meeting of the master builders and representatives of the trades, it was decided that the rate of wages of plumbers' mates should be raised on June 1, 1897, from 6½d. to 7d. per hour, and that the hours worked should be the same as plumbers. It has also been agreed that extra pay for overtime worked by labourers shall not commence until 7 o'clock p.m. We have now to report that, in accordance with the resolution

of the Council of March 10, 1893, we have altered the Council's List accordingly. We have also been informed by the Central Association of Master Builders of London that the wages of scaffolders and timbermen have been increased ¼d. per hour from June 1, 1897. We have therefore altered the Council's list accordingly."

The Works Department.—At the ordinary weekly meeting on Tuesday, a number of questions were put to the Chairman of the Works Committee as to the precise interpretation of the resolution passed by the Council on the previous day.

Mr. Hoare, Chairman of the Committee, in reply, said he apprehended that the Works Committee was practically extinct, and that the works in hand would be transferred in the terms of the resolution to the several spending committees under the supervision of the Finance Committee. He imagined it would be the duty of the Finance Committee to supervise the accounts. They would, he took it, complete the accounts which had been commenced by the Works Committee, and would present them to the Council. With regard to Dr. Longstaff's question in reference to the timber accounts, those accounts were before the Works Committee a few days ago, and they would be laid before the Council before long.

Mr. E. White having put a question as to whether his resolution was not entirely prospective and not retrospective,

Sir Arthur Arnold protested against the Chairman of the Works Committee being called upon to interpret the decisions of the Council.

Mr. E. White said if he could not get a reply from the Chairman of the Committee he would put it to the Chairman of the Council.

The Chairman said as far as he understood it the resolution included works in hand, as well as future works—all works undertaken by the Council without the intervention of a contractor, prospective and retrospective.

Proposed Incorporation of Kensington.—The Local Government and Taxation Committee presented a report stating that they had considered a petition to the Queen from the inhabitants of Kensington in favour of the granting of a charter of incorporation to the parish. The Committee recommended that a petition against the granting of a charter, similar to that forwarded to the Privy Council in the case of the petition for the incorporation of Westminster, be presented. The report was adopted. The Council soon after adjourned.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting on Monday of the London County Council, the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions:—

Islington, North.—That consent be given to the erection of a one-story shop upon part of the forecourt of No. 33, Stroud Green-road, on the application of Mr. W. Smith on behalf of Miss E. Jobson.

Islington, North.—That consent be given to the erection of a one-story shop upon part of the forecourt of No. 35, Stroud Green-road, on the application of Mr. W. Smith on behalf of Mr. G. Atwell.

Lewisham.—That consent be given to the construction and erection of wooden canopies or hoods to Nos. 1, 2, and 3, Manor-lane-terrace, Manor-lane, Lee, on the application of Messrs. D. & R. Kennard.

St. George-in-the-East.—That consent be given to the erection of a wood and iron lookum, in front of the Eagle Brewery, Wellese-square, on the further application of Messrs. A. Kinder & Son on behalf of Messrs. H. Greenfield & Co.

Marylebone, East.—That consent be given to the erection of an inclosed iron and glass porch on part of the forecourt of No. 3, Langham-street, Portland-place, on the application of Mr. A. O. Collard on behalf of Mr. E. Hutton.

Horton.—That consent be given to the rebuilding and enlargement of a one-story addition in front of the North Briton public-house, No. 10, New North-road, Shoreditch, on the further application of Messrs. Newton & Keene on behalf of Mr. W. Edwards.

Islington, North.—That consent be not given to the erection of a one-story shop upon part of the forecourt of No. 52, Junction-road, at the corner of Langdon-road, on the application of Mr. W. C. Chipper.

St. Pancras, East.—That consent be not given to the erection of a church hall upon part of the forecourt of St. Luke's Church, Osney-crescent, Kentish Town, at the corner of Caversham-road, on the

application (further considered) of Mr. H. Wilson on behalf of the Rev. F. A. Elliott.

Marylebone, East.—That consent be not given to the erection of a one-story addition on each side of the porch to the Langham Hotel, Portland-place, on the application of Mr. C. W. Burge on behalf of the proprietors of the hotel.

Marylebone, East.—That consent be not given to the erection of a one-story addition on part of the forecourt of The Lodge, No. 1, Devonshire-place North, Marylebone-road, on the application of Mr. C. G. Keogh on behalf of Mr. H. F. Brown.

Clapham.—That consent be not given to the erection of houses with one-story shops on the west side of Wirtemberg-street, to abut also upon Venn-street, on the application of Messrs. G. G. Flint & Pitt on behalf of Mr. A. Troughton.

Dulwich.—That consent be not given to the erection of an inclosed porch at the side of No. 53, Oudine-road, East Dulwich, to abut upon Marsden-road, on the application of Mr. L. Nottley on behalf of Mr. E. A. Thompson.

Hackney, Central.—That consent be not given to the erection of a building with projecting bay window on a plot of land between Nos. 82 and 84, Mortimer-road, Dalston, on the application of Mr. D. H. North on behalf of Mr. W. Drake.

Hamstead.—That consent be not given to the erection of two houses on the west side of Fordwyke-road, to flank upon Ebbfleet-road, on the application of Mr. J. Phoenix on behalf of Messrs. Bridge & Neal.

St. George, Hanover-square.—That consent be not given to the retention of a wooden show-case unlawfully erected in front of No. 147, Ebury-street, Fimlico, on the application of Mr. H. J. Dawe.

Strand.—That consent be not given to the erection of iron and glass covered ways at the entrances to the Monico, in Shaftesbury-avenue and Regent-street, on the application of Messrs. G. & B. Monico.

Line of Fronts and Width of Way.

Kensington.—That consent be given to the erection of a block of residential chambers on the site of No. 59, Drayton-gardens, on the further application of Mr. J. Norton on behalf of Mr. T. Boyce.

Line of fronts and space at rear.

Islington, East.—That the Council, in the exercise of its powers under Sections 32, and 75 of the London Building Act, 1894, do not consent to or permit of the erection of an addition partly one story and partly two stories high, at the rear of Nos. 248, 250, and 252, Seven Sisters-road, Holloway, to abut upon St. Thomas's-road, next No. 1, on the application of Mr. J. W. Chapman on behalf of Messrs. Garner & Sommerford.

Open Space about Building.

Strand.—That the sanction of the Council be not given to the rebuilding of Nos. 2 and 3, Dansey-yard, at the rear of Nos. 16 and 18, Gerard-street, Soho, on the application of Mr. Robert Reid on behalf of Miss L. S. Sheffield.

Alterations at Adelaide Gallery Restaurant, Strand.

Strand.—That no order be made with respect to the further application of Mr. W. B. Pinley on behalf of Messrs. A. & S. Gatti for the consent of the Council to a proposed addition to the Adelaide Gallery Restaurant, No. 436, Strand, on the site of No. 9, King William-street, the building and addition together exceeding in extent 450,000 cubic feet, and to be used only for the purposes of the trade of the restaurant.

Formation of Streets.

Hackney, North.—That an order be sealed and issued to Mr. C. Cheston, sanctioning the formation or laying out, on the Tyssen Amherst Estate, of a new street, 40 ft. wide, for carriage traffic, to lead from Stamford Hill into Wilderton-road. That the name Colberg-place be approved for the new street.

Wandsworth.—That an order be sealed and issued to Mr. W. F. Palmer refusing to sanction the formation or laying out for carriage traffic of a new street, 40 ft. wide, between the north-west angle of Guelph-street, Garratt-lane, and the river Wandale.

Norwood.—That an order be sealed and issued to Messrs. Leemish & Mumby, refusing to sanction the formation or laying out for carriage traffic of three streets, 40 ft. wide, on the Meadowbank Estate, to lead out of the east side of Knight's Hill-road, West Norwood, on the application on behalf of the Land Mortgage Investment and Agency Company, Limited.

Hamstead.—That an order be sealed and issued to Mr. C. W. Stephens, refusing to sanction the formation or laying out for carriage traffic of new streets, 40 ft. wide, on the site of West End house and grounds, and to lead out of the east and south sides of West End-lane, also for approval of the widening of a portion of that lane.

Lewisham.—That an order be sealed and issued to Messrs. C. Wisler & Co., refusing to sanction the formation or laying out for carriage traffic of a new street, 40 ft. wide, to lead out of Montem-road into Brockley-view, Catford, on the application to the Council on behalf of Mr. T. Grundy.

Line of Frontage.

Holborn.—That consent be not given to the erection of houses on the north-east side of South-

ampton-row, between No. 64 and Cosmo-place, St. Giles-in-the-Fields, on the application of Mr. G. D. Martin.

Norwood.—That consent be given to the erection of a mission hall on the east side of Elder-road, West Norwood, on the further application of Mr. J. C. Wright on behalf of the Rev. H. Cooper.

Clapham.—That consent be given to the erection of one-story shops, to be numbered 32 and 32A, on the north side of High-street, adjacent to Vernon-road, on the application of Mr. H. Wakeford on behalf of Mr. C. G. St. John.

Clapham.—That consent be given to the erection of one-story shops in front of Nos. 125, 127, 129, 131, 133, and 135, Lavender Hill, Battersea, on the application of Mr. E. B. L'Anson on behalf of Mr. J. Martin.

Kensington, North.—That consent be not given to the erection of one-story shops on part of the forecourt of No. 120, Wesbourne-grove (late Norfolk-terrace), on the application of Messrs. Pennington & Son on behalf of Mr. J. Risien.

Width of Way.

City of London.—That consent be not given to the erection of a building on the site of Nos. 43 and 43A, Fetter-lane, to be also upon Dean-street, on the application of Mr. J. F. Bell.

St. George-in-the-East.—That consent be given to the erection of two houses, to be numbered 17 and 19, on the west side of Prospect-place, Cable-street, with the external fence or boundary of the forecourt of the houses in the position shown upon the amended plan submitted with the further application of Messrs. Gardiner & Theobald.

St. George-the-Martyr.—That consent be given to the erection of two blocks of buildings adapted to be inhabited by persons of the working class, on the east and west sides of Gun-street, Friar-street, Southwark, with the forecourt boundary of the buildings at less than the prescribed distance from the centre of the road, on the application of the Housing of the Working Classes Committee of the Council.

Deptford.—That consent be given to the erection of a building on the north-west side of Lucas-street, Lewisham High-road, on the application of Mr. J. J. Downes on behalf of Plummers' Stores, Limited.

Poplar.—That consent be given to the erection of a one-story building in Northumberland-yard, Mill-wall, at less than the prescribed distance from the centre of a roadway to cottages at the rear of houses in Westferry-road, on the application of Messrs. Gordon, Lovether, & Guntton on behalf of Messrs. Maconochie Brothers.

Lambeth, North.—That consent be not given to the erection of an addition to No. 36, Broadwall, Stamford-street, to abut upon Little Duke-street, on the application of Mr. A. Mart on behalf of Mr. F. J. Chambers.

Southwark, West.—That consent be not given to the erection of a warehouse on the east side of Broadwall, Blackfriars, on the application of Mr. E. Power on behalf of Messrs. Thorburn, Bain, & Co.

Whitechapel.—That consent be not given to the erection of a new two-story addition to No. 34, Glasshouse-street, on the application of Mr. A. Waterman on behalf of Messrs. Peek Brothers & Winch, Limited.

Recommendations marked * are contrary to the views of the Local Authority.

Correspondence.

To the Editor of THE BUILDER.

ECCLIASTICAL SCULPTURE.

SIR,—At a recent conference on "Church Building—Present and Future," Canon Gore deplored the general dulness of church decorative work, meaning probably colour decoration. The same feebleness may be seen, however, in another branch of that work, which assumes the name of sculpture.

It is the mission of the "middleman" to keep this work going in well-worn grooves; he may be himself unable either to draw, model, or even to suggest any elevated idea of his subject; but he will produce photographs of his work, look wise, and, as the culture of the period does not discriminate in such matters, he is made happy in his tender love for the shekels.

Why should he offer pearls where horse-beans will meet all requirements? L.

THE STUDENT'S COLUMN.—The Student's Column articles of this half-year, dealing with "Quantities," will be commenced in our issue for Saturday, July 24.

UNITED METHODIST FREE CHAPEL, SALISBURY.—The ceremony of opening the new Free Methodist Chapel, which has been erected on the site of the old building in Milford-street, was performed recently. The new chapel is capable of accommodating 550 persons, with an orchestra, on either side of which are two vestries. Externally the walls are of red brick, relieved with stone dressings. The work has been carried out from plans by Mr. W. H. Dinsley, of Chorley.

OBITUARY.

MR. J. W. GRUNDY.—Mr. James Wright Grundy, architect, died suddenly at his residence, Richmond-terrace, Ulverston, on the 24th ult. The deceased gentleman, who was 76 years of age, was a native of Benthams, Yorkshire, and came to Ulverston from Crawshawbooth as a youth. He was apprenticed to Mr. James Wearing, joiner, and subsequently formed the business known as J. W. Grundy & Son. His chief work was Stone Cross Mansion, other residences of his design being, for instance, Ambleside Vicarage, Graystone (Dalton), Hinning House (Booth), Lynn Dene (Ulverston), &c. Of public buildings his chief works were the Co-operative Stores at Ulverston, Dalton, and Millom; Temperance Hall, Market House, Cemetery, and Post Office, Ulverston; Holy Trinity Schools, Ulverston; Millom and Arncliffe Wesleyan Chapels, and the Sun and County Hotel extensions at Ulverston.—*Barrow Herald.*

GENERAL BUILDING NEWS.

NEW CHURCH, ARKLOW.—The present church at Arklow is an extremely ugly and unsatisfactory building, originally built in the early part of the present century. Last autumn the Earl of Carysfort, whose family seat, Glenart Castle, is in the immediate neighbourhood of the town, made the munificent gift of 25,000l. to provide a new church to take the place of the present one. The first stone of the new church was laid by the Countess on June 10. It is placed in a commanding position on the highest ground in the town, so that the spire will form a conspicuous object from many points in the surrounding country and far out at sea. The church, which will be seated for 500 persons, besides the choir, consists of nave and aisles, with western tower and spire, a chancel, with side chapel on the south, vestries and organ chamber on the north. A local granite is being used for the walling, with quoins and dressings of Monk's Park stone, Corsham being used internally. The ceiling of the nave will be groined in oak, after the fashion of the well-known example at Warmingtun, the style of which church has, by special desire, been followed in certain other respects. The work is to be completed in two years. Sir A. W. Blomfield & Sons are the architects.

WINCHESTER COLLEGE QUINGENTENARY MEMORIAL BUILDING.—This building, by Mr. Basil Champneys, which was opened on June 26, is intended as a memorial building for the preservation of Wykehamical antiquities and for the encouragement of art, archaeology, natural history, and other sciences. It consists of a museum on the first floor of 85 ft. by 50 ft., divided in the centre by open arcading, and approached by a staircase. The space between the new building and the old racquet-court has been utilised to make a drawing school, leaving a way through underneath. The front part of the museum is supported on coupled columns, forming an open loggia underneath. Beyond this, under the rest of the museum, are rooms devoted to entomology, modelling, botany, photography, &c. The east side shows a long and rather low elevation, with projecting oriel windows in stone on a red brick background, the stone being Ancaster, and Clapham. The brickwork of small bricks running six courses to a foot. Between the windows are some medallion portraits by Mr. Lucchesi, of Bishop Ken, Lord Seaton, the late Lord Selborne, and others. In a niche at one end is a statue of Wykeham, with the date 1393; at the other the Queen, dated 1893. The end elevations are enriched by rusticated columns with open balconies leading from the museum above. The building was carried out by Mr. Kimberly, of Banbury, the carving being by Mr. Bridgeman, of Lichfield; Messrs. Elsiey doing the heating and casements, the wrought ironwork by Messrs. Crittall, Messrs. Degrelle, Houdret, & Co. doing the marble floor, the whole being under the superintendence of Mr. Simpson, as clerk of works.

ROYAL INSTITUTION FOR THE INSTRUCTION OF DEAF AND DUMB CHILDREN, EDGBASTON, BIRMINGHAM.—Extensive alterations and additions have recently been carried out to the buildings of this institution, in accordance with the requirements of the Educational Department. These comprise eight new class-rooms for oral teaching, new dining-room about 40 ft. square with covered approaches; also a new wing on the girls' side, containing four bedrooms and bath-room for teachers, two wardrobe rooms, sewing-room and store-room; increased kitchen and scullery accommodation, improvements in the dormitories for both boys and girls, extension of large school-room, six new bedrooms for male teachers, lady teachers' room, additional staircases, male teachers' sitting-room, head master's room, new board-room, 35 ft. long, and new Val de Travers asphalt playground. The new buildings and dormitories have been warmed with hot-water apparatus, and the whole redecorated. The accommodation of the institution is for ninety males and seventy females. The works have been carried out by Mr. William Robinson, builder, at a cost of about 5,000l., from plans prepared by Mr. Frank Erskine Osborn, architect, of Birmingham. The heating apparatus was supplied by Messrs. A. J. Kallaway & Co., and the painting and decorating by Mr. John Taylor, all of Birmingham.

GLOUCESTER FREE LIBRARY.—This library is to be placed on vacant land to the south of the School of Art, Gloucester, and to form a continuation of the present Technical School buildings, a large room previously used as a Technical Drawing School to be appropriated for the Reference Library, a small part of it, together with the waste space beneath the principal stairs to the Art School, being utilised for a librarian's private room. On the south side of the Reference Library a Lending Library, 41 ft. by 32 ft. is to be erected, two stories in height with a large glass dome over, the upper story with galleries round reached by a staircase; a book-lift to be also provided. The Reading-room and News-room is to adjoin the Library, occupying all the ground on the south side of the site, with basement accommodation for extra papers, stores, lavatories, &c. To compensate for the room taken from the School of Art, additional accommodation for it is to be provided over the Free Library, where there will be a Lecture-room and Technical Reading-room over the Reading and News-room, and two class-rooms over the new Hall. The proposed arrangements are very similar to those adopted at Cheltenham, but the space available for the Free Library will be considerably larger, and the whole scheme will give Gloucester a very complete range of educational buildings. Messrs. Waller & Son are the architects.

NEW CHANCEL, &c., ST. PHILIP'S CHURCH, DORRIDGE.—This church has been enlarged by the addition of a new chancel, with chancel aisle, organ chamber, and vestries. Mr. J. A. Chatwin (Birmingham) is the architect. The ultimate intention is to substitute a stone nave, aisles, and tower, for the present brick nave. The total cost of the completed edifice will be between 5,000l. and 6,000l. The dedication of the first church took place on November 19, 1878. In the new church there will be a memorial to the founder of the first church (the Rev. R. W. Johnson, then vicar of Packwood), in the form of a brass eagle lectern.

BATHS, TUNBRIDGE WELLS.—The new Borough Baths at Tunbridge Wells, the foundation stone of which was laid recently by the Mayor, are being erected from plans by the Borough Engineer, Mr. T. W. Mellor. The swimming bath will have a water area of 90 ft. by 35 ft., and a depth varying from 3 ft. 6 in. to 6 ft. 6 in., which can be increased to 4 ft. and 7 ft. for purposes of fites. The sides of the bath will be of white enamelled bricks, and the bottom of white marble mosaic, with lines for the guidance of swimmers under water. The mosaic of the foot-way round the baths and the dressing-boxes will be a mosaic of a redder hue. The dressing boxes will be each side of the bath. A gallery with ornamental wrought iron railings surrounds the building, and will seat nearly 400 spectators. The roof will be partly pitch pine and partly glass, with ornamental girders, below which will be clusters of lights. The walls, to a certain height, will be of cream enamel brick, and the upper part of red brick with moulded cornice. The slipper baths will be on the Monsoon-road side, and at the other end is a club-room, the boiler houses, a small laundry, and lavatory accommodation, while here will be situated the chimney shaft, which will be carried to a height of 70 ft. As regards the slipper baths, those for ladies and gentlemen will be entirely separate.

CONGREGATIONAL SCHOOLS, HOPE, FLINTSHIRE.—The foundation stone has just been laid of the new Sunday School in connexion with Hope Congregational Chapel. Mr. John Johnson is the builder, and the architect is Mr. W. E. V. Crompton. The walls to Mesnes-street and Mesnes-terrace will be built of Upholland stone parpinto, with Yorkshire stone dressings, and Welsh slates for the roof. In the basement there is a kitchen, connected with the floors above by means of a lift. On the ground floor there are two main entrances, one in Mesnes-street and the other in Mesnes-terrace, between which there is a large lecture-room and cloak-room, with nine class-rooms behind. In addition to this, certain alterations to the existing building give a choir and minister's vestry. On the first floor there is the assembly hall, approached by two staircases, having an infants' class-room with gallery over at one end, with a platform and retiring room at the other. The total number of class-rooms available for Sunday School purposes is fifteen.

TOWN HALL, KIRTON LINDSEY, LINCOLNSHIRE.—The foundation stone has just been laid of Kirton Lindsey Town Hall. The site of the building is at the top of the Market-place, and Mr. J. K. Broughton is the architect. The building will be 61 ft. 3 in. by 37 ft. 6 in. The stone from the old prison will be used as facings, with quoins of dressed and squared York stone. Inside the building there will be a large upper room, 47 ft. by 33 ft., and 22 ft. in height. There are to be three staircases leading to this room. On the ground floor there will be three rooms, to be used as a Council chamber, a reading-room, and a club-room, and there will be the necessary ante-rooms. The total estimated cost of the building is 1,500l. There is to be no contract work in connexion with it. The architect will have the superintending of the work, with Mr. G. Hollome as foreman mason.

ENLARGEMENT OF CHRIST CHURCH, CHESTER.—The new side chapel, stone-carved pulpit, and stone porch, the whole forming a further stage in the enlargement of Christ Church, Chester, were dedicated by Archdeacon Barber recently. The

chapel, which is separated from the main channel of the church, is built of red sandstone, and is from the design of Mr. Douglas. The three stained glass windows are by Mr. C. E. Kempe. The roof is of oak, and the floor of the sanctuary is of red and white marble. The roscio, also designed by Mr. Kempe, represents the Annunciation.

PROPOSED NEW PARISH CHURCH FOR ROWLEY REGIS, WORCESTERSHIRE.—A vestry meeting of the parishioners and congregation was held in the National Schools on the 21st ult., to consider the question of the proposed restoration of the church. A resolution was carried giving authority to the Vicar, and the members of the new Church Building Committee, to apply to the Consistory Court of the Diocese of Worcester for a faculty to empower them to take down the fabric of the present church and tower of the Parish Church, and to erect on the same site another church and tower in stone work, according to plans prepared by Messrs. L. Sheppard & Son, architects, Worcester.

GARTLOCH ASYLUM, GLASGOW.—In reference to the notice of this building in our last issue, Messrs. Mainzer & Co. ask us to mention that the Terrazzo floors were executed by them.

WESLEYAN MISSION HALL, GROVES, NEAR HULL.—The new Wesleyan Mission Hall and Sunday School, erected in Jennings-street, Groves, was opened on the 24th ult. The building is built of red bricks, with stone dressings, and comprises a central hall, with gallery to accommodate 600 persons, an infants' schoolroom, seven class-rooms, and thirteen other class-rooms, with ministers' vestry, library, and school kitchen. The work has been carried out by Mr. E. Good, builder, at a total cost of 2,900*l.*, from the design and under the supervision of Messrs. Gelder & Kitchen, architects, Hull.

MISSION CHAPEL, THORVERTON, DEVON.—On the 21st ult., the foundation stones of the St. Martin's Mission Chapel, Northdown, Thorverton, were laid. The building is arranged to accommodate sixty worshippers, and has a small chancel, a vestry, lobby for umbrellas, and entrance lobby. A basement is also provided. The contractor is Mr. N. Poult, of St. Mary's Cylst, and the architect is Mr. James Jermain, of Exeter.

BUSINESS PREMISES, DARLINGTON.—New premises for the North of England School Furnishing Company in Blackwellgate, Darlington, have just been completed. At the corner of Coniscliffe-road and Blackwellgate, is the principal entrance into the showrooms on the ground floor. The architect is Mr. G. G. Hoskins, and the work has been done under the personal supervision of Mr. Walter Hoskins. The contractors were:—Masonry, brick-laying, and terra cotta work, Messrs. McKenzie Bros.; carpentry and joiners, Messrs. Stairmand & Son; plumbers, Mr. T. Lishman; glazing, Mr. J. C. Rennison; slaters, Mr. J. Wandlass; painting and decorating, Messrs. W. H. and W. Hoskins; heating apparatus, Messrs. Richardson & Co.; electric lighting, Messrs. Cox-Walkers.

RENOVATION OF THE PARISH CHURCH, WOLSHAM.—The parish church of Wolsham has been consecrated by the Bishop of Durham, after renovations and improvements. A new altar and pulpit of oak have been provided, and the nave has been resheeted with oak benches. The floor of the nave, formerly flagged in stone, has been laid with blocks of wood, a heating apparatus of hot water has been introduced, and a baptistry built near the south porch. The woodwork is throughout of Hungarian oak, supplied by Mr. W. Hudson, of Bishop Auckland, from designs by Mr. C. H. Fowler, architect, of Durham. Mr. Westgarth, of Wolsham, has executed the mason's work, and the heating apparatus is by Messrs. Dinning & Cooke, of Newcastle.

CONSECRATION OF ST. PETER'S CHURCH, BOCKING, ESSEX.—The new church of St. Peter's, Bocking, which, so far as contemplated at present, is complete, was consecrated by the Bishop of St. Alban's recently. The church is built of brick, with stone dressings, the style being Gothic. At present only the nave and chancel have been completed, but the pillars which will support the roof when the north and south aisles are erected, have been finished in Caisteron stone. The greater part of the stone in the building is of this variety, with the exception of the font, which is of Portland stone. The church has been erected by Mr. William Parmenter, of Baintree, from the designs of Mr. J. T. Micklethwaite.

TECHNICAL SCHOOL, OLDHAM.—The formal opening of the Oldham Municipal Technical School, situate in Ascroft-street, took place recently. The main block, to Ascroft-street and Chapel-street, consists of four stories, and the portion facing Denton-street and St. Peter's-street of three stories. The site covers an area of 147 ft. by 96 ft. The corridors and staircases are arranged so as to give direct access to the various rooms. On the ground floor there is a joiner's shop, fitted with benches, power lathe, and other accessories; there is also a plumbers' shop, and on the floor above are the mechanical engineering-room, mechanical laboratory, and two class-rooms. The second floor contains the cotton spinning-room. The weaving-room is on the third floor. Mr. Spencer Ashton was the architect of the new building.

CHILDREN'S WARD, ROTHERHAM HOSPITAL.—The foundation stone has just been laid of the Children's Ward at the Rotherham Hospital. This ward forms the chief scheme for the commemora-

tion of the Diamond Jubilee in Rotherham. The new structure will consist really of two wards, the larger containing fourteen beds, and a small isolation ward for two beds. There will be the usual accommodation for the nurses, kitchens, lavatory, sanitary arrangements, &c. The heating will be by means of a stove fixed in the centre of the large ward and by pipes. The wards will be reached from the existing building by means of a continuous corridor. The cost of the building (exclusive of heating apparatus, furnishing, &c.), will be 1,800*l.* Mr. J. D. Webster, Sheffield, is the architect, and Messrs. Chadwick & Co., Rotherham, are the contractors.

ROYAL PROVIDENT HOMES, GRIMSBY.—On the 24th ult., the Mayor of Grimsby laid the foundation stone of the new Provident Homes that are being erected in Doughty-road, Grimsby, for aged fishermen and their widows. There are to be twenty-nine houses, which are being built at a cost of about 6,000*l.*, as the official commemoration in Grimsby of the Diamond Jubilee of the Queen. The architect was Mr. H. C. Scaping, and Messrs. Hewins & Goodhand the contractors.

MISSION CHURCH, PREESALL, LANCASHIRE.—The foundation stone of a new mission church at Knott End, Preesall, was laid recently. The structure, which will accommodate about 250 worshippers, has been designed by Messrs. Paley & Austin, of Lancaster, and the contracts have been let to Messrs. Cox & Gregg, brickwork and masonry; Mr. J. Kirkbride, woodwork; and Messrs. Woods & Jackson, painting and plumbing.

THE PROPOSED NEW TOWN HALL, CARDIFF.—A meeting of the Town Hall Committee of the Cardiff Corporation was held recently, when the conditions and instructions for architects invited to send in complete designs and estimates for the erection of the proposed new town hall, municipal buildings, and law courts, were submitted by Mr. Harpur, the Borough Engineer, and considered. Some alterations were made and the draft was then approved. As a guide to architects it was resolved that the amount to be expended on the buildings shall not exceed the sum of 200,000*l.*, exclusive of architects' commission and furnishing, but including drainage, lighting, heating, ventilating, water supply, and all contingent works. In order to fix upon the site in Cathays Park it was resolved that the whole of the members of the Council be asked to attend a special meeting on the spot. In selecting the designs for the premiums of 500*l.*, 300*l.*, and 200*l.*, the Corporation will be advised by a professional assessor, whose decision shall be final and binding; but the construction of the new building will be subject to any modifications which the Corporation may decide upon. The consideration of the requirements of the heads of the various departments was deferred to a future meeting.

COUNCIL OFFICES, MYTHOLMOYD, YORKSHIRE.—New Council offices, situated at Sea Bottom, have been opened at Mytholmoyd. The building, formerly used as a Church school, has been divided, and the portion nearest the village converted into Council-room and offices, in accordance with plans prepared by Mr. S. Sutcliffe, the surveyor.

ODDFELLOWS' HALL, LINCOLN.—On the 22nd ult. the new portion of the Oddfellows' Hall in Broadgate and Unity-square, Lincoln, was opened. The building consists of three stories and a basement. It has a frontage to Unity-square of about 66 ft. and 31 ft. to Broadgate. The total frontage of the hall to Unity-square is now 155 ft. On the ground floor there are five offices to be let off, and there is also an entrance independent of the main entrance to the hall. On the first floor there is a connexion between the old and new portions of the hall and three large lodge-rooms, which average about 30 ft. by 20 ft. The second floor contains three committee rooms, and a house for the caretaker with other accommodation. The outside is built of local red brick with stone dressing. The builders were Messrs. Marshall & Harrison, Lincoln, and the total cost is about 1,400*l.* The architects were Messrs. Mortimer & Son, Lincoln.

WESLEYAN SUNDAY SCHOOL, BRUTON, SOMERSETSHIRE.—Foundation and memorial stones of a new Sunday School for the Wesleyans were laid recently at Bruton. The new premises will include a schoolroom, 20 ft. by 6 ft. and 20 ft. high, and ante-rooms. Mr. R. Bowring, of Wells, is the architect, and Messrs. Clarke & Son, of Bruton, are the builders.

SANITARY AND ENGINEERING NEWS.

WATER-SUPPLY, BEDWORTH.—An inquiry was conducted at Bedworth on the 24th ult. by Major-General Crozier, R.E., an Inspector of the Local Government Board, into the application of the Foleshill Rural District Council to borrow 8,775*l.* for purposes of water supply. The scheme was explained by the engineer, Mr. H. Bertram Nichols, C.E., of Birmingham. The population is about 6,000, and the yield of the well is 210,000 galls. per day. A water tower is proposed, with tank at a sufficient height to give adequate pressure over the highest house in the town. There was no opposition to the application.

PROPOSED SEWERAGE WORKS, TONBRIDGE.—Mr. G. W. Willcocks, M.Inst.C.E., one of the Local Government Board Inspectors, held an inquiry on the 18th ult. with reference to an application for sanction to borrow the sum of 4,368*l.* for works of

sewerage. The plans and schemes generally were explained by Mr. W. L. Bradley, the Council's Engineer and Surveyor, who afterwards accompanied the inspector over the sites of the proposed works. The scheme comprises a new outfall sewer and the application of the Shone system to the low-lying portion of the district.

MARINE DRIVE EXTENSION, SCARBOROUGH.—The foundation stone of the Marine Drive Extension at Scarborough was laid on the 25th ult. The work connects the two foreshores by road, and provides a marine drive nearly four miles in length, and a promenade nearly four miles in length, and a conference, sweeping round the base of the Castle Hill. In 1882 the Town Council engaged Sir John Coode to examine and report on the subject of the drive, and he declared that the scheme presented no insuperable engineering difficulties; that, provided the wall were constructed thick enough in the exposed portions, it would be perfectly safe.

In 1894 the Council invited tenders, and in December accepted the offer of Messrs. B. Cooke & Co., of Battersea. The contract price was 60,270*l.*, which does not include the asphaltting of the road, the erection of toll houses, or the provision of an approach from the South Foreshore-road. The total cost is estimated at 100,000*l.*, and construction is expected to last until August, 1899. The length of the new wall, from its junction with the East Pier to its junction with the Royal Albert Drive, is 4,100 ft., and in form will be a flat hollow curve. The face of the wall will be of concrete blocks throughout, and the height will range from 13 ft. to 19 ft. above high water at ordinary spring tides. The foundations of the wall will be carried into the shale bottom, and the wall will vary in thickness according to the degree of exposure to the action of the tide, from 17 ft. at the base and 6 ft. at the top, to 30 ft. at the base and 10 ft. at the top, while the concrete blocks to be laid range from 1½ tons to 10 tons in weight. The space between the wall and the mainland will be filled in with rubble and cement, a promenade being provided 20 ft. wide, and a carriage way 40 ft. in width. From end to end the drive along the sea front connecting the two foreshores will be between three and four miles in length. With regard to the safety of the Marine Drive, the late Mr. James Abernethy, in a report two years ago, made certain suggestions which have been embodied in Messrs. Cooke & Co.'s contract.—*Sheffield Telegraph.*

STAINED GLASS AND DECORATION.

WINDOW, GOOD EASTER CHURCH, CHELMSFORD.—A stained glass memorial window has just been erected in the east end of this church. The subjects represented are the Nativity, Crucifixion, and Resurrection of our Lord. The work, which is in the style of the Perpendicular period, has been executed by Mr. H. J. Salisbury.

WINDOW, OVING CHURCH, BUCKS.—A stained glass window and the restored tower of Oving church were dedicated a short time since. The window is situated on the north side of the church, and faces the right aisle. The work has been carried out by Messrs. Clayton & Bell, of London. The buttresses and facings of the tower, which formerly were of Roman cement, have been made good in stone, the work having been executed by Messrs. Webster & Cannon, of Aylesbury.

FOREIGN.

FRANCE.—The equestrian statue of Jeanne d'Arc, which was exhibited in the Champs Elysées Salon in 1895, has been placed in the Court of the Louvre, facing the Pont des Arts.—The military Hospital of Saint Martin (or 'des Recollets') will shortly be demolished and rebuilt, on the borders of the Bois de Boulogne, in the Bois de Vincennes, and the new Hospital, Cloud Park. The garden of the present hospital will be turned into a public square.—A new Society of the 'Amis du Louvre,' whose object is to help the Louvre Museum to complete and enrich its collections, has just been formed under the Presidency of M. Georges Berger.—A monument has recently been inaugurated at Saint Quentin in memory of the siege sustained by this town against the Spaniards in 1557. The monument is the work of M. Henri Theunissen, sculptor, and M. Charles Heubès, architect.—In the Jardin des Plantes at Bordeaux a monument erected by subscription has just been inaugurated to the memory of the artist and designer, M. Maxime Lalanne, who died some years ago. The monument, the work of the Bordeaux sculptor M. Pierre Granet, consists of a stele in red Pyrenean granite, supporting a white marble bust of M. Lalanne. Around the stele a branch of the tree trails, on the trunk of which is seated a female figure, drawing. The whole has a graceful and decorative effect.—M. Faugère has just finished a very large decorative group, which is to be placed in the Pantheon under the Cupola, where formerly the high altar stood.—The municipal engineers of Paris are about to fix a steel bridge, of 43 metres bearing, over the Nord railway, to connect the Rue de la Chapelle with Rue Stephenson. The bridge is to be finished in a few hours' time, and without stopping the railway traffic.—We have to chronicle the death of M. Adolphe Binet, at the early age of forty-three, at Quillebeuf. His pictures had gained him considerable repute at the Champ de Mars

Salon, where this year he exhibited eight pictures. He had obtained, in competition, the commission to execute the decorative paintings in the "Salon du Siege" at the Paris Hôtel de Ville. We have also to record the death of M. V. L. Mottez, the historical and portrait painter, at the age of eighty-eight. He was a native of Lille, and was a pupil of Ingres and Picot, and first exhibited in the Salon of 1833. He painted many pictures of religious subjects, and decorated many chapels at Lille, as well as the churches of St. Severin and St. Sulpice at Paris. He painted also many portraits of eminent personages. After his travels in Italy, where he had made a careful study of the methods of fresco painting, he undertook the well-known decoration in the porch of St. Germain-Auxerrois, which the dampness of the Parisian climate has unfortunately almost entirely destroyed. M. Mottez had received medals in various Salons. He leaves behind him a son who is also a painter.

SPAIN.—A competition has been opened at Barcelona with the view of obtaining a treatise on the archaeology of Spain, and a sum of 20,000 pesetas, or nearly 750*l.*, is offered in premiums. The treatise has to be sent in by October, 1901. The language is limited to Spanish, Italian, Portuguese, French, or Latin.

GERMANY.—The number of buildings executed by the Government of Prussia, with the assistance of its Board of Works, during 1896, has been 870, as compared with 821 the year before. The hundred and twenty-two of the number are school buildings, seventy-five are churches, thirty-six are structures in connexion with the Law Court, and twelve University buildings.—The first section of the alterations and additions to the University Building at Leipzig was completed last month. Baurath Rossbach, the architect, received a distinction from the King of Saxony on the occasion of the opening ceremony. We shall on a future occasion describe the work.—The Society of Engineers at Berlin last month opened their new house, which has been built from the plans of Messrs. Reimer & Koerte, at a cost of about 13,000*l.*—The large gold medals at the Art Exhibition of Berlin have been awarded to Max Liebermann and Richard Friese, painters, of that city. The sculptor, Peter Brauer, of Berlin, also received a large gold medal, whilst small gold medals were given to Albert Hertel of Berlin, Hugo Muehlberg of Düsseldorf, Ludwig Mayne of Berlin, and R. Reincke of Munich. The sculptor Heinemann received a small gold medal, and likewise the architect, Otto March.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. E. Guy Dawber, of 22, Buckingham-street, Adelphi, has taken into partnership Mr. Francis A. Whitwell, and the firm will in future be Messrs. E. Guy Dawber & Whitwell.

MEMORIAL FOUNTAIN, WISBECH.—A special meeting of the Town Council was held on the 18th ult. to unveil and to receive the presentation of a drinking fountain in the Old Market, in memory of the late Mr. and Mrs. G. D. Collins, of Wisbech. The fountain is in the Renaissance style, and is of red Mansfield stone, with Sicilian marble vase trough, and has an inscription on the panels. Besides the drinking cup there are troughs for horses, sheep, and dogs. The memorial has been designed and executed by Mr. H. H. Armistead, R.A.

BROWN PAPER.—Messrs. Terry & Co. (London) send us samples of various shades and qualities of their "Old Browne" brown papers, which appear to be excellent and strong papers of their class. Some of them, we may suggest, would form a good medium for diagrams or sketches in black heightened with white, as well as for the humbler duties of wrapping.

THE SANITARY INSTITUTE.—At an examination in practical sanitary science, held at York on June 18 and 19, the following three candidates presented themselves, to whom certificates were granted:—W. H. Cotterill, Nottingham; J. B. Norton, Leeds and Calcutta; Howard Parker, Buxton.

DUNDEE INSTITUTE OF ARCHITECTURE, SCIENCE, AND ART.—The following is the syllabus of competitions arranged for the session of 1897-8:—(1) Best Freehand Sketchbook of Architectural subjects from existing buildings, not less than six pages, in pencil only, not copied from any drawing. Size of page not larger than 10 in. by 7 in.; (2) Best Measured Drawings of any Architectural subject, in black and white, and not more than four nor fewer than two sheets, containing plan, elevation, and section to $\frac{1}{4}$ in. or $\frac{1}{2}$ in. scale, and detail of a part to $\frac{1}{16}$ in. full size. Measurement books to be lodged. Size of drawing, 21 in. by 14 in., with margins or mounts beyond drawing not exceeding 4 in.; (3) Best Work in Modelling or Carving of any of the following:—

(a) Cornice, not exceeding 12 in. by 9 in. by 18 in.; (b) One Quarter of Crown Flower, not exceeding 21 in. by 21 in.; (c) Key Stone, not exceeding 18 in. by 12 in.; (d) Lock Plate and Door Handle, not exceeding 21 in. in height; (4) Best Outline Drawing from an Antique subject in the Dundee Art Museum or Catalogue, with duplicates thereof. Size of work 22 in. by 14 in., with 4-in. margins or mounts; (5) Best Design in Colour for any of the

following subjects:—(a) Interior Decoration of a private Library, Dining or Drawing Room;—(b) Wall and Ceiling Paper;—(c) Door Panel;—(d) Tile or Parquetry Floor;—(e) Mosaic Tympanum. The first and second of these competitions are limited to architects' apprentices, in Forfar, Perth, and Fife; the others are open to anyone under twenty-five years of age, as at January 31 next, residing in Forfar, Perth, or Fife.

CAPITAL AND LABOUR.

MASONS AND THEIR WAGES, BARNSTAPLE.—A meeting of Barnstaple master masons was held recently to consider the application of the workmen for an increase of wages. It was resolved "That as there are little or no building operations in progress, the masters consider the masons are ill-advised in disturbing the existing arrangements, and until there is a considerable improvement in the local building trade they regret that they cannot entertain the masons' demands."

THREE TOWNS BUILDING STRIKE.—A meeting of carpenters was held at the Foresters' Hall, Plymouth, on the 25th ult., and the question of falling in with the offer of the masters was discussed. On a ballot being taken it was found that a majority of twelve were in favour of accepting the employers' proposal—that of returning to work at once, and the $\frac{1}{4}$ d. increase to take place on August 1st. The minority, taking advantage of a clause in their rules, thereupon raised the objection that notices calling the meeting had not been sent to all the members of the Society, and the objection proving to be correctly grounded, the chairman ruled the ballot void. Amidst great uproar it was decided to adjourn the meeting.—On the 28th ult., at the Plymouth Corn Exchange, a meeting of the Amalgamated Society of Carpenters and Joiners was held, under the chairmanship of Mr. J. H. Williams, to give a final vote upon the advisability of accepting or rejecting the terms submitted by the Master Builders' Association for a settlement of the dispute as far as the carpenters are concerned. The voting, which was by ballot, resulted in a small majority being recorded in favour of accepting the masters' terms, and this course was accordingly agreed upon. The decision will be formally communicated to the Builders' Association, and upon an intimation being received that it meets with the approval of that body, arrangements will be made for the men to renew work without delay. Eight weeks have elapsed since the beginning of the struggle, and negotiations have as yet failed to bring about a satisfactory settlement between the employers and the plasterers and labourers.

IPSWICH BUILDING TRADE DISPUTE.—The principle of arbitration has been accepted by both parties to the dispute in the Ipswich building trade, but some preliminary difficulties have arisen, and the men have not yet returned to work. It is stated that the men make two principal requests—firstly, that a day shall be fixed for the arbitration, so that it may not be kept hanging back for an indefinite period; and, secondly, that the men shall go to work under their own rules pending the result of arbitration.

JOINTERS' DISPUTE, MORLEY.—The Morley joiners held a meeting recently, to which the masters were invited, to discuss the wages question. At present 7*d.* per hour is paid, and it was remarked that this was lower than in neighbouring towns. Leeds, for instance, was paying 8*d.* It was thought that they ought to be paid 7*d.* at Morley. One of the men handed in a notice asking for an advance of $\frac{1}{4}$ d. on September 1. This the masters considered, but decided to offer $\frac{1}{4}$ d. on September 1, and the other $\frac{1}{4}$ d. in January next. The men declined to accept this offer. At an adjourned meeting, however, the men agreed to accept the masters' terms.

LEGAL.

BIRKENHEAD BUILDERS AND THE CORPORATION: QUESTION OF A STREET.

At the Borough Police-court, Birkenhead, recently, before Messrs. Wm. Jackson and T. L. Dodds, Cecil Edward Maples, of 14, Cook-street, Liverpool, was summoned for laying out a new street exceeding 150 yds. and not exceeding 300 yds. in length, viz., a street in continuation of Mulberry-road there, and that he did lay out such street so that the width thereof is not 36 ft. at the least. Mr. Fearnley, for the Corporation, said the defendant had deposited plans for laying out a new street 30 ft. wide continuing Mulberry-road from Wycliffe-street to the Mersey Railway and then to be continued about right angles in a southerly direction under the name of Ashley-street, continuing as such on the western side of the railway for 83 yds. and then turning again at right angles towards Wycliffe-street again in a westerly direction. The street thus formed three sides of a square, the back of Wycliffe-street forming the fourth side. The Corporation contended that though this street had two names it was really one street, as the length of a street had to be taken from the point of entrance to the point of exit. Treating this street in the common sense way, Mulberry-road and Ashley-street formed one street exceeding 150 yds. in length,

and therefore should be 36 ft. wide. By consent of the defendant, who wished the point settled, they were to be treated as though the street were actually laid out, but as a matter of fact the street as yet existed on paper only. Mr. Charles Brownridge, Borough Surveyor, was called to prove the plans and show that these two streets were in fact one, and should be treated as such. For the defence, Mr. Layton contended that in reality there were three streets, and they should be treated as such.—Mr. W. Jackson said that after hearing the Surveyor and examining the plans the Bench had decided that what should be looked at was the object of the by-laws under which these proceedings were taken. These were for the purpose of securing proper ventilation and preventing a congestion of traffic. In this case there would be no ventilation interfered with, because the end of the street abutted on the Mersey Railway, neither could there be a congestion of traffic because carts would prefer the direct line along Wycliffe-street. The Bench were therefore of opinion that these were practically three streets and not one continuous street, and gave a verdict for the defendant, with costs.—*Birkenhead News.*

MEETINGS.

SATURDAY, JULY 3.

Institution of Junior Engineers. Visit to the Engineering Laboratories, &c., Cambridge University, by invitation of Professor J. A. Ewing, F.R.S. Train leaves Liverpool-street (G.E.R.) at 2.30 p.m.

Northern Architectural Association.—Annual Excursion, Banbury.

WEDNESDAY, JULY 7.

Royal Archaeological Institute. (1) Mr. Somers Clarke, F.R.S., on "Customs Used by the Gypsies at Marriages, Births, and Funerals." (2) Professor B. Lewis, M.A., F.S.A., on "The Gallo-Roman Museum at Sens." 4 p.m. Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the Members. 8 p.m.

THURSDAY, JULY 8.

Association of Municipal and County Engineers.—Annual Meeting, Westminster Town Hall. Address by the new President, Sir Alexander R. Binnie. Papers and discussions to follow. 10 a.m. Annual Dinner at 6.30 p.m. at the Trocadero Restaurant, Piccadilly Circus.

FRIDAY, JULY 9.

Association of Municipal and County Engineers.—Annual Meeting (continued). Visits to be made subsequently to the Central London Railway Works, and to Messrs. Doulton's Works, Lambeth.

SATURDAY, JULY 10.

Association of Municipal and County Engineers.—Visit to the Works of Messrs. Aveling & Porter, at Rochester.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

12,184.—LAVATORY BASINS, BATHS, &c.; F. C. Lynde.—This invention relates to a tube applied to the outlet of a lavatory basin, &c., and provided with a valve, &c., so that raising of tube shall actuate valve and cause the vessel to retain water, the tube then forming an overflow pipe; and the lowering of the said tube shall cause the water to be released.

12,592.—WOOD MORTISE CHISELS; W. Osment.—In order to secure the core cut by chisel being certainly withdrawn at its return movement, inventor adopts in chisel the combination of a longitudinal recess in the back of the blade walls for such recess exactly parallel with each other, and in themselves and with the line of the chisel, and notches in such walls.

12,430.—LATH FOR CEILINGS, WALLS, &c.; G. H. Palmer.—Inventor claims a lath or thin wood, perforated, mortised or stamped through with round, square, oblong or other shaped holes to receive mortar, plaster, or cement.

2,767.—HOLLOW BUILDING BLOCKS, AND APPARATUS FOR MAKING SAME; H. P. Thompson.—Inventor claims a tubular building block of clay or terra-cotta, with internal ribs for the reception of joint strips; also a rectangular tubular building block, having perforation in its upper and lower walls, with angle blocks and hollow joint blocks; also in a machine for forming such blocks the combination of tubular dies, and wheels provided with punches for forming perforations in walls of blocks, with various minor details.

10,149.—STOVES AND FIREPLACES; F. Marinioldt.—Inventor claims a continuous combustion stove, the lower part of which is divided into several compartments (say three) by an air-tight casing lined internally with refractory material. Of these compartments one serves to lead back through grate the smoke gases, resulting from imperfect combustion, so as to secure their being perfectly burned.

10,182.—FIREPLACES; A. Haverdon.—In order to feed fresh fuel beneath burning mass in grate, inventor combines therewith a fuel-supporting surface and fuel receptacle mounted on centres or in guides, so that they can be swung or slid backwards and forwards, the front portion centred so that it can be turned down for the reception of fuel. There is also an arrangement for forcing the fuel from the receptacle into the fireplace.

NEW APPLICATIONS FOR LETTERS PATENT.

JUNE 14.—14,365, G. Warren, Mode of Drying Bricks, &c., in Continuous or other Kilns.—14,373, E. Box, Section of Pipes or Sockets.—14,391, A. Wakefield, Inserting Joints or Replacing Damaged Pipes in existing Sewers without disturbing same.

JUNE 15.—14,419, R. Cotton and S. Gater, Sliding Window Sashes.—14,469, A. Harris, Sash Fasteners.—14,431, E. Herne, Sash Fasteners.—14,494, F. Dowe, Sash Fastener.—14,496, H. Pertwee and R. Knowles, Sash Fasteners.—14,515, H. Lake, Heating Buildings and Structures.—14,525, W. Doolittle, Flaming Machine Mechanism.

JUNE 16.—14,553, G. Ellison, Hot-water Supply Apparatus for Houses.—14,600, H. Richardson, Ventilators.—14,615, E. Giles, Water Pipes for Buildings.—14,677, W.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premises.	Tenders to be delivered.
*New Council Chamber and Offices. *Altering, &c. the High Row	Surbiton U.D.C. Darlington Corp.	at and 151. 201.	Aug. 18 No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Granite Road Metal	Bedford U.S.A.	T. B. Porter, Town Hall	July 8
Pipe Faver, Thomas Street	Huddersfield Corp.	Boro' Barr, Town Hall	do.
Goods Shed, Llanelli Dock	G. W. R. Co.	G. K. Mills, Paddington	do.
Rectory, Llanelli, near Aberystwyth	Rev. D. Fells	E. A. Johnson, Archt.	do.
Public House, Mickelthorpe, Moseley		T. Cook, Archt. 28, Victoria	do.
Detached House, Stabling, &c. Ship		Isola Baker, Manchester	do.
Alterations, &c. 32, 34, Wood street,		Bulmer, Huddersfield, & Co.	do.
Waford		Arch. Kellogg	do.
Paving, High-street	Kilmarock T.C.	W. Wrigley, Archt. 30, Woolf-street	do.
Reform House, &c.	Rotherham Corp.	E. Blackwood, Burg	do.
Municipal Buildings, Library, &c. Ridge-way-street		R. H. Hickmott, Council	do.
Asphalt and Wood Paving		A. Anderson, Archt. 29, Douglas (Isle of Man)	do.
Water Tank Building, Harwich	Ten-trice Foundry	G. B. W. Wheeler, Town Hall, Exeter-street, E.W.	do.
Waterworks, Farnborough	Waterworks Co.	W. Bart, Archt. Harwich	do.
Extension of Factory, Harrow	Adams & Co.	Patel & Son, C.E. 17A, London, Yorks	do.
Alterations, Schools	County Borough of Brighton	Johnstone Bros, Archt. 29, Lower-street, Cardale	do.
Meat House, New Woolly	Leeds Corporation	M. J. C. May, Town Hall, London	do.
Whisthouse, &c.	Superfund R.D.C.	R. H. Towseley, Gas Office	do.
Passage Way, Penryn and Langley	Eastbourne Corp.	A. W. Jones, Boro' East, Town Hall	do.
St. Bruce, Strand road, London		K. W. Jones, Archt. 1, Bishop-street, Derby	do.
*Public Offices and Caretaker's House Southall	Norwood U.D.C.	Novell, High-street, Southall	do.
Sewerage Works	Holhead U.D.C.	J. Lloyd, Giffith, Stanley House, Holhead	do.
Belcher, Gray Fields		Colson & Co. Archt. 45, Broad	do.
Laying Power, &c.		Beckwith U.D.C.	do.
*Sewage Works		Holhead U.D.C.	do.
*Painting at Various Schools	School Bd. for London	J. Griffith, Stanley House, Holhead	do.
*Alterations, &c. to Infirmary	Malling Union	Works Dept. Office, Victoria Embankment, W.C.	do.
Four Terrace Houses, Leeds Old-road, Thornbury		J. Ladd, 7, Donnybrook, Mecklenburgh-st. W.C.	do.
*Foundation of Aylton	West Ham Council	Patel & Son, Archt. 17, Broad	do.
*Road Making and Drainage	Willesden D.C.	Lewis Agall, Town Hall, Stratford, E.	do.
		O. C. Robson, Public Office, Dyer-road, Kilburn	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Designs to be delivered.
Street Works, Cromwell-st. Pannal	Knaresborough R.D.C.	R. Anonkin, Surv. 44, Station-ry, Harrogate	July 14
Additions to Workhouse	Pontefract Union	Greaves & Co. Archt. Corn Market, Pontefract	do.
School, Penryn, &c. Carnarvonshire		E. Evans, Archt. 8, Castle-street, Carnarvon	do.
*Stabling, Dwellings, &c.	Wimborne U.D.C.	C. H. Cooper, Council Office	July 17
*Restoration of Town Hall, &c. after Fire	Chichester Town Council	T. M. Lockwood & Sons, 21, Fore-street, Chichester	do.
School, Craft street, Birkenhead		Bulley & McConnel, Archt. 1, Bridge-st. Warrington	do.
*Reservoirs	Sunderland and South Shields Water Co.	W. W. Kendall, Burton-on-the-Water	do.
*Engine House, Butler House Chimney	White County Asylum	Mossy & Allgrave, 25, A & C. Heston, 15, King-street, E.C.	do.
Johnston's Annex, Oulton, near Lowestoft	Mulford, & Co. Union	A. Clarke, Archt. 128, London-road, Lowestoft	do.
*Erecting Shelter	Met. Asylums Bd.	Town Hall, Lowestoft	do.
*Extending Reservoir, Drain Pond, &c.		W. W. Kendall, Burton-on-the-Water	do.
*Laundry Machinery		A. H. Tilden, 8, London-street, Bedford-row, W.C.	do.
*Painting, Whitewashing, &c.	Rugbywater R.D.C.	The Rugby Council Office	do.
*Hall and Reading Room	St. Paul's U.D.C.	G. J. Stevenson, 15, King-street, Chichester, E.C.	do.
Four Houses, Topping Fold, Lanes	Mr. Sand	R. W. Kendall, Burton-on-the-Water	do.
*Shops, Residences, and Stables		C. J. Stevenson, 15, King-street, Chichester, E.C.	do.
*Removal of Building	Surbiton U.D.C.	S. Mather, Surv. Victoria	do.
Business Premises, Grimsby	N. E. International Trading Co.	H. G. Scragg, Archt. 8, Church-street, Grimsby	do.
Fifty Houses, Penryn-road, yard, Llanelli		Merthyr	do.
Shedding and Horse Boxes, Wycombe		W. T. M. Jones, 15, St. John-street, Hertford	do.
Herby		W. T. M. Jones, 15, St. John-street, Hertford	do.
George, Durham		W. T. M. Jones, 15, St. John-street, Hertford	do.
Steam Locomotive, Fliberton Asylum, Salisbury		W. T. M. Jones, 15, St. John-street, Hertford	do.
Pair Semi-detached Villas, Slough		W. T. M. Jones, 15, St. John-street, Hertford	do.
Six Houses, Queen-street, Hurst		W. T. M. Jones, 15, St. John-street, Hertford	do.
Extension of Grammar School, Uxley		W. T. M. Jones, 15, St. John-street, Hertford	do.
Additions to Park Works, Kelghley		W. T. M. Jones, 15, St. John-street, Hertford	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Building Inspector	Willesden D.C.	150 rising to 200 per ann.	July 6
*Inspector of Roads	Salisbury Vestry	210 rising to 26 per wk.	July 10
*Nuisance	Salisbury T.C.	120 per annum	July 20
*Surveyor, Inspector of Nuisance, &c.	William U.D.C.	100 per annum	July 24

Those marked with an asterisk (*) are advertised in this Number. Competitions, iv. Contracts, pp. iv. vi. vii. & xxi. Public Appointments, pp. xviii. & xxi.

Needle, Window Fasteners, -14,610, E. Meredith, Window Fastener, -14,620, D. Morgan, Fastening for Windows
 June 17, -14,612, S. Leech, Pressing Bricks, Tiles, &c., -14,609, R. Evers, Automatic Flushing Apparatus, -14,705, J. Jones & L. Llewellyn, Fastener Fastener.
 June 18, -14,746, E. Thomas, Window Sash Fasteners, -14,748, T. Jones, Sash Fasteners, -14,752, R. Buckland and A. Woodward, Fastenings for Knobs for Doors, Handles, &c., -14,768, J. Anderson, Window Sash Fastener.
 14,774, D. Black, Swing Door Hinge, -14,780, F. Tom, March, Setting the Teeth of Saws, -14,802, G. Osborne, Fastener for Windows, -14,801, B. Williams, Fasteners for Windows, -14,815, A. Manning, Sash Fastener, -14,817, W. Sykes, Pipe Joints, -14,828, A. Davis, Window Sash and Door Fastener, -14,841, J. Langston, Construction of Buildings.
 June 19, -14,854, A. Lang and J. Fraser, Disinfectant Appliance for Water-closets, Drains, Sinks, &c., -14,860, L. Baker and W. Hadley, Window Sash Fasteners, -14,974, R. Adams, Operating and Adjusting Self-closing Doors, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

4,817, E. Prince, Fastening for Windows, -10,652, W. Day, Paint Brushes, -10,920, P. Renouf, Building of Tubular Frames, -10,934, J. Lever, Burglar-proof Window Fastener, -11,427, T. Hughes, Mire Gramps, -11,010, G. Ashford, Fasteners for Window Sashes, Fanlights, Casements, &c., -12,492, A. Holden, Mixture for White-washing, Disinfectant, &c., -12,762, G. Read, Whitewash Brushes and Disinfectant Brushes, -12,015, B. Thomas and H. Rees, Sash Fastener, -12,917, G. Seale, Sash Fastener, -12,918, G. Hopkins, Fasteners for Windows, -12,919, G. Hopkins, Sash Fastener, -12,920, G. Hopkins, Sash Fastener, -12,921, G. Hopkins, Sash Fastener, -12,922, G. Hopkins, Sash Fastener, -12,923, G. Hopkins, Sash Fastener, -12,924, G. Hopkins, Sash Fastener, -12,925, G. Hopkins, Sash Fastener, -12,926, G. Hopkins, Sash Fastener, -12,927, G. Hopkins, Sash Fastener, -12,928, G. Hopkins, Sash Fastener, -12,929, G. Hopkins, Sash Fastener, -12,930, G. Hopkins, Sash Fastener, -12,931, G. Hopkins, Sash Fastener, -12,932, G. Hopkins, Sash Fastener, -12,933, G. Hopkins, Sash Fastener, -12,934, G. Hopkins, Sash Fastener, -12,935, G. Hopkins, Sash Fastener, -12,936, G. Hopkins, Sash Fastener, -12,937, G. Hopkins, Sash Fastener, -12,938, G. Hopkins, Sash Fastener, -12,939, G. Hopkins, Sash Fastener, -12,940, G. Hopkins, Sash Fastener, -12,941, G. Hopkins, Sash Fastener, -12,942, G. Hopkins, Sash Fastener, -12,943, G. Hopkins, Sash Fastener, -12,944, G. Hopkins, Sash Fastener, -12,945, G. Hopkins, Sash Fastener, -12,946, G. Hopkins, Sash Fastener, -12,947, G. Hopkins, Sash Fastener, -12,948, G. Hopkins, Sash Fastener, -12,949, G. Hopkins, Sash Fastener, -12,950, G. Hopkins, Sash Fastener, -12,951, G. Hopkins, Sash Fastener, -12,952, G. Hopkins, Sash Fastener, -12,953, G. Hopkins, Sash Fastener, -12,954, G. Hopkins, Sash Fastener, -12,955, G. Hopkins, Sash Fastener, -12,956, G. Hopkins, Sash Fastener, -12,957, G. Hopkins, Sash Fastener, -12,958, G. Hopkins, Sash Fastener, -12,959, G. Hopkins, Sash Fastener, -12,960, G. Hopkins, Sash Fastener, -12,961, G. Hopkins, Sash Fastener, -12,962, G. Hopkins, Sash Fastener, -12,963, G. Hopkins, Sash Fastener, -12,964, G. Hopkins, Sash Fastener, -12,965, G. Hopkins, Sash Fastener, -12,966, G. Hopkins, Sash Fastener, -12,967, G. Hopkins, Sash Fastener, -12,968, G. Hopkins, Sash Fastener, -12,969, G. Hopkins, Sash Fastener, -12,970, G. Hopkins, Sash Fastener, -12,971, G. Hopkins, Sash Fastener, -12,972, G. Hopkins, Sash Fastener, -12,973, G. Hopkins, Sash Fastener, -12,974, G. Hopkins, Sash Fastener, -12,975, G. Hopkins, Sash Fastener, -12,976, G. Hopkins, Sash Fastener, -12,977, G. Hopkins, Sash Fastener, -12,978, G. Hopkins, Sash Fastener, -12,979, G. Hopkins, Sash Fastener, -12,980, G. Hopkins, Sash Fastener, -12,981, G. Hopkins, Sash Fastener, -12,982, G. Hopkins, Sash Fastener, -12,983, G. Hopkins, Sash Fastener, -12,984, G. Hopkins, Sash Fastener, -12,985, G. Hopkins, Sash Fastener, -12,986, G. Hopkins, Sash Fastener, -12,987, G. Hopkins, Sash Fastener, -12,988, G. Hopkins, Sash Fastener, -12,989, G. Hopkins, Sash Fastener, -12,990, G. Hopkins, Sash Fastener, -12,991, G. Hopkins, Sash Fastener, -12,992, G. Hopkins, Sash Fastener, -12,993, G. Hopkins, Sash Fastener, -12,994, G. Hopkins, Sash Fastener, -12,995, G. Hopkins, Sash Fastener, -12,996, G. Hopkins, Sash Fastener, -12,997, G. Hopkins, Sash Fastener, -12,998, G. Hopkins, Sash Fastener, -12,999, G. Hopkins, Sash Fastener, -13,000, G. Hopkins, Sash Fastener.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.
 13,256, A. Hocking, Water Waste Prevention for Flushing Purposes, -13,262, A. Allport, Embossed Sheets for Decorating Walls, &c., -12,676, J. Duckett & Son, Limited, and J. Duckett, Water-closets and Urinals, -17,081, W. Fox, Ventilators, -17,088, H. Aird & C. Fitch, Paint, and the Method of Producing and Applying Same.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

June 10, -By W. R. NICHOLAS & Co. (at Newbury).
 Newbury, Berks. - "Crown House," f. 1, 2, 42, 1, 2, 300.
 Newtown Common, Hants. - "Heatherfield" and "The Holly," f. 80, 1, 2, 300.
 East Woodchapel, Hants. - "Falconhurst," f. 1, 2, 300.
 "Broadmead," f. 1, 2, 300.
 "The Hitchen," f. 1, 2, 300.
 Newbury, Berks. - Pyle Hill, &c., four building plots, f. 1, 2, 300.
 Wash Hill, a freehold building site, f. 1, 2, 300.
 75, 8, Porchester-villas, f. 1, 2, 300.
 June 15, -By GERMAN & GERMAN (at Donisthorpe).
 Donisthorpe, Derby. - Various enclosures of land, 95 a. 3 r. 10 p., f. 1, 2, 300.
 A farmhouse, cottages, and 6 a. 3 r. 7 p., f. 1, 2, 300.
 June 16, -By F. L. TUNSTALL & Co. (at Warrington).
 Glazebrook, Lancs. - Various enclosures of land, 117 a. 3 r. 10 p., f. 1, 2, 300.
 "Glazebrook Hall Farm," 45 a. 3 r. 27 p., f. 1, 2, 300.
 Cadishead, Lancs. - A freehold cottage and 1 a. 3 r. 14 p., f. 1, 2, 300.
 Northampton, Devon. - "The Marsh Estate," 45 a. 3 r. 25 p., f. 1, 2, 300.
 NEWELL, DAVIS, & Co. (at Newport).
 Nash, &c. Mon. - "The Corner Farm," 100 a. 2 r. 28 p., f. 1, 2, 300.
 June 17, -By THURGOOD & MARTIN (at Ipswich).
 Ipswich, &c. Mon. - "The Corner Farm," 100 a. 2 r. 28 p., f. 1, 2, 300.
 By BIRNELL & Sons (at Ely).
 Ely, Cambs. - A farm, comprising 13 a. 3 r. 30 p., f. 1, 2, 300.
 Enclosures of land at A. 100 a. 3 r. 30 p., f. 1, 2, 300.
 "The Mill Ground," 17 a. 0 r. 33 p., f. 1, 2, 300.
 Various enclosures, 85 a. 0 r. 33 p., f. 1, 2, 300.
 A cottage and enclosures, 20 a. 1 r. 14 p., f. 1, 2, 300.
 By SHEPHERD & SON (at Ramsbottom).
 Helmsdale, Lancs. - "Irongate Farm," 7 a. 3 r. 10 p., f. 1, 2, 300.
 By LANGRIDGE & FREEMAN (at Maidstone).
 Birling, Kent. - "Ham Mill Farm," 15 a. 1 r. 17 p., f. 1, 2, 300.
 Enclosures of land, 8 a. 3 r. 5 p., f. 1, 2, 300.
 East Malling, Kent. - Enclosures of land, 31 a. 2 r. 20 p., f. 1, 2, 300.
 Three cottages and 18 a. 2 r. 1 p., f. 1, 2, 300.
 By PYNE, HORNE, & Co. (at Northampton).
 Northampton, Devon. - "The Little Beer Estate," 120 a. 1 r. 22 p., f. 1, 2, 300.

By S. & G. KINGSTON (at Holbeach).

Holbeach Marsh, Lincs. - "Reckley's Farm," 444 a. 2 r. 18 p., f. 1, 2, 300.
 Contractions used in these lists: - F. g. t. for freehold ground-rent; l. g. t. for leasehold ground-rent; i. g. t. for improved ground-rent; g. r. for ground-rent; f. for fee; f. for freehold; c. for copyhold; l. for leasehold; e. r. for estimated rent; u. t. for unexpired term; p. a. for per annum; y. s. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.C. 10/10 10/10
 Teak, E.I., 10/10 10/10
 Teak, U.S., 10/10 10/10
 Ash, Canada, 10/10 10/10
 Birch, do., 10/10 10/10
 Elm, do., 10/10 10/10
 Fir, Danish, &c., 10/10 10/10
 Oak, do., 10/10 10/10
 Pine, Canada, 10/10 10/10
 Do. Yellow, 10/10 10/10
 Lath, Danish, 10/10 10/10
 St. Petersburg, 10/10 10/10
 Wamora, Rica, 10/10 10/10
 Oak, do., 10/10 10/10
 Elm, do., 10/10 10/10
 Fir, do., 10/10 10/10
 Pine, do., 10/10 10/10
 Do. and 1st std 10/10 10/10
 Do. 4th and 5th 10/10 10/10
 Do. 6th and 7th 10/10 10/10
 Do. 8th and 9th 10/10 10/10
 Do. 10th and 11th 10/10 10/10
 Do. 12th and 13th 10/10 10/10
 Do. 14th and 15th 10/10 10/10
 Do. 16th and 17th 10/10 10/10
 Do. 18th and 19th 10/10 10/10
 Do. 20th and 21st 10/10 10/10
 Do. 22nd and 23rd 10/10 10/10
 Do. 24th and 25th 10/10 10/10
 Do. 26th and 27th 10/10 10/10
 Do. 28th and 29th 10/10 10/10
 Do. 30th and 31st 10/10 10/10
 Do. 32nd and 33rd 10/10 10/10
 Do. 34th and 35th 10/10 10/10
 Do. 36th and 37th 10/10 10/10
 Do. 38th and 39th 10/10 10/10
 Do. 40th and 41st 10/10 10/10
 Do. 42nd and 43rd 10/10 10/10
 Do. 44th and 45th 10/10 10/10
 Do. 46th and 47th 10/10 10/10
 Do. 48th and 49th 10/10 10/10
 Do. 50th and 51st 10/10 10/10
 Do. 52nd and 53rd 10/10 10/10
 Do. 54th and 55th 10/10 10/10
 Do. 56th and 57th 10/10 10/10
 Do. 58th and 59th 10/10 10/10
 Do. 60th and 61st 10/10 10/10
 Do. 62nd and 63rd 10/10 10/10
 Do. 64th and 65th 10/10 10/10
 Do. 66th and 67th 10/10 10/10
 Do. 68th and 69th 10/10 10/10
 Do. 70th and 71st 10/10 10/10
 Do. 72nd and 73rd 10/10 10/10
 Do. 74th and 75th 10/10 10/10
 Do. 76th and 77th 10/10 10/10
 Do. 78th and 79th 10/10 10/10
 Do. 80th and 81st 10/10 10/10
 Do. 82nd and 83rd 10/10 10/10
 Do. 84th and 85th 10/10 10/10
 Do. 86th and 87th 10/10 10/10
 Do. 88th and 89th 10/10 10/10
 Do. 90th and 91st 10/10 10/10
 Do. 92nd and 93rd 10/10 10/10
 Do. 94th and 95th 10/10 10/10
 Do. 96th and 97th 10/10 10/10
 Do. 98th and 99th 10/10 10/10
 Do. 100th and 101st 10/10 10/10
 Do. 102nd and 103rd 10/10 10/10
 Do. 104th and 105th 10/10 10/10
 Do. 106th and 107th 10/10 10/10
 Do. 108th and 109th 10/10 10/10
 Do. 110th and 111st 10/10 10/10
 Do. 112th and 113th 10/10 10/10
 Do. 114th and 115th 10/10 10/10
 Do. 116th and 117th 10/10 10/10
 Do. 118th and 119th 10/10 10/10
 Do. 120th and 121st 10/10 10/10
 Do. 122nd and 123rd 10/10 10/10
 Do. 124th and 125th 10/10 10/10
 Do. 126th and 127th 10/10 10/10
 Do. 128th and 129th 10/10 10/10
 Do. 130th and 131st 10/10 10/10
 Do. 132nd and 133rd 10/10 10/10
 Do. 134th and 135th 10/10 10/10
 Do. 136th and 137th 10/10 10/10
 Do. 138th and 139th 10/10 10/10
 Do. 140th and 141st 10/10 10/10
 Do. 142nd and 143rd 10/10 10/10
 Do. 144th and 145th 10/10 10/10
 Do. 146th and 147th 10/10 10/10
 Do. 148th and 149th 10/10 10/10
 Do. 150th and 151st 10/10 10/10
 Do. 152nd and 153rd 10/10 10/10
 Do. 154th and 155th 10/10 10/10
 Do. 156th and 157th 10/10 10/10
 Do. 158th and 159th 10/10 10/10
 Do. 160th and 161st 10/10 10/10
 Do. 162nd and 163rd 10/10 10/10
 Do. 164th and 165th 10/10 10/10
 Do. 166th and 167th 10/10 10/10
 Do. 168th and 169th 10/10 10/10
 Do. 170th and 171st 10/10 10/10
 Do. 172nd and 173rd 10/10 10/10
 Do. 174th and 175th 10/10 10/10
 Do. 176th and 177th 10/10 10/10
 Do. 178th and 179th 10/10 10/10
 Do. 180th and 181st 10/10 10/10
 Do. 182nd and 183rd 10/10 10/10
 Do. 184th and 185th 10/10 10/10
 Do. 186th and 187th 10/10 10/10
 Do. 188th and 189th 10/10 10/10
 Do. 190th and 191st 10/10 10/10
 Do. 192nd and 193rd 10/10 10/10
 Do. 194th and 195th 10/10 10/10
 Do. 196th and 197th 10/10 10/10
 Do. 198th and 199th 10/10 10/10
 Do. 200th and 201st 10/10 10/10
 Do. 202nd and 203rd 10/10 10/10
 Do. 204th and 205th 10/10 10/10
 Do. 206th and 207th 10/10 10/10
 Do. 208th and 209th 10/10 10/10
 Do. 210th and 211st 10/10 10/10
 Do. 212th and 213th 10/10 10/10
 Do. 214th and 215th 10/10 10/10
 Do. 216th and 217th 10/10 10/10
 Do. 218th and 219th 10/10 10/10
 Do. 220th and 221st 10/10 10/10
 Do. 222nd and 223rd 10/10 10/10
 Do. 224th and 225th 10/10 10/10
 Do. 226th and 227th 10/10 10/10
 Do. 228th and 229th 10/10 10/10
 Do. 230th and 231st 10/10 10/10
 Do. 232nd and 233rd 10/10 10/10
 Do. 234th and 235th 10/10 10/10
 Do. 236th and 237th 10/10 10/10
 Do. 238th and 239th 10/10 10/10
 Do. 240th and 241st 10/10 10/10
 Do. 242nd and 243rd 10/10 10/10
 Do. 244th and 245th 10/10 10/10
 Do. 246th and 247th 10/10 10/10
 Do. 248th and 249th 10/10 10/10
 Do. 250th and 251st 10/10 10/10
 Do. 252nd and 253rd 10/10 10/10
 Do. 254th and 255th 10/10 10/10
 Do. 256th and 257th 10/10 10/10
 Do. 258th and 259th 10/10 10/10
 Do. 260th and 261st 10/10 10/10
 Do. 262nd and 263rd 10/10 10/10
 Do. 264th and 265th 10/10 10/10
 Do. 266th and 267th 10/10 10/10
 Do. 268th and 269th 10/10 10/10
 Do. 270th and 271st 10/10 10/10
 Do. 272nd and 273rd 10/10 10/10
 Do. 274th and 275th 10/10 10/10
 Do. 276th and 277th 10/10 10/10
 Do. 278th and 279th 10/10 10/10
 Do. 280th and 281st 10/10 10/10
 Do. 282nd and 283rd 10/10 10/10
 Do. 284th and 285th 10/10 10/10
 Do. 286th and 287th 10/10 10/1

HUGH MYDDLETON.—Painting—	
McCormack & Sons.....	£591
Stevens Bros.....	385
T. Nicholson.....	681
Marchant & Hirst.....	645
A. M. Sparks.....	645
T. Cruwys.....	536

KENMONT GARDENS.—Painting—	
Marchant & Hirst.....	£295 0
W. Brown.....	295 0
F. T. Chinchin.....	273 15

LILLIE-ROAD.—Painting—	
T. Cruwys.....	£234 0
H. Flood.....	543 0
W. Hammond.....	519 0

MALLESBURY ROAD.—Painting—	
A. E. Symes.....	£355 0
G. Munday & Sons.....	360 10
C. Wiles.....	319 0

MANTUA STREET.—Painting—	
E. Flood.....	£254 0
C. Gurling.....	574 0
F. R. Barton.....	593 10

MATTHIAS-ROAD.—Painting—	
McCormack & Sons.....	£479 0
Cruwys & Son.....	455 10
J. Morrison.....	359 10

MEDBURN STREET (J.M.).—Painting—	
C. Chase & Son.....	£525 0
W. Horneitt.....	453

OXFORD GARDENS.—Painting—	
H. C. Clifton.....	£258 0
F. Chidley.....	378 0
W. Brown.....	758 0
G. Neal.....	955 0

PLUMSTEAD-ROAD.—Painting—	
C. Foreman.....	£268 0
E. Proctor.....	350 0

POOLE'S PARK.—Painting—	
G. Kirby.....	£597 10
Stevens Bros.....	533 10

PRINCETON STREET.—Painting—	
F. Newton.....	£260 0
G. S. Williams & Sons.....	430 10
Marchant & Hirst.....	395 0
Willmott & Sons.....	395 10

RANDALL PLACE.—Painting—	
C. Foreman.....	£379 0
W. Banks.....	293 15
W. Holding & Son.....	246 0

RUBY STREET.—Painting—	
G. Munday & Sons.....	£230 0
Rice & Son.....	246 0

RUTLAND STREET.—Painting—	
T. Robey.....	£251 0
J. Gibb & Co.....	593

SAFFRON HILL.—Painting—	
Willmott & Sons.....	£291 10
T. Cruwys.....	273 0
A. M. Sparks.....	215 0

ST. LEONARD'S ROAD.—Painting—	
March, Tucker & Co.....	£251 0
T. H. Jackson.....	397
Munday & Sons.....	395
Gibb & Co.....	395

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SINGLE STREET.—Painting—	
A. W. Derby.....	£232
J. Kybett.....	317
Gibb & Co.....	397

SMEED-ROAD.—Painting—	
A. W. Derby.....	£283
A. E. Symes.....	339
Gibb & Co.....	335

STAR-LANE.—Painting—	
C. Minter.....	£219 0
C. Gurling.....	395 0

STATION-ROAD.—Painting—	
Grover & Son.....	£133 0
T. Cruwys.....	474 0
McCormack & Son.....	444 0

SOUTH LAMBETH-ROAD.—Painting—	
T. Hooper.....	£216 10
G. Chatteris.....	355 0
Rice & Son.....	344 0
Holloway Bros.....	338 0

T. N. STREET.—Painting—	
J. H. Hodges.....	£254 0
C. Foreman.....	321

"VICTORIA.—Painting—	
W. R. & A. Hide.....	£295 15
W. Brown.....	582 10

WALTON STREET.—Painting—	
W. Hammond.....	£195 0
H. Flood.....	347 0
Lathey Bros.....	110 10

WHITFIELD STREET.—Painting—	
F. Newton.....	£371 0
W. Chappell.....	243 0
T. Cruwys.....	297

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

WILMOT STREET.—Painting—	
A. W. Derby.....	£254 0
G. Barker.....	453 0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum TRIPAYD. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 12s. per annum. Resubscribers (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, (by prepaying at the Publishing Office, 13s. per annum or 4s. 9d. per quarter), can ensure receiving "The Builder," by *Friday Morning's Post*.

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Douling Stone Co.)
Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

THE TEST OF TIME
has proved that
SZERELMEY STONE LIQUID

Absolutely waterproofs and preserves Bricks,
Stone, Cement, Stucco, Plaster, &c.
SZERELMEY & CO., Kotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [Advt.]

SPRAGUE & CO'S
INK-PHOTO PROCESS,
4 & 5, East Harding-street,
Fetter-Lane, E.C. [Advt.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES."
For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [Advt.]

PILKINGTON & CO

(ESTABLISHED 1833).
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
SEYSSSEL ASPHALTE.

EREST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK
OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
Head Office and only City Address, 61, ST. MARY AXE, E.C.
SEND FOR ILLUSTRATED PRICE LIST.

Payne-road Wharf, Bow.
Branch House, 37, Victoria-street, Bristol.

ILLUSTRATIONS.

Council Chamber, Bath Municipal Buildings.—Mr. J. M. Brydon, F.R.I.B.A., Architect	Double-Page Ink-Photo.
Leicester Corporation Waterworks: Swithland Reservoir Engine House.—Messrs. Everard & Pick, Architects	Double-Page Ink-Photo.
Chapel and Schools, Old Kent-road, S.E.—Professor Banister Fletcher, F.R.I.B.A., and Mr. E. F. Fletcher, A.R.I.B.A., Architects	Single-Page Photo-Litho.
Proposed Vicarage, Middlesbrough.—Messrs. R. Lofthouse & Sons, Architects	Single-Page Photo-Litho.
Porte De La Chartreuse, Villeneuve-les-Avignon	} Two Single-Page Tone Blocks.
Pont des Chartreux, Villeneuve-les-Avignon	

Blocks in Text.

Clôster In La Chartreuse, Villeneuve-les-Avignon	Page 22	Vicarage, Middlesbrough	Page 29
Sketches of London Street Architecture. XVI.—Nos. 10 and 11.		Leicester Corporation Water-works: Byewash Bridge, Swithland	
Palace Court. The late Mr. Maclaren, Architect	26	Reservoir	30
Leicester Corporation Water-works: Woodhouse Cut Bridge	26		Page 30

CONTENTS.

Villeneuve-les-Avignon	21	Chapel and Schools, Old Kent-road	29	General Building News	2
The Magnetic dip of Ancient Terra-Cottas	21	Vicarage, Middlesbrough	29	Sanitary and Engineering News	2
Notes	23	Ancient Gate and Well, Villeneuve-les-Avignon	30	Stained Glass and Decoration	2
Magazines and Reviews	25	Competitions	30	Foreign	2
Sketches of London Street Architecture—XVI.	26	Curves In Medieval Italian Architecture	31	Miscellaneous	4
The Septic Tank System of Sewage Treatment	27	Books: E. Philipson's "Choir Stalls and their Carvings"; E. O. Sach's "Flies and Public Entertainments"; R. Starke-Gardner's "New Book of Drawings"; J. W. Gordon's "Monopolies by Patents"; E. Stanford's "Map of Central London"	31	Capital and Labour	4
Architectural Societies	27	Trade Catalogues	31	Legal	4
Archæological Societies	28			Meetings	5
The London County Council	28			Recent Patents	5
The Council Chamber Municipal Buildings, Bath	29			Some Recent Sales of Property	5
Leicester Corporation Water-works	29			Prices Current	5

Villeneuve-les-Avignon.



AMONG the old towns in the South of France, so rich in ancient monuments, Villeneuve-les-Avignon is one of the most curious and interesting; one of those which, after so many successive changes, has best preserved down to the present day its primitive character. It is still the antique city which the papal domination enriched with so many palaces and monuments, the ruined remains of which evoke at every step the associations of bygone days. As many tourists, between Nice and Cannes, break their journey to visit Avignon and its ancient rival Villeneuve, some remarks on the curiosities of the latter place, less familiar than the papal city itself, may be of interest.

Villeneuve faces Avignon on the opposite side of the Rhone, which here divides the Department of Gard from that of Vaucluse. The well-known old bridge of Avignon, of which there now remain only three arches dominated by the Chapel of St. Benézet, formerly led into Villeneuve. Opposite to the bridge is a square battlemented tower surmounted by a small outlook turret, formed the defence of the bridge on the French side. Like nearly all the old buildings of this sunny district, this tower, the solidity of which has defied the action of time, has assumed on the surface of its masonry a warm orange tint.

From this tower commences the steep ascent which leads to the centre of the town. From the entry of the principal street, opposite the Mairie, opens a vaulted passage the arches of which are decorated with symbolic carvings in medallions, and which conducts, by a few steps, to the ancient cloister of the church of the Chapitre. The square tower of the parish church rises above the cloister, which shows on each face three pointed arches separated by massive piers and buttresses, with responds in the form of more or less Classic pilasters. From the cloister, a worm-eaten door with rusted iron-work gives access to the church, founded in the fourteenth century by Cardinal Arnaud de Via. The church is worth a visit, if only for the throne of white marble carved with angels' heads, in the choir. Some paintings

by Mignard, one by Philippe de Champaigne, and an "Annunciation" by Guercino, decorate the side chapels, which show also some fine carving in the caps which carry the vaulting.

Quitting the church by the principal door, which opens on a modern and unsightly porch, a street lined with arcades leads to the "Hôpital," in which is the tomb of Innocent VI., formerly in the Eglise des Chartreux, and which was removed thence in 1835 in order to provide for its better preservation.

Streets with arcades are not uncommon in the south of France, where the climate naturally suggests such a shelter from the sun. Mostly, however, they are formed with very low arches, while here they are of pointed arches of more lofty proportions. Unfortunately the arcades are disfigured by what would be called "whitewash" if it were not of so many different tints, which contribute perhaps to the general colouring of the scene, but are very injurious to its architectural effect. A remarkable gateway of the seventeenth century, with a frieze ornamented with lions' heads and garlands, gives access to the Hospital building, where, as already observed, is now to be seen the papal mausoleum, which for a long time was used as a press by a peasant vine-dresser. This tomb, in white marble, has a stately appearance in spite of the mutilations which it has suffered. It is in the form of a shrine open all round. Small shafts, with arches carved with almost lace-like delicacy and minuteness, support a monumental slab decorated with carved pinnacles and figures of angels. Beneath this is the recumbent figure of Innocent VI., in marble, a lion at his feet, and behind his head two keys in bronze. On one face of the tomb, the work probably of an Italian artist, a slab of marble bears the half-effaced inscription which we are able to restore here in its entirety:—

HIC JACET INNOCENTIVS PAPA SEXTVS PRIMVS FVNDATOR HVIVS DOMVS QVI OBIT ANNO DNI MILESIMO TRECETESIMOSEXAGESIMO SECVNDO DIE VERODVODECIMAMENSIS SEPTEMBRIS CIVIS ANIMAIN PACE REQVIESCAT.

Some ancient paintings, one of which is

attributed to King René, several pictures by Mignard, some seals, coins, and papal bulls, some wood carvings and broken remains of sculptures, go to make up a small museum preserved with pious care by the "religieuses" of the Hospital, who, in consideration of a small offering, willingly exhibit these treasures. The door which conceals them, of carved wood, was formerly in the church of the Chartreuse.

There is a strange and vivid interest to be found in wandering through the picturesque streets of Villeneuve, narrow and tortuous, bounded by irregular lines of houses whose fronts are baked in the sun and powdered with the white dust of Provence, which accumulates on and brings out in strong relief the details and ornaments of the buildings. In the Rue de la Mairie we come on a door of carved oak, in pure Renaissance style, with a lion's head in hammered iron forming the knocker; the former entrance to the Palace of the Cardinal de Luxembourg. Further on a large broken pediment carried by pilasters formerly adorned with caryatides the outline of which is still marked on the stone, was the monumental entrance of the Hôtel de Conti, the remains of which appear at the back of a courtyard. The sculptured mantels still remain in some of the mean-looking houses which have been erected among the ruins, and there is also to be seen a second portal ornamented with carved garlands and with a lintel over sculptured with figures of children playing among foliage. All around we come on delicate bits of sculptured detail decayed by time, once the ornament of the spacious courtyards or rooms of that princely mansion, formerly full of luxury and life, now forlorn and devastated, and become places for the deposit of rubbish. In a neighbouring house is a tower six stories high, a kind of dungeon above ground, of hexagonal plan and containing a corkscrew staircase somewhat like that in the tower of Jean Sans Peur at Paris. This tower, roofed by a small hexagonal stone dome, was connected with the Hôtel de Conti. Behind is the ancient palace of Cardinal de Thury, showing a series of ruined corridors and courtyards, amid which an arcade of pointed arches leads to the chapel of the "Pénitente Gris." This building, not of much interest in itself, dates from the seventeenth century; it is decorated with a Doric order of pilasters and arched windows. Opposite is a large mediæval porch, and in its neigh-

bourhood old and picturesque houses of curious architectural character.

If Villeneuve is picturesque when seen from the opposite or Avignon side of the river, it is still more so from neighbouring hills, especially from that called Mount Olivet, whence we see in one view this strange agglomeration of ruins, bell turrets, arcades, and towers of various forms, offering, under the strong contrasts of light and shadow which characterise Provençal scenery, so many various tones and colours of masonry burnt under the glaring sunshine of the district. Above this tangle of ancient buildings of all kinds rises the imposing mass of Fort St. André, and on the right of the high road leading to the Port du Rhône are to be seen the remains of a monument called "La Belle Croix," a kind of oratory or dedicatory shrine of the fifteenth century, of which there still remains a painted arch forming a frame to a stone cross, and springing from shafts with elaborately carved capitals, forming a portion of the piers on each side which still carry the fragments of an arcade.

But the house of "La Chartreuse" is unquestionably the most interesting of all the remains at Villeneuve. From the main street opens a vaulted passage leading to the first court, at the back of which rises a fine portico of seventeenth century date. Above a rectangular opening flanked by Corinthian pilasters* is an entablature decorated with a cartouche, and with a pediment over it surmounted by a stone vase. On the cartouche can be still read this inscription: "DOMUS B.M. VALLIS BENEDICTIIONNIS." To right and left of this portal are two buildings set rather back, with round-arched doorways also surmounted by pediments. A tolerably numerous industrial population now inhabits the ruins of the Carthusian Convent of the "Valley of Benediction," formerly a rich establishment founded in 1356 by Innocent VI., who left directions that he was to be buried there. Quite a village of modern habitations has been founded among the ancient walls, which have been ruthlessly pulled about and cut up. From the entrance gate commences a long avenue of mean houses or hovels grafted on to the ancient constructions. Openings have been made in the pediments, mean sheds are backed up against the delicate mouldings and ornaments of the old façades. On the ground, where grass grows between the joints of marble pavements, various agricultural implements are to be seen lying about; the whole forming a medley in which wretched constructions and clumsy implements of everyday work are mingled, at every step, with precious vestiges of the past.

At the end of this avenue, a labyrinth of vaulted corridors leads to a verdant enclosure, where in the midst of modern buildings we find the ancient Carthusian Church, a square stone porch in front of it, open on three sides, and adorned by nature, in these latter days, with a profuse vegetation of climbing plants. Above this is a large rose-window, shorn of its glass. The church itself (or what is left of it), transformed into a fodder-store for cattle, is in three bays. The vaulting-ribs spring from corbels sculptured with heads of angels and

* The illustration in the plate shows the inner side of this gateway; so that the pilasters described do not appear in it, though they may have existed on the inner side also, and been built up.



Cloister in La Chartreuse, Villeneuve-les-Avignon.

figures of animals. There is a window in each bay. The choir is completely demolished, and where it once stood the lofty ramparts of Fort St. André now fill up the view.

The "Cour des Puits" is one of the best preserved portions of the Chartreuse. In the midst of a large enclosure now transformed into a kitchen garden, is a circular stone structure of eight open arches separated by Ionic pilasters, some of the capitals of which, as will be seen from the plate, have been blocked out but never carved. Above this is an entablature surmounted by a stone roof. This structure shelters a circular basin surrounded by a stone balustrade, which serves the present inhabitants of the monastery as a wash-house. Not far from this, on the wall, a Latin inscription records an extraordinary use of the Rhone:—

USQUE AD HANC LINEAM
ACCENDIT RHODANVS
DIE 1^o MENSIS DECEMBER
AN. 1735

The inextricable labyrinth of passages, archways and staircases has at present the most strange aspect. Unused roads lead to desert places from which branch silent avenues ruined more by the hand of man than by time; here a courtyard, there a broken arch, there a dark mediæval cloister; the chapel Refectory, with its pentagonal choir and ruined bell-turret, conspicuous amid the ruins.

In a narrow lane of this Pompeii of the

Christian era, in which various agricultural implements are tumbled together, a chapel, transformed into a stable, still preserves some remnants of its pictorial decoration. In a neighbouring courtyard a gateway adorned with broken statuettes leads to a winding stair giving access to a mediæval oratory chapel tolerably well preserved. Further on we come to long passages out of which open the cells of the former monks. Every place is silent and abandoned, yet the blue sky of Provence above all this ruin gives a certain relief to the picture, and prevents it looking as melancholy as it would in a northern climate.

On the summit of what is called the "montagne" of Villeneuve, which in fact is only a tolerably high hill, is the before-mentioned Fort St. André, the outer structure of which forms a splendid specimen of the military architecture of the Middle Ages, built in the fourteenth century, its battlemented ramparts interrupted by massive towers also finished with battlements. It is entered by an arched gateway opening between two immense machicolated towers whose few window openings are strongly barred. Above the entrance is a trace of the escutcheon of Philippe le Bel. A steep staircase leads to the large fortified enceinte, in which are a number of rickety houses grouped around the chapel of Notre Dame de Belvezet, dating from the eleventh century. Near this is an ancient Benedictine Abbey, the cloister of which contains some

tombs and a crypt with a chapel above it. A little further is a long terrace carried on massive piers. These abbey buildings, which date from the tenth century, are today occupied as a nunnery.

The towers of Fort St. André, yellow in the sun, are worth a visit at the cost of a somewhat troublesome ascent. One can see there the vaulted prison chambers the walls of which, like those of the Beauchamp Tower in the Tower of London, preserve the traces of inscriptions made on them by the prisoners formerly confined there; also the ancient royal kitchens, and an oven with a stone in it bearing the arms of the house of Valois. Under the towers, one is told, are very deep "oubliettes."

From the top of the Fort the eye takes in an extended panorama, the bright and gay appearance of which effaces somewhat the melancholy impression produced by the ruins we have been traversing before. At the foot of the towers the lower slopes of Mount Andao, covered with olives, the grey foliage of which is mingled with the darker hues of the cypress, descend with rapid fall to lose themselves in the plain watered by the Rhone, a silver ribbon which in the distance unites itself to that of the Durance. Beyond the river, and the wooded outlines of the island of Barthelasse, rise the great mass of the Papal palace, the Dome rock, the cathedral, the ramparts and numerous towers of Avignon, the "Ville Sonnant" of Rabelais. Then, in the further distance, we see the indented outline of the chain of the Alps, terminated to the left by Mount Ventoux with its head in the clouds. On the right of Villeneuve, the square tower of Philippe le Bel rises on the bank of the river. The whole goes to form a splendid and harmonious picture, and when the visitor turns his eyes towards the other bank, the dilapidated structures which he has lately passed through, lying in successive stages on the heights of Villeneuve, appear in the distance no longer as melancholy ruins, only to be classed among the "Monuments Historiques," but present the aspect of an ancient and powerful feudal town, the proud rival of the pontifical city.

THE MAGNETIC DIP OF ANCIENT TERRA-COTTAS.

THE article on this subject contributed by the Cavaliere Giacomo Boni to the *Journal of the Royal Institute of British Architects*, June 17, 1897, is of great importance. Dr. Folgheraiter's experiments have proved that clay cylinders acquire during the period of cooling after being baked a permanent magnetism, owing to induction by the earth's magnetic field. If we know the position in which a terra-cotta vase, for example, has been baked and determine the direction of the field of its remanent magnetism, then we know the "dip" of the earth's magnetic field at the period at which the vase was baked. If we know the "dip" then, as it is always slowly changing, it will be a great help in fixing the date of the vase. Conversely, if we know the date of the baking and the position in which it was baked, then we can find the "dip" at that period. Prior to 1576 we have no records of the magnetic "dip." Since that date it attained a maximum value of 74 deg. 42 min. in 1720, and then gradually diminished to its present

value of 67 deg. 30 min. Dr. Folgheraiter found that four terra-cotta *cistae* of about the eighth century B.C. show distinct traces of south polarity about their bases, which is strong evidence that at the time and place where these vases were baked a magnetic needle would have dipped towards the South Pole. The Cavaliere Giacomo Boni points out the necessity of further experiments in this direction. He suggests that brick walls which have been subjected to fire at a known date, e.g. the Great Council Hall of the Ducal Palace in Venice, burnt A.D. 1577, should be examined for traces of remanent magnetism. If we can thus determine approximately the "dip" at the period of the fire it will be an obvious example of the value of the method. A more promising suggestion is to examine magnetically volcanic rocks due to eruptions of historical date. At Herculaneum, for example, there must be plenty of strongly magnetic substances which came in contact with the lava, by examining which the magnetic dip at the date of the eruption might be ascertained.

Members of the Royal Institution of British Architects are asked to give notice of any buildings they may happen to come across which exhibit traces of magnetism induced at some former period. In a note Dr. Folgheraiter's method is described, presumably for their instruction. It is very difficult for any one but an expert on laboratory methods to understand it. It is of no great use except as a laboratory method of determining the magnetism of something like a vase uniformly magnetised. The mysterious "areotg." mentioned is a misprint for "arctg.," or, as we write it in England, *tan*. From experiments of our own on a block of asbestos, afterwards found to contain traces of magnetite, we found that it was very irregularly magnetised; the lines of force seemed to radiate in all directions through the body. Baked clay, we imagine, contains considerably less than 10 per cent. of the ferrous ferric oxide which constitutes its magnetic substance; it will, therefore, be a very feebly magnetic body, and it will be very difficult to determine the direction of its remanent magnetism, especially if it is not uniform.

Electricians can determine to within one per cent. the strength of the current in an electric cable by means of a little compass such as is often worn as a "charm" on a watch chain. Architects often use such a compass to determine the position of an iron girder or a gas-pipe. A sensitive compass on this principle might be employed to detect whether there is anything abnormal in the magnetic field in the neighbourhood of an old building or a monument. An expert could then find out the cause of this, and if possible determine the direction of the feeble remanent magnetism. It is highly probable that some curious instances of magnetic effects might be discovered by this means if several people systematically experimented with this end in view. At any rate, speaking from experience, we can say that it is no waste of time to learn how to use a charm compass scientifically.

CHANCEL, STOCKINGFORD CHURCH, NUNEATON.—The foundation stone of a new chancel to Stockingford church was laid on the 19th ult. by Lady Hickman, to whom a silver trowel was presented by the architects, Messrs. J. R. Veall & Son, Wolverhampton. The cost of the chancel, &c., is about 800*l*. The builder is Mr. T. Smith, of Chilvers Coton, Nuneaton.

NOTES.

THE WORKMEN'S COMPENSATION BILL. THIS Bill is yet going through a kind of second Committee in the House of Commons. Technically, it is being reported to the House, but opportunity is being taken to make various small alterations in it. None of these affect the main principles of the Bill, which we have already clearly set out in these columns. But the procedure seems to show that the Government is somewhat uneasy at the measure which they have introduced. The Lancashire manufacturers and the colliery owners are very uneasy, but the building trade appears to take the proposed changes with an easy mind. We think that they are right; the working of the Bill, when it becomes law, will have no injurious effect on their business. Its effect can easily be discounted, and it will have the effect—so far as the building trade is concerned—of diminishing litigation.

THE STRIKE IN THE ENGINEERING TRADES. PUBLIC attention has been directed into other channels lately, or the great labour struggle which has just commenced would probably have attracted far more notice than it has done at present. It is impossible to foresee where or how it may end, but that it will extend to other centres is practically certain, and that other industries may join in the movement is not improbable. A strong combination of Trades-Unions, including the Amalgamated Society of Engineers and other kindred societies, is making a determined effort to secure an eight-hours day without reduction in wages in the engineering trades. Their first step is a strike in London, which commenced on Monday; and the federated employers have made every preparation to meet this move by a wholesale lock-out in other districts. Employers, however, are not universally opposed to the movement the Royal Ordnance factories and dockyards and several private firms having long since conceded the eight-hours day, either voluntarily or under pressure. The Strike Committee assert that this step has proved beneficial both to those who have received the concession and those who have given it. If the latter part of this statement could be substantiated, the ultimate issue of the struggle would very soon be put beyond doubt. But the energetic opposition of the bulk of the great engineering firms proves that they take a very different view of the probable results of the change. Nor do the men seem united. The Boiler-makers, who have all along been united on the Joint Unions Committee, have forbidden their members to come out. It would therefore appear that the aversion to fight out the question in this way is not on the employers' side alone.

THE WALLACE COLLECTION. FROM a reply by Mr. Balfour, on Monday last, to a question as to the housing of the Wallace Collection, it appears that the Committee appointed to consider the matter have reported almost unanimously in favour of the purchase of Hertford House and for the retention of the collection there. There is no doubt a certain suitability in making Sir R. Wallace's own house the permanent museum of his own collection, but it ought not to be decided without considering carefully two points on the other side: first whether there is a sufficiently good light in

Hertford House to see the objects properly; and secondly, whether their value to the nation would not be increased by having them in a less isolated position and in closer connection with other art-collections. From an architectural point of view the preparation of a special building for such a collection would of course be a matter of great interest, and the building might be an object of artistic interest in itself as well as the collection, which Hertford House can never be. We have only to point to what the French did in the case of the Galliera Museum, for which they produced one of the most beautiful modern buildings in Paris.

THIS year's exhibition of Professor Flinders Petrie's Egyptian relics, at University College, contains a great many interesting things, though we still complain that the daily paper reports, in the *Times* and elsewhere which have the air of being written by persons specially interested, are too *couleur de rose*. We read of an ebony statuette of a nude negress "of singular finish and precision" (the catalogue says "exquisite"). It is really a very naive piece of work, and the interesting point about it, viz., that the arms were articulated and not carved in the solid, is not mentioned. Among the articles brought from El Kab the clay models of houses (Table 8) with the column and ends of rafters duly shown, are really interesting. The carved marble cats from Naukratis (Group 10), dated 2nd century B.C., are interesting in a special way because, instead of suggesting decadence, they look rather like archaic Greek work. Among others of the more interesting objects in the collection are some hard-wood chisels and mallets (21), a mediæval Arabic steelyard from Cairo, and a chronologically-arranged series of Egyptian bead necklaces and ornaments, from the 7th dynasty to the Coptic period. These are of the greatest interest, and many of them admirable in a decorative sense.

THIS Association held a very successful series of meetings at Manchester last week. The papers of most general interest discussed were those on "Municipal Aids to Wiring" and "Street Lighting by Electricity." Mr. Gibbings regretted that corporations were unable to get permission to borrow capital for such purposes as "free wiring" and the hiring out of motors and arc lamps. He suggested that the Association should find out the opinion of various corporations on this question, with the ultimate view of asking the Local Government Board for permission to borrow money for these purposes. This proposal did not find much favour from some of the councillors present. Many thought, as we do, that a municipality ought not to deal with wiring or contractor's work. It is different, of course, with large schemes, where there can be no general competition as gas or electricity supply. It was also pointed out that the wiring contractors were the best unpaid canvassers for the corporation. They took good care to lay before every one who could possibly be supplied from the mains the advantages of the electric light. The principal points discussed in the

papers on street lighting were the various methods of using arc lamps on alternating current circuits. Messrs. Boot and Taite were loud in their praises of the Ferranti rectifiers, whilst Mr. Fedden said that they were very uncertain in their action. Councillor Pearson said that street electric lighting in small towns often disappointed the inhabitants, who expected the electric lighting to be far more brilliant than the gas lighting at little extra cost. This is, doubtless, the explanation of some of the disparaging remarks that were made on street electric lighting.

A REPORT by Mr. J. Rush Dixon, Engineer and Surveyor to the St. Leonard's Shore-ditch Vestry, has been issued, containing a number of suggestions as to the better scavenging of the streets in this district. Among points embodied in this report it may be noticed that one of the difficulties has been to decide between the disadvantages of day scavenging, with the interruption of traffic, and night scavenging, when the streets cannot be so well seen and proper supervision is not easy. It appears that scavenging work confined solely to night hours proved on these accounts to be a failure, and that after day work was resorted to the amount of sweepings and garbage collected greatly increased. It is estimated that about 5,000 tons more refuse have been collected during the past twelve months than during the previous year, and it is added that a great deal of the difference is accounted for by the fact that by night the sweepings were largely got rid of by the men by sweeping them down sewer grates and gullies, a practice which, as the surveyor rightly says, "cannot be too strongly condemned"; on more than one occasion a sewer has been found to be choked from this cause alone. A system of partial day and partial night work has now been adopted, so that at night that part of the work which would be most interrupted by traffic can be carried on. It is recommended that during the night work there should be a sufficient number of men with barrows to clean off the garbage and waste-paper left during the day, "which gives the streets such an untidy appearance, and conveys the impression that they have not been swept." This accumulation of waste-paper and other debris in London streets is in fact one of the worst things in their general aspect, and is more than untidy—it is unwholesome. The Surveyor has done well in proposing a systematic manner of dealing with this nuisance, and it is to be hoped that other parishes will follow the example.

A CORRESPONDENT writes:—"The Verreries de Charleroi at Lodelinesart have just closed their works unexpectedly. The establishment employed about 1,000 hands, with three tank furnaces. These workmen, from yesterday, therefore go to swell the number of unemployed glass works. There are now three glass works closed indefinitely, and when we add the number of works closed temporarily for repairs, it will be seen that the production of glass is now one-third less than the normal production, and consequently

a third of the hands usually employed are idle. While raw materials have been steadily rising, the sale price of glass has been as steadily falling away. Timber, coal, sulphates, &c., have all advanced in price lately, whilst the production of glass during the hot weather has been far from satisfactory. From these causes it will be seen that the position of the glass industry is not an enviable one. One of the works forced to close has been driven to this extremity rather than submit to the impossible claims of the men employed. It is to be hoped that the workers in this industry will arrive at a healthy appreciation of the situation, otherwise they may end by killing the business by which they ought to be earning their living."

THE Parks and Open Spaces Committee of the London County Council have reported in favour of the construction, for about 43,500*l.*, of a granite-faced wall, with granite parapet, along the whole river frontage of the Park. The present wall, stretching for 1,300 yards between Albert and Victoria bridges, consists of a mere skin of concrete blocks, having an average thickness of 9 in. It is found to be greatly decayed, though for some years past an annual outlay of from 400*l.* to 500*l.* has been devoted to its repair from time to time, in the worst places. In 1895 the Council's Engineer reported that a sum of 6,000*l.* would be then necessary for re-instating the wall; with a yearly charge of 200*l.* for maintenance. An embankment was first made three hundred and fifty years ago. But the project of laying out Battersea Fields was first advocated by Thomas Cubitt in representations he made to the Commissioners for Metropolitan Improvements.* Of the several proposals the Commissioners adopted that of Sir James Pennethorne, for buying and laying out about 300 acres at an estimated cost of 154,000*l.* His plans included a new river embankment, the erection of 500 houses in terraces, with a museum and a library, an iron suspension bridge to Chelsea, and a park of 170 acres. Two Acts were passed for the park, bridge, and embankment. Battersea Park, as we now know it, extending over about 200 acres, was originally formed in 1855-8; the palm house (T. Blashill, architect) was erected five years ago.

THIS new church has recently been opened for divine service. It stands upon the site given by the Ecclesiastical Commissioners and the Paddington Estate Trustees for the temporary iron church built thereon eight or nine years ago. It is, we believe, the first of its kind built in London expressly for a Welsh congregation in conformity with the Church of England. Mr. C. E. Vaughan is the architect of the new structure—which is of brick; the contractor being Mr. F. T. Chinchin, of Kensal Green. Towards the total cost, about 3,600*l.* exclusive of furniture and fittings, the Bishop of London's fund contributed 750*l.*, and Mrs. Llewellyn, of Baglan Hall, Swansea, gave 1,000*l.* In clearing the ground, which lies behind the east side of St. Mary's-terrace, there was pulled down the old thatched cottage, locally known as

* See their fifth Report, 1846, with schemes, plans, &c.

"Chambers's Cottage," described in our "Note" of May 18, 1895, and of which we published an illustration, from a sketch by Mr. Walter R. Jaggard, on June 8 of that year.

THE Excursion Committee has done well in selecting part of Lancashire for this year's excursion (Lancaster being the headquarters), for though the ground is rather further from London than in some other cases, it contains a good many old buildings which are not so commonly known or so much illustrated as in some more popular sketching districts. Among the places to be visited are Claughton Hall, Hornby Church, Thurland Castle, Tunstall Priory, Kirkby-Lonsdale, Cark Hall, Cartmell Priory, Holkar Hall, Furness Abbey, Bowrick Hall, Beetham Church, Levans Hall and Gardens, Samlesbury Hall, Livesey Hall, Houghton Towers, Lancaster Church, Castle, &c. Furness Abbey is of course one of the best known as well as one of the finest of English mediæval remains, but from its rather out-of-the-way situation it is probable that many who know it well by drawings and photographs have never actually visited it; and some of the other places will probably be new to the party in every sense. It is expected that London members will not find the excursion more costly than usual in spite of the distance from London.

THE work sent home by the French students at the Villa Medici, generally spoken of as the "Envois de Rome," has been on view this week at the École des Beaux-Arts at Paris. The architectural drawings show a high average of excellence. M. Pille, who has been at Rome only three months, sends drawings of the actual state and a restoration of a capital of the Stadium. M. Patouillard, a first-year student, sends similar studies of a capital and also some studies of details connected with the Temple of Concord. M. A. Recouvre, a second-year student, sends a drawing of a tomb in the church of Ara Coeli; and M. B. Chaussemiche, a third-year student, a sepia drawing of a sixteenth century house at Rome, drawings of the Walls of Rome and of the Theatre of Taormina, and others, in which he shows both exactness of delineation and fine qualities as a colourist. The exhibition of M. Emil Bertone, a fourth-year student, consists of eleven drawings of the actual state and restorations of a temple at Palmyra. These are a very fine set of drawings, showing much care and labour, and the materials for them were obtained from laborious studies on the spot during five months, not without some risk. M. Henri Eustache, who was unable last year to send home his fourth-year work, has this year sent drawings of the House of the Vestals at Rome.

We have received the "Year-Book" of the School of Architecture in the University of Pennsylvania, where there is a four-year course in Architecture which professes to "combine thorough professional training with the essentials of a liberal education." The course is crowned with the degree of "Bachelor of Science, in Architecture;" rather an odd definition of the degree,

which one would have thought might have taken the time-honoured form of "Bachelor of Arts," not only because architecture is an art, but because the whole training of the school as represented in the "Year-Book" is apparently on the artistic side of architecture. The book is largely illustrated with illustrations of designs by the students for various set subjects; many of these are very good in an academical sense, but one rather regrets to find them so very French in style of design and drawing — so much the Ecole des Beaux-Arts over again. Even the French classification of awards as First, Second, and Third "Mentions" is imitated. Among the designs by Students Mr. A. S. Brooke's "A Pantheon" is distinctly good and original in the treatment of the dome; and Mr. Hiram M. Iar's "Suburban School for Boys" is a sensible and suitable though simple design. Mr. Kropf's "A Fire Department Station" and "A Well by the Roadside" are very good work of their kind, but they have so completely the air of being "made in Paris" that we cannot feel much interest in them. Whether the University (or any University) can really give "a thorough professional training" to an architectural student may be doubted; at least the "Year Book" contains no evidence of anything more than what may be called an academical training.

MAGAZINES AND REVIEWS.*

IN the *Art Journal* Mr. W. Scott Morton continues his articles on "Art in the Home," the third article dealing with the Dining Room, Entrance Hall and Staircase. With most of what is proposed we are in agreement, though in regard to dining-tables we do not agree that "there is no merit in massive legs," provided that the massiveness is structural and not planted on. Among the suggestions which may be referred to specially are—that a cheerful effect is given to small rooms by confining full colour to the lower part of the wall and keeping the frieze light; that the colour in the entrance hall should be chosen with some relation to that of the rooms we are to enter immediately from it; that in a country house also the colouring of the hall should harmonise with what you pass from into the house—"whether from sea, hills, lawn or pavement;" that in town houses a cheerful effect is especially necessary in the hall, as a pleasant contrast to "the dullness of the street," the latter quality being assumed, apparently, though all streets, even in English towns, are not dull. Other articles in the number are a short one on "The New Gainsboroughs at the National Gallery," by Mr. Claude Phillips; "A Northern Home," continued, illustrating the china (which seems to be of great beauty); and an enthusiastic article (by no means too much so) on Mr. Alphonse Legros and his work, by M. Arsène Alexandre.

No. 3, Vol. IV., of that irregularly published magazine the *Architectural Review* (Boston, U.S.A.) as usual is chiefly valuable for its illustrations, which in fact form the main portion of the contents. These form a kind of illustrative monograph of The Carnegie Library, Pittsburgh; Messrs. Longfellow, Alden, and Harlow, architects. This is a very meritorious building rather of the type of a Florentine Palace in style and detail, but more complicated in plan. This takes the shape of an elongated H with a semicircular building at one end, occupied on the lower floor by a theatre and on the upper floor by a music hall. The staircases on either side of this, at its junction with the main block, rise into towers with short square spires, which look rather as if copied from something of Mr. Waterhouse's. Unless these towers are of use

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

in the ventilating system (which is not stated) they are rather out of keeping with a building of this class. Portions of the interior are shown in photographs. The reading room, with a coffered ceiling of elliptical section, the central coffer being glazed for light, seems both an architecturally effective and a practical room, though the pilasters and panelling of the walls have a rather commonplace effect. The building is fully illustrated by plans, section, and geometrical elevations, as well as the photographic views, but we think the value of such illustrations of an important new building would be increased by combining with them a pretty full technical description by the architects, in place of the very brief editorial remarks. A residence "on K.-street, Washington" (what a wretched uninteresting way of distinguishing streets!) by Messrs. Wentworth & Goodhue, is picturesque and in good taste, and shown in a very pretty drawing, but the large centre bay looks very much as if it wanted some support below its flat soffit. The plan is interesting as a specimen of a narrow street house plan in which the architects have contrived nevertheless to get a spacious and rather imposing staircase. The only article of importance in the number is one on "The Roman Country House," as conjectured from descriptions; this is concluded from the previous number.

The most important article in the *Antiquary* is that of Mr. W. H. D. Rouse on the Hermitage Museum at St. Petersburg, and which describes not the pictures, but other portions of the collection which are less known. There is an article on the second of "The Three Old Churches at York, Recently Demolished," by Mr. D. Alleyne Walter, with a plan and drawings of some of the late Norman carved ornament. Why the church was to be destroyed we cannot understand; that a larger one was required (which has been built) may be obvious enough; but why pull down the old one? It might indeed have been incorporated in the larger one. On another point referred to in the same number, the proposal to place statues in the niches on the west front of Beverley, we quite agree that it would be better to let it alone. Some people want to put back the Parthenon sculptures in their old places; suppose however they had been entirely lost or destroyed, would any one dream of filling up the pediment and the metopes with modern sculpture?

In the *Genealogical Magazine* is the continuation of an article on "The Evolution of the Mediæval Helmet," with outline sketches, which should be of interest to artists as well as antiquaries.

The *Engineering Magazine* contains an article by Mr. H. H. Statham on "The Paris Fire and Temporary Structures," dwelling on the importance of bestowing more care on the fire-resisting material and on exits in temporary structures, even if to be used for only a day or two, and also of having the exits clearly recognisable by every one. Among other articles in the same number the most important from our point of view is that by Mr. F. H. Kimball on "Architectural Relations of the Steel-Skeleton Building." This contains an interesting description of the difficulties an architect has to contend with in the designing of the lofty steel-framed and sham masonry structures now popular in American cities. The article does not, however, tend to make an English reader more in love with the system, and indeed Mr. Kimball does venture to suggest in one sentence that perhaps means might be found to design the building honestly as a steel structure, and give it a good appearance, without the stone mask; "a more rational and natural use of metal might be devised which would not have the elements of a cast-iron front." Let us hope the American architects will try; we shall heartily applaud them if they succeed.

Scribner contains an article, partly architectural partly economic, on "The Modern Business Building," which means of course the American high building, the evolution of which is traced mainly to the invention of the "elevator," on the existence of which its whole economic possibilities depended. The gradual manner in which stone has been more and more dispensed with structurally is traced, until things came to the point that one architect commenced the stonework to his building at the top and continued it downwards, "just to show that it could be done." But there creeps in a certain degree of scepticism as to what is called "the



Sketches of London Street Architecture.—XVI. Nos. 10 and 12, Palace Court, W. The late Mr. Maclaren, Architect.

Chicago method," the steel cage building. As the writer (Mr. J. Lincoln Steffens) observes, "No one can tell how long it will stand the test of time. There are 1,950 tons of steel in a building 370 ft. high, which weighs in all 15,000 tons, and the metal will surely corrode; but how long before its sustaining strength will be vitiated to the danger point is a question that no one can answer empirically, and the present generation of builders is not likely to know how well or how badly it has been builded." This is what many English architects have thought and said all along, and the admission by an American writer on the subject is surely rather significant. The same number contains an illustrated article by Mr. Walter Crane on William Morris and his work, in which the most important point mentioned is that Morris concentrated his attention on one particular class of work at a time, learning its technical processes for himself, which accounts for his remarkable thoroughness of knowledge in regard to the treatment of materials for decorative work.

In the *Century* Mrs. Pennell writes a short article on "Play in London: the Garden," chiefly referring to the illuminated fêtes at Earl's Court, with the object of showing that

Londoners are not without the opportunity of really picturesque and fascinating surroundings for a holiday evening. In the same number, Mr. Pennell contributes sketches of churches of Poitiers and Caen as illustrations to an article by Mrs. Van Rensselaer.

In the *Contemporary* Mr. Spielmann makes what we consider the very undesirable suggestion that the housing of the Wallace Collection should be made an opportunity to enlarge the National Gallery, and render it more secure from fire, by an addition communicating with the Turner Room. It is very desirable to enlarge (we would rather say to complete) the National Gallery, but not for the Hertford Collection; the space is wanted for the extension of the National Gallery itself.

In the *Essex Review* the Essex churches appear to be finished, and Miss Fell Smith gives the first of a series of articles on Local Museums, commencing with Colchester. The *Essex Review*, we may observe, affords a precedent which other counties might very well follow.

The *Pall Mall Magazine* includes an illustrated article on "Audley End;" the illustrations include one from an old print showing a bird's-eye view of "The original house as built by the Earl of Suffolk."

The *Coruhill* contains an article on "English Life in the Fourteenth Century," as indicated in Piers Ploughman's poem, by Mr. Mackail.

In the *Gentleman's Magazine* an article under the title "Saline of Wich" gives some account, among other things, of a visit to a salt mine and the manner of working it, by Mr. Jas. Cassidy. Some of our readers will find information that will be of practical interest to them in Mr. Roylance-Kent's article on "Working Men's Insurance in Germany."

SKETCHES OF LONDON STREET ARCHITECTURE.—XVI.

This house, or block of houses, forming Nos. 10 and 12 in Palace-court, was designed some years ago by the late Mr. Maclaren. It is executed mainly in brick, with the upper portion, above the stringcourse, picturesquely emphasised by the introduction of bands of stone, giving somewhat the effect of a frieze to the upper part of the wall.

It may perhaps be objected that being two houses, it conveys a little too much the impression of one, though there is certainly the official party-wall, rising above the roof, to contradict this impression.

THE SEPTIC TANK SYSTEM OF SEWAGE TREATMENT.

This is a portion of a paper read by Mr. Donald Cameron, the City Surveyor of Exeter, before the Devon and Exeter Architectural Society during the Session just completed:—

After enumerating the various methods of dealing with sewage and pointing out their drawbacks and failures, Mr. Cameron proceeded to say that "such considerations as these forced me to the conclusion that no system of treating sewage can be satisfactory which does not follow as closely as possible the lines laid down by nature. I therefore set myself to devise a system in which the work of natural agents should be forwarded to the fullest extent. For many years past, in such leisure as I could snatch from the duties of a very exacting position, I have devoted myself to researches and experiments with a view to ascertain what conditions would best further the desired object. Of this work the septic tank is the outcome.

In this system no chemicals are employed, and there is no 'treatment' of the sewage in the ordinary sense of the term; its purification being accomplished entirely by natural agencies.

The septic tank itself is merely a receptacle designed to favour the multiplication of micro-organisms, and bring the whole of the sewage under their influence. To this end the tank is of ample size, though not larger than would be necessary with chemical precipitation, and covered so as to exclude light, and, as far as possible, air. The incoming sewage is delivered below the water level; and the outlet also is submerged, with the twofold object of trapping out air and avoiding disturbance of the upper part of the contents of the tank. On entering the still water of the tank the solids suspended in the sewage are to a great extent disengaged, going either to the bottom or to the surface, according to their specific gravity. In the absence of light and air the organisms originally present in the sewage increase enormously, and rapidly attack all the organic matter. By their action the more complex organic substances are converted into simpler compounds; and these in turn are reduced to still simpler forms, the ultimate products of the decomposition in the tank being water, ammonia, and carbonic acid and other gases. Other nitrogenous compounds may also be present, but they will all be soluble in a slightly alkaline solution—a condition which obtains with every normal sewage.

No sludge is found. Examination of the bottom of a tank which has been in use for six months reveals only a thin layer of black earthy matter—the burnt-out ash of the solids of the sewage—together with the mud and grit brought down by storm water. So far as accumulation at the bottom is concerned, it would seem that a tank may be used for an indefinite time without requiring to be cleared. The larger part of the solids in the tanks are found at the top, where a somewhat tenacious scum soon forms, consisting of the lighter solids in process of decomposition.

After a tank has been a short time at work the scum increases in thickness very slowly. In one case after thirteen months' work the scum was only a few inches thick.

The effluent from the tank is comparatively clear and inoffensive and not liable to any after fermentation, the work of decomposition being already done. In this state there can be no reasonable objection to its discharge into tidal water. It is eminently fitted for utilisation on land, containing as it does all the constituents of the sewage having any manurial value, in a form immediately available as food for plants; while its freedom from suspended matter removes the difficulty met with in irrigation with crude sewage. It is also in a fit state for filtration.

The filtration of sewage or sewage effluent in not a mere straining action. If it were so, the filters would soon clog and become useless. Moreover, the effluent from the septic tank, being free from solids, is not susceptible of improvement by straining. The work to be done consists in the oxidation of the ammonia formed in the tank. This is thus converted into nitric acid, which at once combines with the bases present to form nitrates.

This oxidation, like the previous decomposition, is the work of micro-organisms, but of a kind totally different from those which operate in the tank. The latter are largely of the species classed as anaerobic, living in the absence of air and light, and exercising in many

cases a reducing or deoxidising action. The organisms which work in the filter, on the other hand, are aerobic, the presence of oxygen being absolutely necessary for their life and work. Consequently the conditions prevailing in the tank must be reversed in the filter, to which oxygen must be freely supplied.

To this end the filters are best constructed of some porous material, such as coke breeze or crushed furnace clinker, affording abundant interstitial space.

Furthermore, as has been shown by experiments made, filtration must not be continuous, or the oxygen contained in the filter will soon be consumed, when the nitrifying organisms will die off, rendering the filter useless until new colonies shall be formed. Filtration, therefore, must be intermittent, a change of air being supplied to the filter after every dose of effluent. It is found that a filter worked in this way retains its purifying power for an indefinite period.

In my system attendance is altogether dispensed with, an arrangement being adopted whereby the filters are filled and discharged automatically.

In a small plant the filtering area may be divided into two parts, each of which would be filled in turn, while the other is emptying and at rest. The action of the alternating gear is as follows: The supply of effluent to each filter, and the discharge of the clear water after filtration, are controlled by valves, all connected to one rocking shaft. The clear water from each filter passes into a bed of gravel underlying it, from which it is led by drains into a collecting well. As the effluent fills the filter, the clear water rises in the collecting well, and when the filter becomes full a small quantity of clear water overflows from the collecting well into a bucket carried by the shaft. The water thus thrown into the bucket bears it down, rocking the shaft, and thereby actuates all the valves. The flow of effluent to the filter already full is stopped, and its discharge valve opened, the effluent being turned on to the empty filter, whose discharge valve is at the same time shut down. The water, rushing out from the filter last in use, draws down after it through the filtering material the charge of air required for dealing with the next dose of effluent. When the bucket which rocks the shaft sinks into its lower position, its contents are discharged through a counter-balance chamber, in which a part of the water remains to hold the valves in place until the other filter shall be full. The overflow from this second filter passes into another bucket, which was raised into position by the sinking of the first, and by means of which the valves are brought back into their original position.

The first working installation consisted of a small tank only, which dealt with the sewage of over thirty houses, as well as that of a large reformatory. It also received a considerable amount of storm water. This tank was in use for thirteen months, during which it gave a uniformly clear effluent. At no time was any solid matter taken out of it, nor did it require cleaning at the end of the period.

The fitness of this tank for its work having thus been demonstrated, a second plant was laid down to deal with the sewage of over 300 persons, ranging from 7,500 to 10,000 gals. daily. In addition to the tank, two coke breeze filters were provided, having a united area of about one-hundredth of an acre, and furnished with the alternating gear before described. The gratifying experience gained with the first tank has been confirmed by the second, while the uniformly good results given by the filters show how completely the tank does its work of preparing the sewage for filtration.

The filtered effluent is quite free from smell, and in the bulk of a large tumbler shows the merest trace of colour. It is often absolutely colourless. Analyses show that it comes up to the exacting standard of purity laid down by the Rivers Pollution Commission. These results were somewhat unexpected, seeing that a two-filter plant does not admit of the period of rest after filling and before discharging which has been regarded as necessary.

In view of the results thus obtained, the Exeter City Council, guided by the reports of chemical and bacteriological experts, have adopted the septic tank system for the disposal of the sewage of the whole city, subject to the sanction of the Local Government Board; and plans of the proposed works are now in hand. For the more complete demonstration of the capabilities of the system the Council have constructed a larger plant to deal with the whole

flow of one of their outfall sewers, amounting to 90,000 gallons per day.

This installation consists of a tank 64 ft. by 18 ft., ranging in depth from 7 ft. to 10 ft., with five filters 5 ft. deep, filled with coke breeze and furnace clinker, and having a total area of 400 square yards. One filter will always be held in reserve, the four others being worked in one cycle, in the same way as the two-filter plant already described. By having four filters in a set instead of two, it becomes possible to give each filter a period of rest after filling before it is emptied, and a period for more complete aeration after each discharge.

Instead of straining off the floating solids and intercepting the road grit outside the tank, it was decided to turn into it all the solids brought down by the sewer, so as to place it under exceptionally severe conditions. The only outlet is the effluent discharge pipe, 6 ft. above the bottom; there being no other avenue by which either solids or liquids can escape from the tank.

The foregoing description deals only with the main features of the system, passing over those minor details which do not affect its fundamental principles, though they are none the less necessary for ensuring constant and reliable working. The tank is protected by patent, and a patent for the alternating gear has been applied for.

In the matter of cost, the advantage of the septic tank system is not less marked than in that of efficiency. The capacity of tanks and filters required is not greater than with chemical processes, and the whole cost of machinery for preparing chemicals, agitating and dealing with the sludge, and buildings for its accommodation and for storage of sludge, is saved. The only additional item of cost with the septic tank system is the alternating gear, the valves themselves being common to both systems. The annual cost of working is practically nil.

Not the least advantage of the system is its power of dealing temporarily with volumes of sewage far in excess of the normal capacity of the plant, a feature which renders it possible to abandon the risky expedient of discharging slightly diluted sewage without treatment whenever the volume of dry weather flow is slightly exceeded.

With this system the difficulty often experienced in finding a suitable site for works of sewage disposal is reduced to a minimum, for a septic tank plant can be placed in situations where a plant on any other system would be impracticable."

ARCHITECTURAL SOCIETIES.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The Annual Report of this Society for 1896-7 contains a *resumé* of the proceedings of the Session, and among other matters it is mentioned that a copy of the Institute's suggestions with regard to the conduct of architectural competitions was sent to the committee who advertised for designs for a new tower at Liskeard Church, but they declined to "commit themselves in any way," and "desired to avoid as much responsibility as to details as may be possible." The Council, however, were asked to make suggestions with regard to a competition for designs for a drinking-fountain and clock-tower at Exeter, and several of the suggestions had been adopted. The report also gives a pretty long *resumé* of the paper read on April 6 by Mr. Cameron, City Surveyor of Exeter, on "The Septic Tank System of Sewage Treatment." The Council of the Society offer a prize of one guinea's value of books for the best sheet of measured drawings by articles of the Society.

DUNDEE INSTITUTE OF ARCHITECTURE, SCIENCE, AND ART.—The annual general meeting of the Dundee Institute of Architecture, Science, and Art was held in the Y.M.C.A. rooms on the 30th ult. Mr. Leslie Ower presided. The thirteenth annual report and balance-sheet, which were submitted by Mr. J. J. Henderson, the Hon. Secretary, stated that there were forty-five members on the roll, and during the session one associate had died, while fifteen had resigned, leaving the total number of associates at 123, and ten honorary members. The report thereafter dealt with the various meetings and lectures held by the Institute during the session, and it was reported that several meetings had been held by the Architectural Section and its Committee with the master builders regarding the proposed amend-

ment and republication of the rules of measurement. The question had proved more tedious and complicated than was at first anticipated, but it was now within easy reach of settlement. As a general indication of the basis of arrangement, it was mentioned that, while certain allowances were only tacitly understood under the former rules, they were now to be embodied in the printed rules, so that no dubiety might exist as to either method being sanctioned or not. As an outcome of the Institute's action last session regarding public officials doing private work, an inquiry had been made from Devonport as to the procedure on the question, so that they might be strengthened in their attack on the same ungenerous principle exhibited in that district of the country. The report and balance-sheet were adopted, and the Secretary was thanked for his labours. The following office-bearers were elected for the ensuing session:—President, Mr. Leslie Ower; Vice-President, Mr. T. Martin Cappon, architect; Councillors, Mr. R. Blackadder, C.E., and Mr. James Hutton, architect, as representing members, and Mr. William Parquharson, plumber, and Mr. J. W. Mackison, arch. draughtsman, as representing associates; Hon. Secretary and Treasurer, Mr. J. J. Henderson; and Auditors, Mr. R. Smith, solicitor, and Mr. J. P. Bruce, architect. A vote of thanks to the Chairman terminated the proceedings.

ARCHÆOLOGICAL SOCIETIES.

THE DURHAM AND NORTHUMBERLAND ARCHÆOLOGICAL SOCIETY.—On the 2nd inst. a party of the members of the Archaeological and Architectural Society of Durham and Northumberland visited Brinkburn Priory and Framlington. Morpeth was the base of operations, and the party journeyed from there to Brinkburn by way of Longhorsley, and the members were able to make a thorough inspection of the priory. Framlington was next visited, and the ancient church was examined, and the party returned thence to Morpeth.

MIDLAND INSTITUTE ARCHÆOLOGICAL EXCURSION.—The members of the archaeological section of the Birmingham and Midland Institute journeyed to Edgehill on the 30th ult., the occasion being the first day's excursion of the Institute. The party travelled by rail to Fenny Compton, whence they drove through Burton Dassett and Warrington to Edgehill, halting to inspect the interesting old churches passed on the way. Dinner was served at the Castle Inn, and in the afternoon the Oxfordshire villages of Hornton, Harley, and Hanwell were visited, and the churches were inspected. Banbury was reached at eight o'clock, and, after a repast in the "Globe" room at the Old Reindeer Hotel, the party started for Birmingham.

LANCASHIRE AND CHESHIRE ANTIQUARIAN SOCIETY.—A meeting of the Lancashire and Cheshire Antiquarian Society was held recently at Ordsall Hall, when Mr. Alfred Darbyshire explained the work of restoration which is now being carried out under his direction at the cost of Earl Egerton of Tatton. It is intended to erect on the north side of the quadrangle a new church, a district for which is about to be formed out of the existing parish. The church will be constructed largely of the old oak from the farm buildings (now pulled down). The old withdrawing-room and other rooms to the north of the great hall are intended to be converted into a rectory, and the hall itself will be used for mission purposes. The existing building is of various periods, the oldest portions dating from the fourteenth century. Much of the interior has been covered with plaster, which has now been removed, revealing the original beauties of the edifice, many of which have, fortunately, been thus kept in better preservation than they would otherwise have been. In the great hall the fine carved oak beams of the ceiling have been laid bare, and by the removal of a brick wall, built up at later times at the north end of the hall, the oak beams of the original wall have been revealed. The old withdrawing-room had been in former times converted into several chambers, and other rooms had been added in the sixteenth and seventeenth centuries. An interesting feature was a chimney-piece of the time of Henry VII., with the union of York and Lancaster signified by the two roses in juxtaposition. There are also several examples of the linen pattern ornament then in vogue. By the removal of a ceiling, the roof of the oratory, five hundred years old, has been laid

bare, and the hiding place used so often by priests and others in the Stuart days can be examined. Mr. Darbyshire illustrated his description by producing a number of plans showing the Hall as it was immediately before the restoration was begun. He also showed a number of shields of arms of the Trafford, Booth, Beron or Byron, Brereton, and Molyneux families, taken down during the restoration and intended to be replaced. He also pointed out that the frieze inside the large bay window is of exactly the same design as one on an old oak screen found in the Manchester Cathedral, of which a drawing was exhibited. The members present passed a cordial vote of thanks to Mr. Darbyshire for his kindness in explaining what was being done.—*Manchester City News.*

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. W. J. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Wandsworth District Board 2,000l. for wood paving works in South-street and York-road; the Poplar District Board 10,000l. to pay their contribution of the cost of building three bridges in the Isle of Dogs; the Newington Vestry 8,000l. for the erection of a swimming-bath; the Central London Sick Asylum Managers 20,000l. for the erection of a new asylum at Hendon; and the London School Board 150,000l. for purchase of sites and the erection of schools, &c.

Battersea Park River Wall.—The Parks Committee recommended the Council to authorise an expenditure of 43,500l. in the construction of an embankment wall, with granite face, in place of the existing river wall at Battersea Park.

The Proposed Light Railway at Deptford.—On the recommendation of the Highways Committee, it was agreed that the Committee be authorised to take the necessary measures for opposing, on behalf of the Council, the application under the Light Railways Act, 1896, of the City Corporation, for authority to construct a light railway at Deptford from the Foreign Cattle Market to the London, Brighton, and South Coast Railway at or near Grove-road.

Hilly Fields, Conveniences.—The report of the Parks and Open Spaces Committee contained the following paragraph, the recommendation being agreed to:—"In February last the Council authorised an expenditure, estimated at 650l., for the erection of conveniences for both sexes at Hilly Fields. In due course tenders were invited, and the following were received:—Messrs. Thomas & Edge, 677l., and Mr. H. J. Stevens, 752l. 6s. 6d. The usual inquiries having been made, we recommend—That the Council do approve the supplemental estimate for 27l. submitted by the Finance Committee, and do accept the tender of Messrs. Thomas & Edge to construct conveniences for both sexes on Hilly Fields in accordance with the plan prepared by the architect, for the sum of 677l.; and do direct the solicitor to prepare the necessary contract."

Metropolitan Sewers and Drains Bill.—On the recommendation of the Parliamentary Committee it was agreed that no further action be taken this session with respect to the Metropolitan Sewers and Drains Bill, and that a circular letter be addressed to the various local authorities who took part in the conference which led to the preparation of the Bill, informing them of the difficulties which have been met with in introducing it, and which have led to its being dropped.

Proposed Hippodrome, Cranbourne-street.—The Theatres and Music Halls Committee reported as follows, the recommendation being agreed to:—

"We have considered seven drawings, dated June 25, 1897, showing the proposed construction of a hippodrome and shops, together with bachelor flats and a restaurant, at the corner of Cranbourne-street and Charing Cross-road. The building itself is shown to consist of three tiers, and would be capable of accommodating 1,700 people. In addition it is proposed to form an iron and glass conservatory or garden on the roof, which would be provided with a large orchestra, and would be capable of accommodating more than 1,000 persons. It is provided with only two exits, 5 ft. wide, and is 40 ft. above the street level. This part of the scheme is unsatisfactory, and we therefore recom-

mend.—That the seven drawings, dated June 25, 1897, be not approved."

Blackwall Tunnel.—Mr. Bull, Chairman of the Bridges Committee, said that the traffic through the tunnel was gradually increasing. Great numbers of children passed through from Poplar to Greenwich, and came back with bunches of grass in their hands as though they had never seen grass before. It had been determined that only the electric light would be used in the tunnel.

Her Majesty's Jubilee Procession—Temporary Stagings.—The Building Act Committee brought up the following statement:—"We have now to report that in all 1,226 such applications were received. Of these 1,104 were granted (but in 48 cases the licences were not taken up); 90 were refused; 8 were withdrawn; and 24 were made too late for them to be dealt with. With regard to the stagings in respect of which licences were granted, we may say that by far the greater number required amendments of a more or less important character. In very many cases, even where the applications were made and the plans submitted by architects or practical carpenters, it was found necessary to point out the need for the tying together by braces of the different parts of the structure. There was, no doubt, owing to the fact that the proper method of putting together structures, each to be occupied by a large number of persons who, under the influence of panic or excitement, might crowd together at a particular spot on the structure, is not very well known; and the advice and suggestions given by the Council's officials were, in a large number of instances, of the greatest service to the persons responsible for the stands, and were fully appreciated by them. Many stands were built up some stories in height on fore-courts or areas in front of buildings; and these were required to be tied in a substantial manner to the buildings themselves. Amongst the stands were some of very large size, and their construction was specially supervised not only by the architect, but in some cases by the engineer also. These were (a) at St. Martin's Church, three, (b) at St. Mary-le-Strand Church, (c) at St. Clement Danes Church, (d) at the corner of Horse Guards-avenue and Whitehall, (e) on the site of the Hotel Carlton, Pall Mall, (f) on the site of No. 54, Parliament-street, (g) at Westminster Bridge Flour Mills, (h) at St. Saviour's Church, Southwark, (i) St. George's Churchyard, Borough, and (j) St. Thomas's Church, Westminster Bridge-road. We think it only due to the District Surveyors concerned to state that they one and all exercised efficient and vigilant supervision over the actual construction of the stands after the plans had been approved by the Council's staff. It is a matter for sincere congratulation that, owing to the great care exercised in examining the plans, and the effective supervision afterwards exercised over the construction, no accident even of the most trivial character is known to have been caused through defective construction or absence of proper arrangements at any of the stands in respect of which the Council's licences were granted. It was, however, found necessary to condemn 202 structures in various parts of London, these consisting chiefly of temporary stands and balconies. In seventy-four cases the structures were shored up and thus temporarily secured, but twenty-five were of such a character that it was deemed desirable to pull them down, and this was accordingly done.

The work devolving upon the architect and his staff in connexion with the examination of the large number of plans for these temporary structures was very great, and, as we stated in our previous report, it was found necessary to obtain extra professional assistance, and also to detain some of the architect's staff long after the usual office hours, in order that the work might be done with due expedition. On our recommendation the Council on June 28 approved of an estimate of 250l. to meet the extra expenditure for this purpose, and at the time we made the recommendation we thought this sum would be sufficient. We find, however, that the actual cost will be about 425l., which, however, is more than covered by the fees received in respect of the applications, and we have asked the Finance Committee to submit for the Council's approval a further estimate for 175l."

The Council adjourned soon after six o'clock.

SHOREDITCH DUST DESTROYER.—Messrs. W. E. Rendle & Co. ask us to mention that the roofs of this structure, on which we gave some comment in our last issue, are glazed on their patent system.

Illustrations.

THE COUNCIL CHAMBER, MUNICIPAL BUILDINGS, BATH.

THE view of the chamber which we publish is taken from the public gallery, looking towards the Mayor's seat. The room is 45 ft. long by 36 ft. broad, and 22 ft. high, and is seated for fifty-six members, besides officials. Its general character will be seen from the illustration.

The columns carrying the ceiling are of scagliola, of a rich red in colour, with white markings. The ceiling itself is modelled in plaster. The subjects in low relief in the circular panels in the vaults, representing the Arts and Sciences, Commerce, Justice, &c., were modelled by Mr. Schenck, and the whole of the plaster work was carried out by Mr. Annan, of Pimlico. The wall panelling, doors, windows, and the public gallery are of American walnut, dull polished, executed by the general contractors for the building, Messrs. Hayward & Wooster, of Bath.

The furniture, designed by the architect, is executed in fine dark mahogany by Messrs. Knight & Sons, of Bath. The electroliner in the centre of the room is of wrought and polished brass, by Mr. T. R. Spence.

In the circular windows, on each side, are the arms of England and of Bath in painted glass, by Mr. C. E. Kemp, and the arms of the city are again displayed in the panelling behind the Mayor's chair, carved in walnut and embellished in colour by Mr. Aumonier.

The whole of the work has been admirably carried out from the designs and to the entire satisfaction of Mr. J. M. Brydon, the architect, who wishes to take this opportunity of acknowledging his appreciation of the skill and intelligence of the men who were engaged in it.

LEICESTER CORPORATION WATERWORKS:

SWITHLAND RESERVOIR ENGINE-HOUSE.

We give an illustration of the engine-house recently built in connexion with the Leicester Corporation Waterworks; a building which has more architectural character than is usually found in connexion with waterworks constructions. Some account of the general scheme of the waterworks may be of interest in connexion with it.

The works were opened in September of last year. The efforts of the Corporation to supplement the supplies derived from the Bradgate and Thornton reservoirs, in order to meet the growing demands of the town, extend over a period of almost sixteen years, but it was not until early in 1889 that the Water Committee adopted the main principles of the scheme, now known as the Swithland scheme, for impounding the waters of the watershed adjoining Bradgate. The watershed in question comprised three streams, the Lingdale, Swithland, and Hallgates brooks, together with the overflow from the Bradgate reservoir. The scheme provided for a storage reservoir in the valley between Swithland and Quorndon, at the foot of Buddon Wood. In September, 1892, the Town Council appointed Mr. J. B. Everard as the engineer to carry out the construction of the works in the Swithland valley, namely, the storage reservoir, filter beds, engine-house, &c., at the same time deciding that the pipe-laying should be carried out under the supervision of their own engineer, Mr. F. Griffith. The storage reservoir is calculated to store 530,000,000 gallons, of which 500,000,000 gallons will be available for drawing off. The area covered with water when the reservoir is full is about 200 acres. The reservoir is irregular in shape, following the contour of the valley, and is about a mile in length. There are two dams, one 147 yards long and the other 55 yards long, which have been constructed for the purpose of maintaining the level of the water above Brazil Island, to satisfy the clauses inserted in the Act at the instance of the Earl of Lanesborough. It is here that the new Manchester, Sheffield, and Lincolnshire line crosses the reservoir, which is spanned for the purpose by two bridges, erected by Messrs. Aird for the railway company.

The waste weir and bye-wash are designed on a very large scale, as this part of this work is to provide for the ultimate overflow from the Bradgate drainage area as well as from the new Swithland area, or a total of nearly 8,000 acres. They are constructed to allow of from

one-third to half an inch of rainfall to flow from the whole area per hour. The length of the waste weir is 330 ft., and it is capable of safely passing a flood of 70,000,000 gallons per hour. The bye-wash bridge, which carries the road diversion over the bye-wash, has three spans of 33 ft. 4 in. each, giving a waterway of 100 ft.; and the bye-wash from this point has a gradual incline so as safely to deliver the floods at the present level at the northern boundary of the Corporation land.

Close to the weir is the valve tower, which contains the two valves for regulating the flow of water to the filter beds, and also one at the lower extremity for emptying the reservoir, if ever it should become necessary. A penstock is provided on the reservoir side of each pipe, in addition to the sluice valves within the tower, so that each pipe is doubly protected. All the valves are actuated by gearing in the valve house at the top of the tower, which is reached from the main embankment by means of a foot-bridge of 36 ft. span.

The embankment is about 224 ft. wide at the base and 26 ft. wide at the top, and carries the public road. Prior to its construction a trench was sunk upwards of 600 yards long, and attaining a maximum depth of 70 ft., for cutting off the water-bearing strata below the surface of the ground. This trench was filled with cement concrete, with a cement core in the centre, to form a level line at an average depth of about 20 ft. below the original surface, and upon this concrete wall was erected the puddle-core which forms the water-tight centre of the main embankment. The embankment, with its puddle centre, has been raised to a considerable height above the lowest part of the valley, and the greatest care has been taken in the consolidation of the structure, the whole being put together in thin layers and rolled with a heavy steam-roller.

The filter beds are six in number, and have a total area of 75,000 square feet, being arranged around an hexagonal clear water tank. The capacity of this tank is about 400,000 gallons. It is covered in, in order to keep the filtered water pure and fresh. The tank is divided into two sections, so that one portion may be in use whilst the other is being cleaned or undergoing any necessary repairs. The roof is supported by brick columns. The filter beds contain, to a depth of 3 ft., white sand obtained from Leighton Buzzard. A new system of cleansing the sand, that of Messrs. Hunter, Fraser, & Goodman, has been adopted, the apparatus for which is fixed in the centre of each bed. Over the centre of the clear water tank has been erected an ornamental cupola, in which the electric gauges are placed, for registering in the engine house the level of the water in the tank. The pumping station stands to the left of the filtration area, and is designed to contain three sets of triple-expansion engines, but at present only two have been erected. The boiler-shed, containing four Lancashire boilers, adjoins the engine-house, and the chimney shaft, 130 ft. high, rises from the further side of the building. Close at hand is the resident manager's house, which contains a board-room, where the Water Committee will occasionally meet.

The contractors for the general contract were Messrs. John Aird & Sons, of Lambeth. The engineer for the scheme was Mr. J. B. Everard, and the architectural work is designed by Messrs. Everard & Pick.

CHAPEL AND SCHOOLS, OLD KENT ROAD.

The building containing the chapel and schools is set back 6 ft. from the building line. The chapel, 60 ft. long, is entered direct from the open space thus formed. It is designed to accommodate about 400 people on the ground floor, and 250 in the gallery, the latter being on the first floor level. Behind the rostrum are placed the minister's and stewards' rooms. Stairs lead on each side from the ground floor level to the choir and organ, and also to the caretaker's rooms on the second floor. The main steps to the gallery are on either side of the principal entrance facing the main road.

Behind the chapel on the ground floor is placed a large schoolroom, 44 ft. by 60 ft., and

about 20 ft. high. This will be fitted with movable screens for class-rooms, and the roof is designed so that the room may be used as a gymnasium if required. In connexion with this schoolroom, and on the basement floor, will be fitted a small kitchen, which will be useful for the meetings, &c. The coal-cellar and heating chamber are also placed on the basement floor.

The boys' and girls' lavatories and water-closets are placed on the ground floor, conveniently near the school, and yet open to the air.

The top floor of the towers flanking the main entrance will be used as storage rooms, &c.

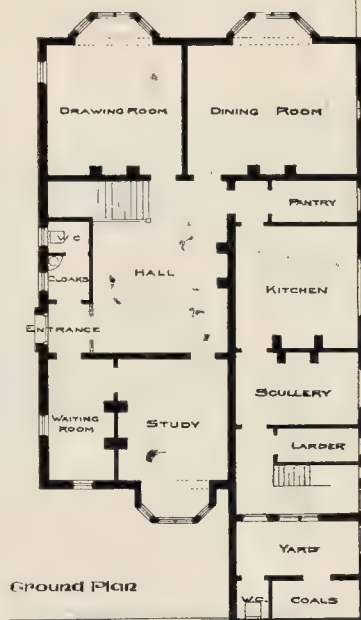
The building is to be constructed of red brick and Portland stone externally, and is to be roofed with green Westmoreland slates, thus forming a contrast to the red brickwork.

Internally the galleries are to be carried by means of steel cantilever brackets, and there will be no columns to impede the view. The ceiling will be treated as a semicircular vault panelled in plaster, the side clerestory windows abutting around this, and forming Welsh groins.

The flooring to the hall will be of the wood block type, to be supported on steel joists and coke breeze concrete, as also the schoolroom floor. The building will be thoroughly heated and ventilated throughout by means of a hot-water system.

With regard to the exterior, a simple treatment of Eighteenth Century English Classic style has been adopted. It has been carefully considered by the architects, and effect has been sought by proportion alone, ornament having been considered inappropriate and unnecessary, having regard to the uses to which the buildings will be put.

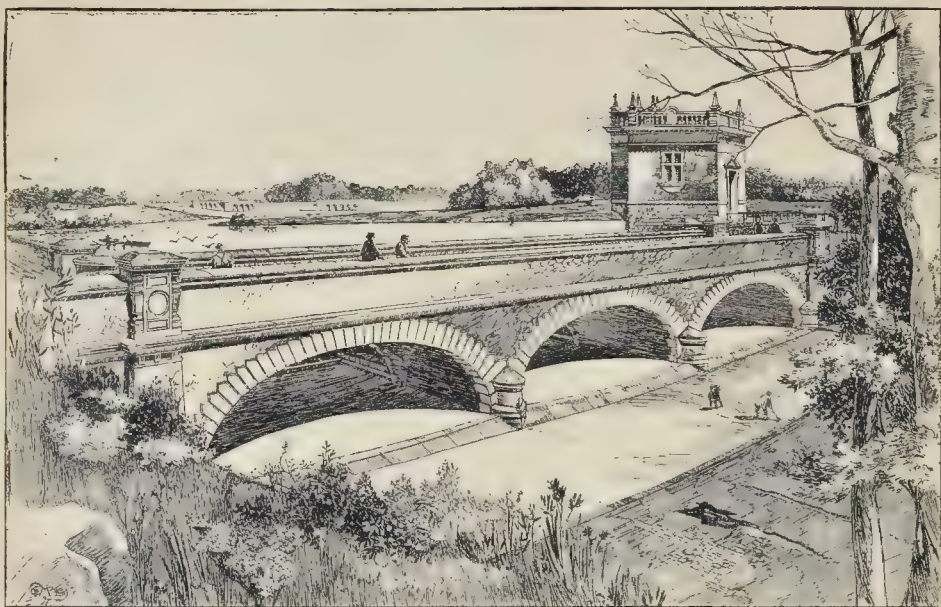
The architects are Professor Banister Fletcher and Mr. Banister F. Fletcher, of London.



Vicarage, Middlesbrough.

VICARAGE, MIDDLESBROUGH.

THIS vicarage house is now in course of erection, the design having been slightly altered in some respects. It is being built of stone from Cotherston, with Dunhouse stone dressings. The roof will be covered with Brosley tiles.



Leicester Corporation Water-works : Byewash Bridge, Swithland Reservoir.



Leicester Corporation Water-works : Woodhouse Cut Bridge.

The house adjoins the Church of All Saints, designed by the late G. E. Street, and is situate in Linthorpe-road. The cost will be about 2,000*l.* Mr. James Neaf is the builder, and the architects are Messrs. R. Lofthouse & Sons, of Middlesbrough.

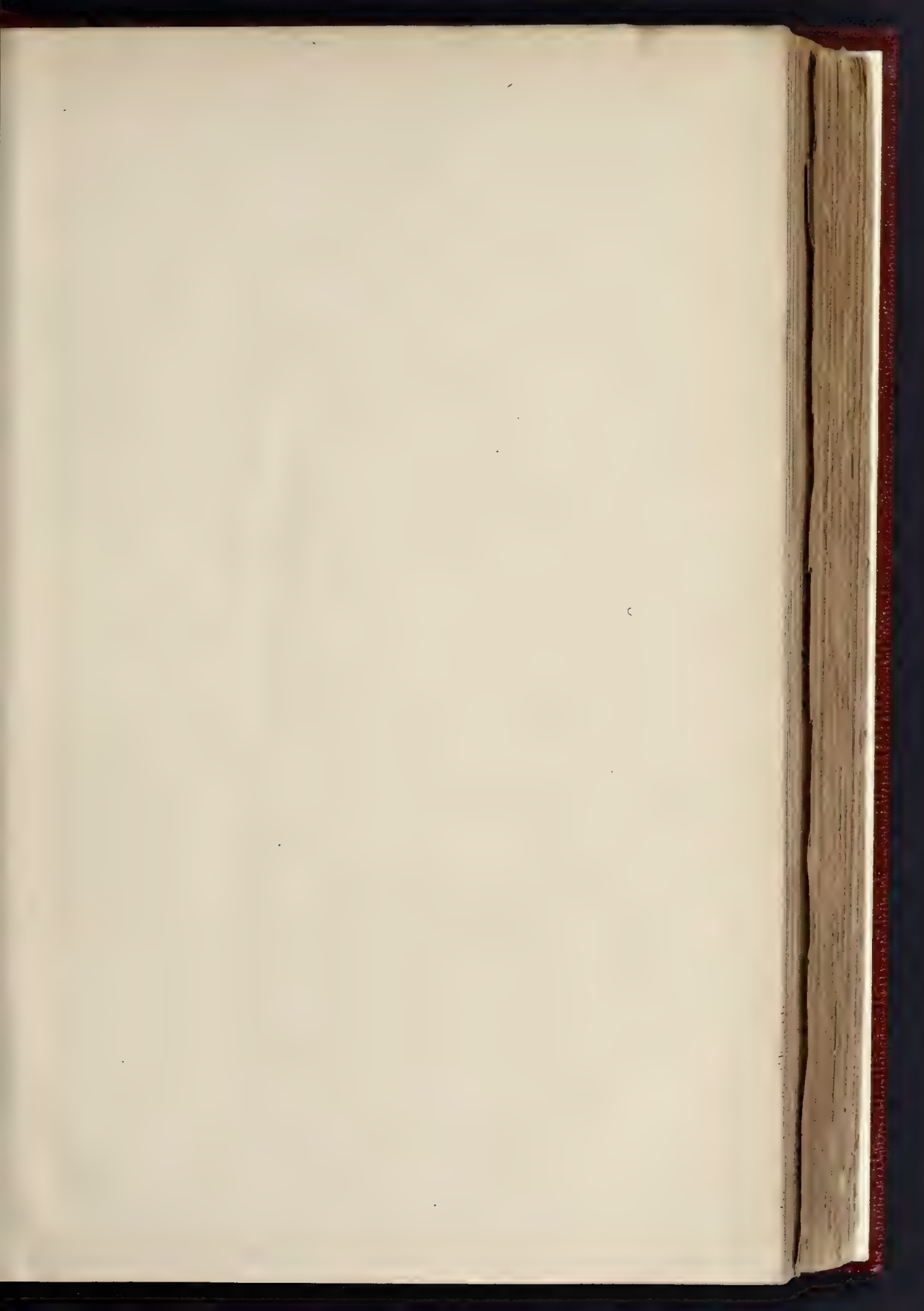
ANCIENT GATE AND WELL, VILLE-NEUVE-LES-AVIGNON.

THESE illustrations, reproduced from photographs, are referred to and described in the first article in the present issue, on "Villeneuve-les-Avignon."

COMPETITIONS.

NEWCASTLE NEW INFIRMARY.—The following architects have intimated their acceptance of the invitation to send in competition designs for this building:—Mr. William Henman, Birmingham; Messrs. T. Worthington & Sons, Manchester; Messrs. Simpson & Milner Allen, London; Messrs. Dunn, Hansom, & Fenwick, Newcastle; Messrs. Oliver & Leeson, Newcastle; Messrs. Armstrong & Knowles, Newcastle; Messrs. Newcombe & Adams, Newcastle and London; Mr. Dyson, Newcastle;

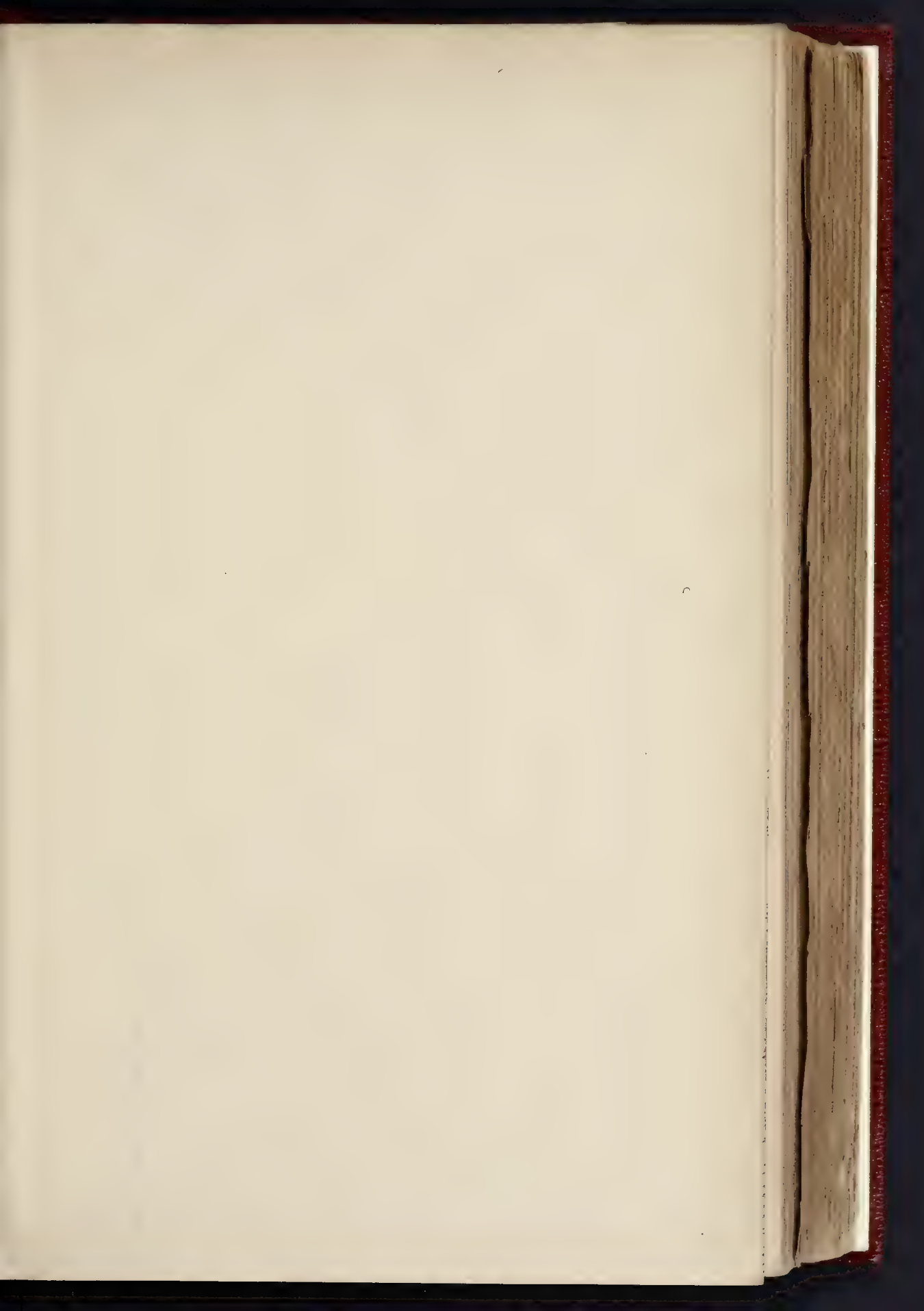
Messrs. Marshall & Dick, Newcastle; Mr. Haswell, North Shields; Messrs. Clark & Moscrop, Darlington; and Mr. F. Caws, Sunderland. With regard to the application made to the Town Improvement Committee of the Newcastle Corporation for a piece of ground adjoining the site at the Forth Banks a deputation has been appointed to wait on the Town Improvement Committee with the object of seeing whether or not a piece of the railway may be taken in. As soon as these negotiations with the Corporation have been completed instructions will be issued to the competing





COUNCIL CHAMBER, BATH MUNICIPAL BUILDINGS





THE BUILDER, JULY 10, 1897.

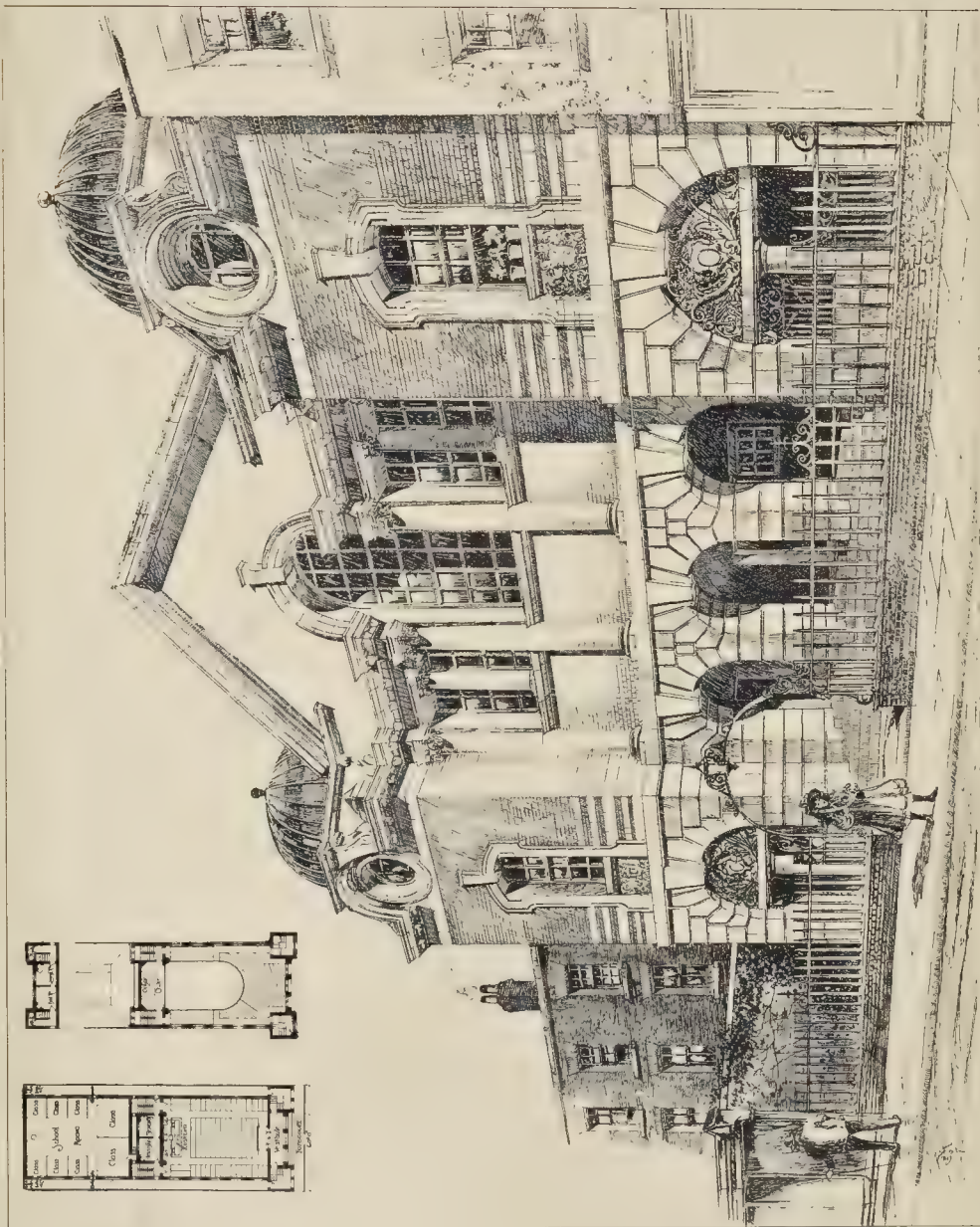


THE BUILDER, JULY 10, 1897.



LEICESTER CORPORATION WATER-WORKS. SWITHLAND RESERVOIR ENGINE HOUSE—MESSRS. EVERARD & PICK, ARCHITECTS

THE BUILDER, JULY 10, 1897



CHapel and Schools, Old Kent Road, S.E., for the South-East London Primitive Methodist Mission

Proposed Vicarage,
Middlesbrough.
R. J. of House & Sons
Architects.

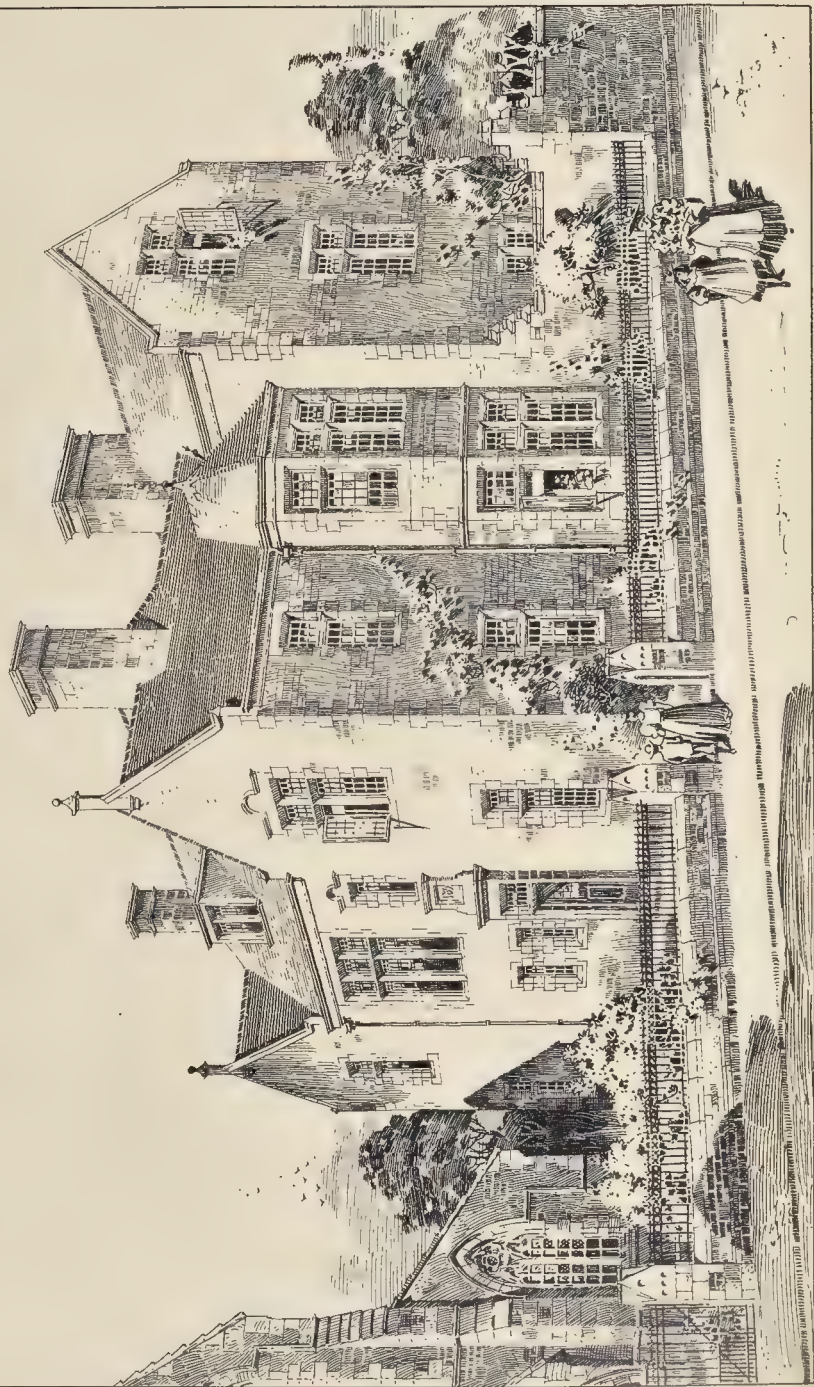
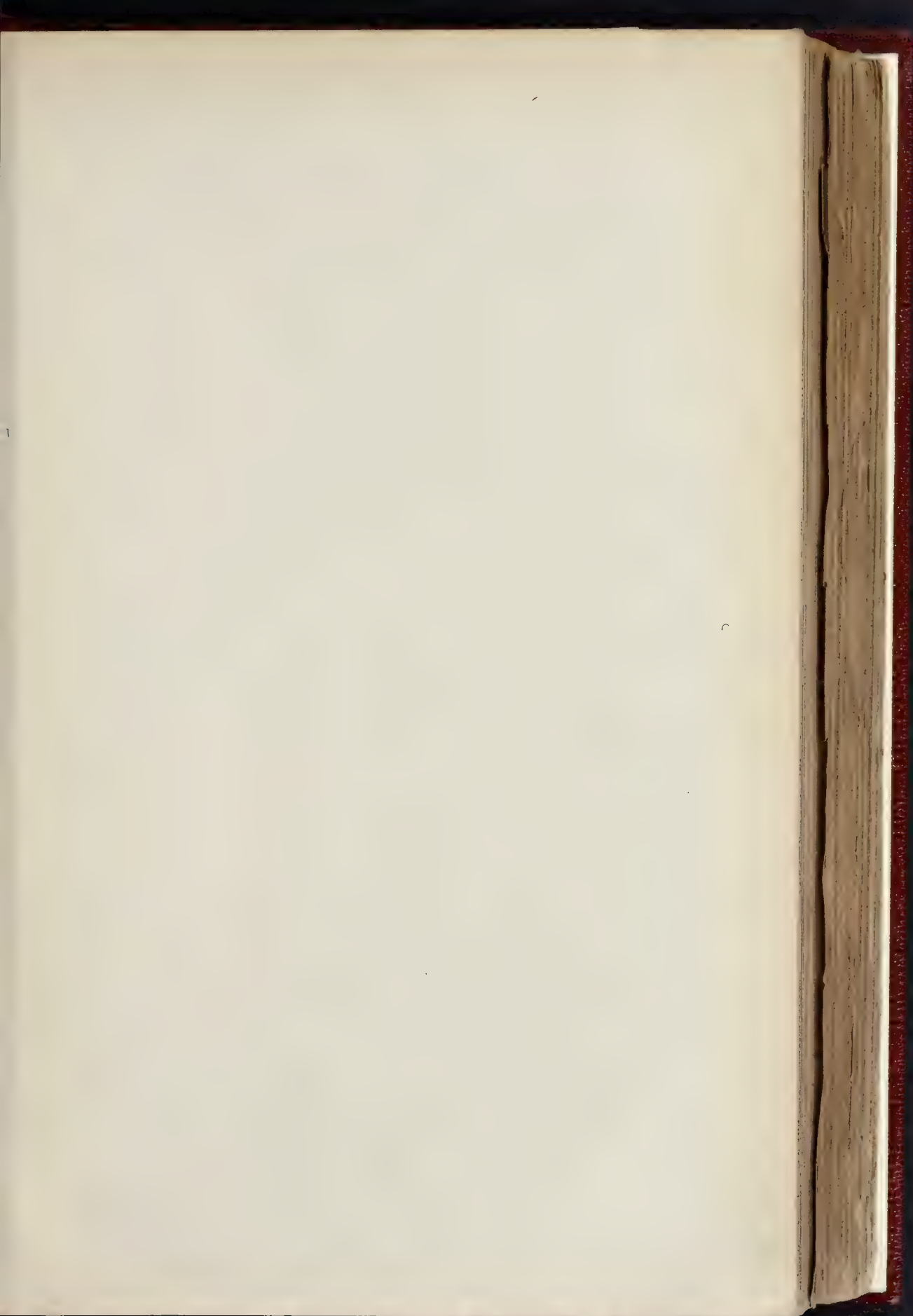


PHOTO BY MR. SPANGLER & CO. 435 EAST HANCOCK STREET, PITTSBURGH, PA., U.S.A.





PORT DE LA CHARTREUSE, VILLENEUVE-LES-AVIGNON



PUITS DES CHARTREUX, VILLENEUVE-LES-AVIGNON.

architects. The premium in the competition are as follows:—1st. The execution of the work on the usual commission; 2nd, 150*l.*; 3rd, 100*l.*; 4th, 50*l.* Six months will be allowed from the date of the issue of the instructions for the sending in of the plans.

Books.

Choir Stalls and their Carvings. Sketched by Emma Phipson. With an introduction, and descriptive notes. London: B. T. Batsford. 1896.

The carvings illustrated consist of examples from Misericords or Misererés in English cathedrals and churches. What Miss Phipson says as to the number of such carvings which exist and the few people who know of them is, we imagine, quite true, though the remark would not apply to architects, who generally look for them, while the lay visitor does not, and is not always encouraged to do so by the official custodian—"who wants to look at the horrible things?" said one verging to the author; though this view of the matter, according to our experience, is rather exceptional.

The book contains 101 plates each giving three subjects, so that it forms a very extensive treasury of this branch of mediæval art. The illustrations are apparently reproduced from brush drawings in monochrome, and appear to have been carefully as they are certainly effectively done, though of course we must assume that in some cases the subject of the carving has been helped out a little by the artist, who admits that there is often, owing to the absence of sufficient light as well as the worn state of the carving, considerable difficulty in making out the design and its meaning; "occasionally there is a variation in the drawing of the same misericord by different artists, just as several explanations are sometimes given of illegible handwriting. It is necessary to interpret the meaning of a group before beginning to sketch it, and, having made up his mind what is intended, the artist will unconsciously make his drawing agree more or less with his interpretation of the subject; while another spectator will put a different construction on the carving before him, and his drawing or explanation will vary accordingly. For instance, one authority explains a misericord at Norwich Cathedral as representing the Prodigal Son feeding swine; another thinks it depicts a woman pursuing a fox who is running off with a goose!"

In spite of these difficulties, Miss Phipson has produced a most interesting collection of illustrations, and one which illustrates very well the humorous character of many of these misericord carvings, and their occasional value as illustrations of the life and dress of their own day, though we think their significance in this respect has been a little exaggerated; certainly the majority of the examples given in this book are of purely grotesque or ideal character. From Tufton Street church there are some rude representations of agricultural labour, and one of a monk at work in joinery, which is more intelligible; but these are exceptions. The interest of the majority of the carvings consists in their strange and grotesque fancy, sometimes obviously satirical, sometimes expressing some meaning now lost to us. What is symbolised, for instance, by the figures of naked children rising out of snail shells in the carving in Plate 25? They remind one oddly of Blake. A winged monkey (or demon) with two children in a cradle (Plate 61) is another curious subject, which evidently has a meaning. The ingenuity of the devices in which the side scrolls of the carving end, and their decorative effectiveness, is an interesting feature in many of the designs. Occasionally we find details which seem like fancies of the Renaissance in advance of their time—decorative leaves with mouths and eyes, figures consisting only of head and legs, &c. The whole collection is most curious, and affords a continual surprise to the reader in turning over the pages; it ought to be quite a popular book of illustrations of mediæval jest and fancy.

Fires and Public Entertainments; a study of some 1,100 notable fires at theatres, music halls, &c. By EDWIN O. SACHS, architect. London: C. & E. Layton. 1897.

THE publication of this volume is due to the recent fire at Paris, of which some account is given, but the value of the book consists in its very large and full table of statistics of fires

from 1797 to 1897, with a brief statement of circumstances and probable or known cause. There are also tables classifying fires according to time of outbreak, according to month, and in two or three other ways. But the great value lies in the general statistical list, which ought to be studied by all who wish to form a comprehensive idea as to the kind of public buildings that take fire most often, the most frequent causes of fires in such buildings, &c. Among known causes recorded in the list the following may be mentioned:—Discharge of a gun setting alight the decorations (Covent Garden Theatre); careless raising of a lustre with lighted candles (Richmond, U.S.A.); use of fireworks (Fracconi's Circus, Paris); ditto at Ambigu Comique, Paris; ditto at "Italian" Theatre, Paris; ditto, Cook's Theatre, Baltimore; carelessness in extinguishing gas (Astley's); carelessness in lighting gas (Park Theatre, New York); leakage from a gas pipe (Kroll's Theatre, Berlin). Fireworks or firearms on the stage, and carelessness with or leakage in the gas, have caused a good many theatre fires. For further information we refer the reader to the complete list in Mr. Sachs's book, occupying nearly thirty-three large folio pages, in columns of date, place, name of building, and general statistics.

"A New Book of Drawings, Invented and designed by John Tijou," reproduced, with a brief account of the author and his works, by R. STARKIE GARDNER. London: B. T. Batsford. 1896.

Tijou, as most of our readers are aware, was the French iron-worker, resident in England, who is now generally supposed to have been the real artist of the ornamental gates and railing for Hampton Court Palace, for a long time attributed to Huntington Shaw. The boldly-drawn plates of the original publication have been reproduced very successfully, and form a fine collection of designs for ironwork in the Renaissance style, not all of unexceptionable taste, but showing a great deal of free broad leafage design, as well as a fine feeling for balance and contrast in the general laying out of the designs.

Mr. Starkie Gardner's essay sums up in an interesting manner what we may take to be all the known information about Tijou. One curious fact mentioned is that all the plates of ironwork published in Batty Langley's "Treasury of Design," in 1740, are copies of Tijou's plates "indifferently executed by L. Langley, who signs them without any acknowledgement as to their original authorship."

Mr. Gardner remarks in regard to the Hampton Court work how well the design is suited for the purposes of a "screen" as distinct from a "fence," and also draws attention to the fact that the work as executed is "far nobler in proportion as well as more reposeful and dignified," than the representation of it on the plate; and suggests that it is to Wren that the improvement is due. It may be so, but on the other hand it is just possible that Tijou, like many another good handicraft artist, produced better work in actual course of execution than he was able adequately to represent on paper.

Monopolies by Patents and the Statutable Remedies Available to the Public. By J. W. GORDON, Barrister. London: Stevens & Sons, Limited. 1897.

THIS book is partly a historical and partly a legal treatise. The main object of the work is the examination of the Statute of Monopolies. It is, however, too much of a mere legal treatise to be of interest to the general student, whilst the lawyer and man of business does not care a rap for the history of legal questions. The book shows a good deal of care and research, but we fear that it will be labour lost. We say this with regret, for there is good work in the book, but before any one sits down to write a book it is desirable to consider well whether it is required. "The germ of this little treatise," writes the author in his preface, "lies in Chapter II., which was originally intended to appear in the form of a review article." If a subject outgrows the size of a "review article," which, by the way, is not a grammatical expression, it does not follow that it is suitable for a book.

Map of Central London, on the scale of four inches to one mile. London: E. Stanford. 1897.

THIS "Map of Central London," recently issued, is the best for everyday purposes that

has been published. It is on a pretty large scale, is admirably printed and the lettering, even the smallest, very clear to read, and it shows all the detail that can be shown on the scale adopted. The principal or main lines of street are distinguished by being coloured yellow, the minor streets being left white, so that the way about London is obvious at a glance without any hunting out of routes. The map is mounted on a strong linen backing, and folds into a small size within a protecting cover. In this form it may be recommended to all who want a conveniently portable map of the main district of London, including from Kilburn Station on the north to the outskirts of Clapham Common on the south, and, in the east and west direction, from London Decks to Turnham Green.

The map can also be had mounted on rollers and varnished.

TRADE CATALOGUES.

MESSRS. ALFRED WILLIAMS & CO. (London) send us their catalogue of windmills for driving pumps, farm machinery, for electric lighting &c., including illustrations of the Halladay windmill, which has been several times mentioned in our columns, and the principle of which is illustrated and described in the catalogue; also the smaller or "Lion" windmill, a less complicated machine, with steel towers for fixing it; and (in the case of pumping into a tank) automatic apparatus which stops the windmill when the tank is full and sets it going again as soon as any water has been drawn from the tank.—Messrs. Broad & Co. (London) send us a very well illustrated catalogue of sanitary appliances, in which sections and geometrical drawings are given of all the traps, gullies, &c., illustrated. Among the items which may be specially noticed are the locking cap for the cleansing arm of a trap or interceptor, intended to prevent the possibility of the cap being displaced—it has a Stanford joint, and is wedged home by the action of turning; the brass locking grid for the tops of gullies, turned with a key, and gripping on a wedged flange; the channel trap with reversible top; the enamelled trough channels with special inlet in one piece for flushing pipe; the "Excello" and "Bucket" grease traps; the channel and reversible gully trap, in which the trap can be fixed at any angle with the wall; the "domestic gully trap," in which the waste or rain-water pipes, though entering the gully (at the side) below the grid, deliver over a strainer which can be lifted out for cleaning; and two or three forms of convenient and efficient draw plugs for testing. The catalogue includes also encaustic tiles and glazed bricks of various colours and patterns.—The Valtham Engineering Co. (London and Paris) send us their illustrated catalogue of designs for chandeliers either for wax candles or electric lights, described as "Middle of the Eighteenth Century" in style; there is a good deal of character in some of these, but they reproduce some of the faults of eighteenth-century decorative design. The catalogue also includes registered designs for finger-plates and bell-plates and pushes, also fittings in wrought iron, brass and copper, of various kinds.—The General Electric Company's "Leaflet" for July includes some designs for electric table decoration—incandescent lights combined with real or artificial flowers; an electric door alarm for swing doors, to ring on opening either way, and a floor or wall contact plate of improved pattern.

Correspondence.

To the Editor of THE BUILDER.

CURVES IN MEDIÆVAL ITALIAN ARCHITECTURE.

SIR,—I have read with great interest Professor Goodyear's articles, or as many of them as I could find, in the *Architectural Record*, on curves in Mediæval Italian architecture, referred to in a recent notice in your paper. The facts established by the survey of the Brooklyn Institute of New York, and illustrated by careful plans and abundant photographs, as to the existence of curves, both on vertical and horizontal planes in the Romanesque buildings, and their absence in the Gothic buildings of Italy, afford the most striking evidence that there is an essential difference in the construction of the one class of buildings and of the other. Professor Goodyear vigorously com-

bats the idea that any such gradual curves could have resulted from accident or careless building, and in one of his papers he puts six questions which he considers must be answered before any explanation of the origin of these curves can stand. I refer to these questions later on.

A reference to the works of M. Choisy, "L'Art de Bâtir chez les Romains," and "L'Art de Bâtir chez les Byzantins" and to the work of the late Professor Middleton on Roman construction, "Ancient Rome," shows—conclusively that the Byzantines and the Romans of the time of the Empire built all their walls as monoliths; in common parlance, they built in concrete. The facing of the walls, whether of stone or brick, was no essential part of the wall, but was merely a permanent centre or hoarding, useful sometimes as an aid to the erection of the wall, and sometimes entirely dispensed with. A careful examination of many Romanesque buildings, and of many of the buildings of that interesting period of architectural growth, the transition from Romanesque to Gothic, leads to the conclusion that the Romanesque builders in England followed the Roman manner of building with more or less success, not only in externals, but in construction also, and that the transition from Romanesque to Gothic arose from the discarding of monolithic construction and the substitution of building by an assemblage of small stones bonded and interlaced together.

The investigations of the Brooklyn Society afford the strongest evidence that this was the case in Medieval Italy, where subtle curves are found to exist in one form of building and not in another; for the slight expansions that take place in the consolidation of a concrete wall are just those likely to give rise to such curves as are shown to exist in Romanesque buildings; and the fact that they are not found to exist in the stone walls of a Gothic building, is a strong proof that these curves arose from the nature of the construction.

To refer to one or two instances given. The four sides of the cloister of the Celestines, Bologna (eleventh century), are shown to curve inwards—a natural result of expansion—in the same way that a dry wooden lathe expands in a gradual curve if placed between two fixed points and exposed to damp or other influences which cause it to expand.

The gallery fronts of Santa Sophia are shown to rise vertically in the centre; this is accounted for by the expansion following the line of least resistance; as again are the gradual curves shown in Pisa Cathedral.

I reply, therefore, to the six questions of Professor Goodyear:—

1. That these curves are not found in the Gothic of North Italy, because the Goths did not build monolithic walls.

2. That in Tuscany they centre in the buildings most nearly related to the Pisan Romanesque, because that was the earliest and consequently the most thoroughly monolithic in its form of building.

3. That they are multiplied and well defined according to known historic facts regarding the centres of Byzantine culture in Italy, because these centres were the centres of progress at that time.

4. That they appear to radiate from these Byzantine centres with weakening intensity according to distance, and according to the Byzantine influence apparent in decorative details, because the further they got from the then centres of civilisation, the more difficult was it to ensure the execution of monolithic work, a difficulty which eventually led to its disuse.

5. That the phenomena are most numerous and best defined in the richer and more important churches, because their resources enabled them to build quicker, and to use stronger and richer cement.

6. That they tended to disappear in the humbler and more rudely built because their work was more loosely compacted and more slowly put together.

I hope the Brooklyn Society, aided by Professor Goodyear, will not let the investigations rest here, but will pursue their investigations in other countries. It would be interesting to know if the Romans, who managed their cement in so masterly a way, made such provision for expansion as to keep their buildings in shape. It would be interesting to know if curves similar to those found in Italy are found in any of our Romanesque buildings; in Norwich, or Peterborough, or elsewhere.

CHARLES J. FERGUSON, F.S.A.

GENERAL BUILDING NEWS.

PITMAN'S METROPOLITAN SCHOOL.—This school is now being erected in Russell-square, W.C., under the designs and under the superintendence of Mr. G. D. Martin, architect, London. The accommodation is as follows:—In the basement are lavatories and heating apparatus; on the ground floor the administrative offices of the school; and the five upper floors will be devoted to class-rooms for the male and female students, the sixth floor being given up to the housekeeper. Space has been left for a further enlargement of the school. The front elevation will be of red brick with Portland stone dressings. The whole of the internal fittings on the ground floor will be of pitch pine. The building will be of fireproof construction, and will be lighted throughout by electricity, and ventilated and heated by the Sturtevant Company. The builders are Messrs Perry & Co., Bow; and the cost of the building will be about 27,000*l*.

CHURCH TOWER RESTORATION NEAR NEATH.—The old tower of the parish church of Cadoton-juxta-Neath is about to be restored, under the superintendence of Mr. C. B. Fowler of Cardiff. The cost is estimated at 300*l*, and it is proposed to commemorate the Diamond Jubilee by adding three bells, making a peal of six, at an additional cost of 200*l*. The tower is in the Early Fourteenth Century style. It is proposed to restore only the portions which are perished, and the superintendence of the sound parts, and keeping the details of the lost features as near as possible to the originals.

ST. PAUL'S CHURCH, WOLVERHAMPTON.—This church was reopened by the Bishop of Shrewsbury on the 24th ult., after undergoing a thorough repair, restoration, cleaning, painting, and decorating, at an expense of about 300*l*, under the superintendence of Messrs. J. R. Veall & Son, architects, Wolverhampton. The north and south galleries have been entirely removed. Mr. J. Bilson was the builder, and Mr. T. Caddick carried out the painting and decorating. The organ has also been renovated and removed to the south-east end of the nave at an expense of about 300*l*.

PARISH COUNCIL BUILDINGS, KIRRIEMUIR.—It is proposed to erect new Parish Council buildings at Kirriemuir, at the top of Marywell-street, at its junction with Bank-street, James-street, and Kirkwynd. Messrs. L. & J. Falconer, Blairgowrie, are the architects. The building will be built of stone from Ballinaboe Quarry. The accommodation consists of entrance hall, public office 20 ft. by 16 ft., with fireproof strong room adjoining. Adjoining the public office, and next the street, is the inspector's office, while on the same floor there are lavatories, coal stores, &c. Stairs lead up to a council hall, 29 ft. by 20 ft. and 14 ft. 6 in. high. Adjoining is a small hall, also a book store. The entrance hall and lavatories are all laid with encaustic tiles, and all the woodwork is to be pitch pine varnished.

POLICE STATION, SEAFORTH.—A new police station has been erected at Seaforth. The general group of buildings will provide accommodation for one superintendent, one inspector, a married sergeant and constable, and seven single men, and for the latter there will be a day room and dormitory. In addition, there is a charge office, eight cells for prisoners, also a consulting room, clerk's office, witnesses' and solicitors' rooms, and a drill yard, with a covered shed attached. In that portion of the building facing Lime-grove will be a weights and measures office. The principal buildings face Seaforth-road, with a frontage of about 160 ft. in length. The elevations to Seaforth-road and Lime-grove are of red pressed brickwork, relieved with Bootle stone details. The interior walls and roofs of the cells are lined with white opalesque surfaces. The architects are Mr. George Holme, County Surveyor, and Mr. Francis U. Holme, of Liverpool; Mr. Grocott is clerk of the works; and Mr. Walter Musker, of Bootle, the general contractor.

HOSPITAL EXTENSION, MANSFIELD.—Mr. W. F. Webb, President of the Mansfield, Mansfield Woodhouse, and District Hospital, laid the foundation stone on the 28th ult. of a new wing to the hospital. The addition is intended as a memorial of her Majesty's long reign. The new wing, which is being added on the south side of the present building, will provide accommodation for twelve beds. There will be a ward with a couple of beds in, and a larger one where the patients can be kept. In addition there will be more accommodation provided for the nurses. The builder is Mr. Greenwood, Mansfield, whose tender amounted to 1,520*l*. Mr. R. F. Vallance (Borough Surveyor) has designed the building.

NEW FIRE-ENGINE STATION, ABERDEEN.—A meeting of the sub-committee of the Valuation and Lighting Committee of the Town Council was held on the 29th ult. to consider the altered plans of the elevation of the new Fire Brigade station. Mr. Mackinnon, the architect for the new buildings, was present, and submitted designs of the elevation as altered. These showed a story added to the main building, making it three stories instead of two, which provides accommodation for three additional married firemen. An additional story has also been put on the firemaster's house at the end of the main building, providing accommodation there for the assistant firemaster. There is also an additional workshop at the back. The cost of the design is increased by the alterations. As now submitted the

cost is estimated at 12,215*l*. The sub-committee resolved to recommend that the design as now submitted be adopted.

CHANCEL, ST. LUKE'S CHURCH, FORMBY.—Additions to the Church of St. Luke, Formby, were consecrated recently by the Bishop of Liverpool. The additions have been made to give accommodation for the vestry, organ, and choir, all of which were formerly in the nave. The new chancel has carved oak stalls and vicar's reading desk, with a stained-glass window, the work of Mr. Rowlands, of Liverpool. The north transept is devoted to vestry purposes for the vicar. To complete the improvements, the congregation have provided for the renovation of the old portion of the church, including the restoration of the west wall. A new window has been added to this end, and improved ventilation provided for the church. The architect is Mr. William Parslow, Liverpool, the sole contractor being Councillor James Taylor, of Blundellsands. The masonry has been carried out by Mr. T. Taylor; Messrs Paterson and Son, of Liverpool, have executed the joiners' work; Messrs. Clark and Taylor, the plumbing and decorating; and Mr. Littleton, the stonemason and plasterer. The heating of the church has been carried out by Messrs. J. R. Cooper and Sons, of Liverpool. The cost of the additions of chancel and vestries amounts to about 1,500*l*, and the renovation and decoration of the west end will be covered by an expenditure of between 200*l*, and 300*l*.

PROPOSED NEW PUBLIC OFFICES, HIPPERHOLME.—A special meeting of the members of the Hipperholme District Council was held recently, when the following resolution was approved: That the plans marked "Medallion," by Mr. J. F. Walsh, architect, Halifax and Hipperholme, be the plans selected by the Council in the competition for twelve inmates, and that the clerk write to the Local Government Board to ask permission to borrow at once the sum of 3,000*l*. for building and furnishing the Council offices.

CONVALESCENT HOME, BOGNOR.—A convalescent home for women has just been opened at Bognor. The home has accommodation for twelve inmates, and contains on the ground floor a large recreation room and dining-room, sitting-room, matron's room and office, kitchen, scullery, and the usual offices; and on the first floor, five dormitories and other bedrooms. The building is situated about a quarter of a mile from the sea, and stands in about half an acre of ground. Messrs. Lainsen & Son, of Brighton, were the architects.

BAPTIST CHAPEL, MORLEY.—A new Baptist chapel was opened at Morley recently. The cost of the building, which includes a series of class-rooms and an assembly hall, is about 3,200*l*. The building is in the Classic style, and the designs have been prepared by Mr. Walter Hanstock, of Leeds and Batley. The whole of the external walls are in stone, with ashlar dressings, from the Morley quarries, and the interior woodwork is pitch pine, varnished.

BUILDING ACTIVITY IN ABERDEEN.—The building briskness in Aberdeen continues, and on the 1st inst. a large number of plans of new erections were passed. It is proposed to build fourteen houses at Rubislaw Den at a cost of 15,000*l*. The committee had also before them plans of additions to the beach bathing-station, including a new swimming pond, the estimated cost being 7,200*l*. The total cost of the new property is about 28,000*l*.

CHAPEL, ST. VINCENT DE PAUL ORPHANAGE, GLASNEVIN, DUBLIN.—The ceremony of blessing the chapel erected in honour of the Sacred Heart at the St. Vincent de Paul Orphanage, Glasnevin, was recently performed. The building is in the Romanesque style, corresponding with the Orphanage. It consists of a nave and chancel with sacristy adjoining. Its length is 72 ft., its width 24 ft., and its height 32 ft. It is lighted by six windows on each side, and three over the chancel and nave. At the end of the church facing the altar is a gallery with ornamental front in pitch pine; it is approached by a circular staircase. The communion rail is the work of Messrs. J. M'Loughlin & Son. The benches, which have not yet been completed, are being executed by Messrs. Noonan Brothers. The church is entered from the outside by a porch, and there is also an entrance from the interior by the Orphanage. The architect is Mr. George C. Ashlin, and the contractors Messrs. Conolly & Son. The cost of building the church is estimated at about 2,400*l*.

NEW CATHOLIC CHURCH, BELFAST.—On the 20th ult. the foundation stone was laid of the new Church of St. Vincent de Paul, Ligoniel, Belfast. The new church will seat about 1,300 persons. The building consists of a nave, aisles, and transepts, the dimensions being 100 ft. by 50 ft. and 50 ft. from floor to ridge. There are five bays on each side of the nave, and a projecting semi-octagonal apse, with which is connected a large sacristy. The floor is raised about 17 ft. over the level of the footway, and columns of Aberdeen granite, with dressings of Scotch sandstone support the roof. Close to the church will be erected new schools and a presbytery, plans for which have already been prepared. The contractors are Messrs. Courtney & Co., and the architect is Mr. J. J. McDonnell.

SCHOOL, PENARTH.—The memorial stone of the Queen Victoria Board School, Penarth, was laid recently. The site of the schools is in Cornerswell.

road. Accommodation is provided for 780, and the building is so arranged as to allow space for future extension, and also for a separate school for infants, should that be found desirable. The ground floor will be occupied by the infants, and, in addition, a room is provided for the use of the boys. There are six class-rooms, to accommodate in each 60 scholars, and these are entered from a wide marching corridor. The cookery department is also arranged on this floor near the girls' entrance. The girls and boys will use the first floor. A large hall for assembly and teaching purposes occupies a central position, and opening into it are six class-rooms. Separate entrances are provided for boys and girls. The schools will be built of red brick, Cattybrook pressed being used for the facing, and Bath stone for strings and dressings. The amount of the contract is 7,300l. Mr. John Jones, of Penarth, is the builder, and the architect is Mr. J. H. Phillips, Cardiff, whose competition design was placed first by the assessor, Mr. E. R. Robson.

BOARD SCHOOLS, DEVONPORT.—The foundation stone has just been laid of new Board Schools, near the Royal Naval Barracks, Devonport. The schools at present consist of two stories, the infants' department being on the ground floor, and the girls' school above, with the addition of a cookery school, demonstration, cloak, and class rooms, as well as a scullery. Each department is being built on the central hall system, with surrounding class-rooms. That for the use of infants will consist of six class-rooms, while the girls' school has seven. Provision has also been made for separate entrances, cloak-rooms, and lavatories, while each department will include rooms for the use of the mistresses and teachers and store accommodation. There will be mezzanine floors at each end of the building, which will have a facing of light-colored, polished, and recently the contract, which amounts to 7,355l., is being carried out by Messrs. Matcham & Co., of Plymouth, from designs prepared by Messrs. Hine & Odgers, architects. The clerk of works is Mr. Hoskyn.

COTTAGE HOMES, &c., NEWLAND, HULL.—The scheme of the Port of Hull Society to provide a fully-equipped suite of Cottage Homes at Newland is nearing completion, and recently the new school buildings and the Dr. Lee Home were opened, and the memorial stones of the Infants' Home and Hospital Home were laid. The new school buildings consist of a central hall, 58 ft. by 31 ft. 6 in., lighted on the north and south by mullioned windows, those on the south being of stone and having traceried heads. On either side of the hall there are two class-rooms, those at the north end being provided with movable partitions. In the rear of the building is a smaller class-room, master's room, lavatory, &c., for the teaching staff, and a scullery. The schools provide accommodation for 264 children. The whole of the building is heated by a small-bore heating apparatus by Messrs. King & Co. The contract for these works was 2,577l. 15s. 4d., and it has been carried out by the following firms:—Bricklayer, Messrs. Robinson & Johnson; joiner, Mr. D. Sawyer; mason, Mr. G. Porter; plumber, &c., Mr. J. Beal; slater, Messrs. T. Wilde & Sons; ironfounder, Messrs. Young & Peck; painter, Mr. H. Hilken. The Dr. C. A. Lee Home was, at the donor's request, practically arranged on the same plan as the Trinity Home, and Sir Titus Salt Home, and is a year ago, and contains dining-room, play-room, matron's sitting-room, kitchen, scullery, lavatories, &c., on the ground floor; four sleeping rooms, 15 ft. by 15 ft. for children, matron's bedroom, servants' bedroom, bathroom, and stores on the first floor. The play-room and dining-room have ivory white glazed brick dados, and are rooms on the ground floor except sitting and play-rooms and dining-room have tiled floors. The bricklayers' work has been carried out by Mr. H. Moody; the joiners' work by Messrs. J. Caunt & Son; ironfounders, Messrs. King & Co.; mason, Mr. G. Porter; plumber, Mr. W. Hodgson; slater, Messrs. T. Wilde & Sons; painter, Mr. H. Hilken. The Infants' Home now building is intended to provide accommodation for twenty-six orphans under the age of seven years, and will contain on the ground floor entrance-hall and staircase, play-room, dining-room, cloak-room, and separate lavatory accommodation for the two sexes, a sitting-room for the matron, kitchen, scullery, and the necessary stores and offices. The first floor will contain two dormitories, with bathroom, the matron's bedroom, and two other bedrooms for servants, also store-rooms, &c. In the Hospital Home accommodation is provided for twelve patients in two wards, and there is a sitting-room and bedroom for the matron. The sitting-room will also be used by the doctors attending the institution as a consulting-room or surgery. A bath-room for the use of patients, and a kitchen and store-rooms are also provided. In the rear of the hospital is provided an isolation ward, containing two beds, with nurses-room. Messrs. A. J. Darneley & Son are the contractors for the Infants' Home and the Hospital Home, with the exception of the stone-mason's work, which is being carried out by Mr. J. W. Buttery, of Cottingham. Mr. Thomas Bayes is acting as clerk of works, and Mr. W. H. Bingley architect, has designed and superintended the erection of the several buildings.

NEW CHURCH, BALLYNAFEIGH, NEAR BELFAST.—The foundation-stone of a church for the parish of Knockbreck was laid on the 4th inst. The

length from the western entrance of the church to the aisle will be 106 ft.; the width, including the two aisles, 50 ft.; and the height 40 ft. It will be built of Scrabo stone, relieved with red Dumfries. The lower and spire will be on the south-western corner, and the height of both together will be 150 ft. There will be double doors in the western gable, and also a side reception door in the tower. Over the latter will be a recess for a statue. The organ gallery will be over the porch of the front entrance. The altar will be of white marble. The church will have seating accommodation for six or seven hundred. The paving will be of variegated encaustic tiles. The clearstory will be supported by polished Aberdeen granite pillars, the aisles being lighted by double-light windows, two to each bay. The estimated cost of the whole structure is about 8,000l. The contractors are Messrs. H. & J. Martin, Limited. The trowel was supplied by Messrs. B. Campbell & Co., Smithfield. Messrs. J. J. O'Shea and E. & J. Byrne are the architects.

SANITARY AND ENGINEERING NEWS.

BRIDGE, LOWESTOFT.—The new bridge, built at the expense of the G.E.R. Co. by the H. H. Company, of Birmingham, has been opened to the public. The work of preparation began early on the morning of the 25th ult., when navigation for all large craft was stopped. The machinery of the old bridge was taken bodily away, and then the new structure, which weighs close on a hundred tons, was shifted further westward in order to get it over the huge "live" ring upon which it was to rest. The following task of lifting the bridge and getting it into position, which occupied the whole of the day. While this was in progress, Mr. Wilson (chief engineer) and Mr. Rodley (district engineer) were on the scene, and Mr. Scott (the G.E.R. resident engineer) directed the operations of his men, who were engaged in clearing away portions of the old bridge, over which traffic still proceeded. Early on the 25th ult. work was resumed, and at eight o'clock the bridge was ready to be swung. It was hauled over the waterway, and when all had been pronounced satisfactory, the gates were withdrawn. The bridge is in one length, being balanced for swinging over a pivot and ring. It is 116 ft. long, with a roadway of 15 ft. 6 in., and pathways of 7 ft. 6 in. There is ample room for two of the largest vehicles to pass each other, a thing impossible on the old bridge. The cost of the whole of the work was 17,000l., and of this the bridge proper cost 8,000l.—*Norfolk Chronicle.*

NEW SEWERAGE WORKS, ABERDEEN.—The Sewerage Committee of Aberdeen Town Council recommend that the following portions of the new sewerage scheme suggested by Mr. W. Dyack, Borough Surveyor, be now proceeded with, at a total cost of a little over 40,000l.:—Low-level sewer (estimated cost, 7,670l.); high-level sewer from Old Ford-road to Skene-street (9,210l.); storm outfall, Esplanade-avenue (130l.); storm-water culvert (17,080l.); Hutcheon-street sewer (4,180l.); besides proportion of engineering and townhouse expenses. The Committee resolved not to include the Don Valley outfall from the sea to King-street, and the King-street intercepting sewer and subsidiary works, the cost of which to the Town Council would be 33,775l. The County Council of Aberdeen have also, so far as they are concerned, dropped the proposed works for the purification of the River Don—the whole cost of which would be 40,000l.—the mill proprietors having refused to pay anything, except as ordinary ratepayers, for the disposal of the mill refuse. The works now recommended will take almost seven years to carry out.

WATER SUPPLY, HAVERFORDWEST, PEMBROKE.—At the last monthly meeting of the Haverfordwest Town Council, the report of the special Water Committee was adopted, which recommended that the scheme and plan of Mr. Beesley, C.E., for supplying the town with water from Little Newcastle by gravitation should be accepted.

STREET IMPROVEMENTS, &c., STOKE.—Mr. Rienzi Walton, M.Inst.C.E., attended in the Council Chamber, Town Hall, Stoke, recently, for the purpose of holding an inquiry into the application of the Town Council to borrow a sum of 9,480l. for purposes of street improvement, the construction of a bridge, and for widening of the tramways, 8,500l.; the mill proprietors having refused to pay anything, except as ordinary ratepayers, for the disposal of the mill refuse. The works now recommended will take almost seven years to carry out.

LOCAL SEWERS IN LONDON.—The Main Drainage Committee of the London County Council have sanctioned the construction of the following local sewers: Mile-end—530 ft., 600 ft., and 480 ft. of 3 ft. 6 in. by 2 ft. 3 in. brick sewers in Bow-

common-lane, Eric-street, and Brantridge-street respectively. Newington—425 ft. of 12-in. pipe and concrete sewer in Danson-road; 130 ft. of 12-in., 433 ft. of 15-in., and 220 ft. of 18-in. pipe and concrete sewers in Manor-place; 430 ft. of 12-in. ditto in Berryfield-road; 340 ft. ditto in Sufield-road; 300 ft. ditto in Tarver-road; 480 ft. ditto in Borrett-road; 520 ft. ditto in Marsland-road; 520 ft. ditto in Pasley-road; 460 ft. ditto in Stopford-road; 650 ft. ditto in Sturgeon-road; and 600 ft. ditto in Delveston-road, Surrey-gardens Estate. St. George-in-the-East—537 ft. of 3 ft. 9 in. by 2 ft. 6 in. in Watney-street, Commercial-road.

OLD TRAFFORD SEWAGE WORKS.—Colonel A. C. Smith, an inspector of the Local Government Board, held an inquiry recently into an application of the Stretford District Council for sanction to borrow 2,138l. for sewerage works. Also for approval of certain modifications in the scheme for providing two refuse destructors in respect of which the Local Government Board sanctioned loans amounting to 10,000l. in May, 1894. Mr. H. Royle, Surveyor to the Council, and Mr. John Bowden, engineer for the destructor, explained the details of the scheme to the inspector.

STREET IMPROVEMENTS, EALING.—Mr. Robert H. Bicknell, an inspector under the Local Government Board, recently opened an inquiry at the Ealing Municipal Buildings concerning the application of the Ealing District Council to the Local Government Board for permission to borrow 2,000l. for works of street improvement and fencing. The District Council was represented at the inquiry by Mr. C. Jones, Surveyor; Mr. Brown, assistant surveyor, and others.

STAINED GLASS AND DECORATION.

SLATER MEMORIAL TABLET, ABERDEEN.—At a meeting of the Ediles Committee of Aberdeen University Court on the 30th ult., the architect, Mr. A. Marshall Mackenzie, A.R.S.A., brought up the subject of the erection in King's College Chapel of the memorial tablet to the Rev. James Slater, who died last year on his way to the South African Mission field. The court had previously sanctioned the erection of the tablet, and its position on the wall of the chapel behind the rood screen was finally adjusted and agreed to.

WINDOW, BIDDENHAM CHURCH, BEDFORDSHIRE.—The Duke of Bedford has just unveiled a window, erected to the memory of the late Charles Howard, in Biddenham Church, Bedfordshire. The window is the work of Mr. C. E. Kemp.

FOREIGN.

GERMANY.—Last month was opened the new home for the Crafts Museum at Nuremberg. The building cost 50,000l., and the architect was Director Theodore von Kramer. The fiftieth anniversary of Professor von Hanel's nomination to the professorship at the Technical College at Stuttgart was suitably celebrated by the authorities and students in that city. It is rare to find an academical professor hold office for so long a period.—The competition for the Bismarck Tower, in Schleswig, has been won by the design of Herr F. Moeller, of Berlin. Sixty-three designs were sent in.—Altona, near Hamburg, is to have a new museum, and the competition which has been opened for its design has been won by Herr F. Thyraet, of Berlin, and Messrs. Reuchgauer and Hauberliesser, of Frankfurt, who have been bracketed equal.—The *Centralblatt der Bauverwaltung* has given some illustrated articles on the homes of technical institutions of various countries, and it appears that the new building of the Institution of Civil Engineers, in London, and that of the kindred society at New York find most favour in the eyes of the author, Herr Schoenfeld.

AUSTRIA.—Rapid progress is now being made with the "Common Welfare Exhibition" which is to be opened at Vienna next year, and promises to be a successful and useful one.—A seaside convalescent home for children was opened at Trieste last month. This is one of the first establishments of its kind in Austrian territory, and is particularly intended for the benefit of Viennese children.—The monument to the late Field-Marshal Albrecht is to be unveiled shortly; the foundations for the pediment have been taken in hand, and the statue is nearing completion. Professor von Zumbusch is the sculptor.—A new wing has been added to the Women's Hospital at Fünfhäus. Its erection is due to a gift of Baron Albert Rothschild, and the total cost has been half a million florins.—There have been several important changes in the personnel of the Vienna Museums, and we may notice that Director Arthur von Seals has been appointed Curator of the Arts and Crafts Museum, with Dr. Edward Leischig as assistant curator.—As before observed, the Vienna Municipality is building its own gas works, as the price asked by the old Continental Gas Association for its installation was too high. We hear now, however, that there is yet some possibility of the work of the old company being taken over by the city, the purchase sum having been reduced to twelve million florins.—The historical Loreto bridge, at Bozen, has been destroyed by fire. It was a wooden bridge on the main road to Italy.—The First Aid Society of Vienna, which is considered the model institution of

the world for "flying ambulance" service, and the like of which have long ago been had in London, has just been given a new home, which will, at the same time, serve as a monument to the founder of the Society, the late Baron Mundi. The building, which was opened by the Emperor, shows a very practical plan, and its offices, coach-houses, and stables have all been arranged to allow for a rapid turn out. The building includes the necessary tenements for the resident and medical men, a large library, and extensive stores. The cost of the structure is 160,000 florins, and the architect was Professor Ferdinand Harch.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Frederick Wheeler, architect, has removed from 22, Chancery-lane to 6, Staple Inn, Holborn, W.C.—Messrs. Salomons & Steinhil, architects, have removed their offices from 31, South King-street, Manchester, to Prudential Chambers, 78, King-street, in the same city.

PEGAMOID SILVER PAINT.—We have received a small sample of the silver paint manufactured by the Pegamoid Company, Limited. From practical tests which we have made we can recommend the preparation as one capable of producing a highly decorative effect, and as being in a remarkable degree unalterable, and also preservative of surfaces to which it may be applied. It dries rapidly, does not fade off, and can be brushed without injury. We do not think we can say more to recommend it to the notice of those who may require a decorative material of this class.

BIRKBECK BUILDING SOCIETY.—The forty-sixth annual report of the Birkbeck Building Society states that during the financial year just closed the total receipts have reached the large sum of 18,907,010*l.*, exceeding by more than one and a half million pounds the total receipts of all the other incorporated and unincorporated Building Societies in the United Kingdom—numbering 2,625—as shown by the Chief Registrar's return, presented to Parliament on April 23 last. The receipts from subscriptions have amounted to 240,882*l.*, and from deposits to 14,678,797*l.* The withdrawals have been 13,880,483*l.*, showing a balance over the preceding year of 1,038,360*l.*, or a total increase since 1892 (a period of five years) of 3,438,741*l.* after allowing for the large amounts withdrawn during the panic in that year. The total liabilities on subscriptions and deposits now exceeds nine millions (9,113,454*l.*). The balance of assets in excess of liabilities amounts to upwards of four hundred thousand pounds (400,180*l.* 10*s.* 4*d.*). The total assets are 9,513,611*l.* During the past year, 2,538 members have joined the society, whilst 2,212 current accounts, and 7,173 deposit accounts have been opened, making a total of 11,923 new accounts. The shareholders now on the register number 12,766; current amounts, 17,818; and deposit accounts 48,010, making a total of 79,447 accounts now open. The number of shares in existence at the close of the year is 65,085. Since its establishment, the society has returned to the shareholders and depositors more than one hundred and eighty millions (180,130,360*l.*), the whole amount having been repaid upon demand.

LABOUR MARKET IN THE COLONIES.—The July circulars of the Emigrants' Information Office show that in Canada there is no demand for any one except farmers with capital, experienced farm labourers, and female domestic servants. There is some opening also for competent miners with some money, in the new mining districts of British Columbia and Ontario. With regard to Victoria, a correspondent writes from Horseshoe—which is the centre of a large wheat and wool district—"Any hardworking, earnest man need have no fear of obtaining work for good workmen are sure of constant work." On the other hand, a correspondent in the large mining town of Bendigo writes—"In general, work is scarce in this city and district." At Melbourne "the labour market is over-glutted." In Western Australia there continues to be a good demand for mechanics, farm and general labourers, and miners. In Tasmania, at Zeehan—the centre of the important mining industry on the West Coast—"good miners may be certain of continuous employment provided they work with an eight-hour stroke." Large numbers of persons continue to arrive in Cape Colony from England and Australia, and many had much difficulty in getting work. At Kimberley, however, there is a good but limited demand for bricklayers and joiners at 16*s.* 8*d.* a day. At Johannesburg considerable numbers of mechanics and miners are out of work; and emigrants are warned against going there at the present time.

NEW BUILDING BY-LAWS, STOCKTON.—At a recent meeting of the Stockton Urban Council the new building by-laws were approved, after some little discussion on the subject of the insertion of joists in party walls, the Local Government Board having laid it down that no person who erects a new building shall place the end of any bressomer, beam, or joist in any party wall of such building unless the end of such beam or joist was at least 4½ inches distant from the centre line of such party wall. The Borough Surveyor, Mr. R. F. Campbell, explained that this apparent difficulty in 9-inch walls might be

met by joists being laid parallel with the party wall, with the ends on the face of the wall, and the rear wall of the building, or on some intermediate wall of the building, and such trimming joists or other timbers as must be laid at right angles to the party wall might be supported on proper corbels, which would be inexpensive. The new by-laws were ordered to be sent to the Local Government Board for formal confirmation.—*Darlington Star.*

BOROUGH SURVEYOR'S OFFICE AND CITY ARCHITECT'S DEPARTMENT, ABERDEEN.—In connexion with the vacancy caused by the resignation of Mr. George T. Lynam, Assistant Borough Surveyor, Aberdeen Town Council has instructed its Finance Committee to report as to the whole question of the arrangements connected with the Borough Surveyor's department, and as to whether any alteration should be made in relation to the office and duties of City Architect.

PUBLIC WORKS, WOLVERHAMPTON.—On the 5th inst. Mr. Rieni Walton, M. Inst. C.E., held, on behalf of the Local Government Board, an inquiry in the Council Chamber at the Town Hall, Wolverhampton, into the application by the Town Council to the Central Authority for sanction to borrow 23,847*l.* for works of paving, 7,600*l.* for purposes of public baths, 2,500*l.* for the purchase of the Exchange Hall, and 2,050*l.* for the provision of a site for a public library. The Town Clerk appeared on behalf of the Corporation. Mr. J. W. Bradley, Borough Surveyor was also in attendance.

PRESENTATION TO A GLASGOW ARCHITECT.—In the Windsor Hotel, Glasgow, on the 5th inst. Mr. John Burnet, architect, Glasgow, who has now, it is stated, retired from the active pursuit of his profession, was presented with his portrait in oils. The portrait is by Mr. James Guthrie. Mr. Wm. Gilliland made the presentation. He explained that at the end of 1895 Mr. Burnet celebrated his golden wedding, and that period happened also to coincide with his jubilee as an architect. Many of his friends thought that such an occasion should not be allowed to pass without something being done to mark so unique a combination of circumstances. He spoke of Mr. Burnet's intellectual powers, which had placed him in the forefront of his profession for many years. He had executed commissions in civil, ecclesiastical, and domestic architecture of a magnitude which had fallen to the lot of few professional men, and all his work, testified to the constructional skill and the artistic perception which he possessed. Mr. Burnet, in reply, gave some reminiscences of his early days as an architect, and referred to the influences that had given shape to his professional work. He thought that some training in one of the trades with which architecture had to deal was of great value to the architect. Doubtless architecture might be more quickly taught in a technical college, but the knowledge so gained was apt to be superficial.

APPOINTMENT.—The Urban District Council of Llandudno have just selected Mr. John W. Flebus, of 89, Clancery-lane, W.C., as Assistant Quantity Surveyor to their Engineer, Mr. E. P. Stephenson.

CAPITAL AND LABOUR.

BUILDING STRIKE AT EXETER.—By a strike which commenced at Exeter on the 1st inst. nearly 300 men are idle. The strike affects four branches of the building trade, carpenters, joiners, bricklayers, and masons. Meetings of the Carpenters and Joiners' Society and of the Operative Bricklayers' Society were held on the 1st inst. at Carnell's Coffee Tavern and the Valiant Soldier respectively. At the former 150 members and several outside men signed the roll to refuse to return to work pending the signature of their employers to the revised rules; whilst at the Valiant Soldier Inn, over seventy-five men signed the roll. The carpenters and joiners require an extra penny per hour on the current wage of 6½*d.* per hour, whilst the operative bricklayers are striking for an advance of 1*d.* per hour, and a half-hour less per day on their present wage of 7*d.* per hour. Several builders are reported to have acceded to the demand, and the masons have returned to work. With regard to the joiners, their rules provide that no man must return until the advance of 1*d.* per hour is agreed. The question has called for a large amount of consideration with the strikers, who are not disposed to agree to the action of the employers in engaging, as they submit, too many apprentices, who have to be taught by the men, and who, it is said, are too frequently sent to do work which should be entrusted to experienced hands.—*Exeter Mercury.*

STRIKE OF BELFAST PLUMBERS.—It is stated that the Belfast members of the United Operative Society of Plumbers, numbering about 250 men, have struck work for an advance of wages. On January 1 last the men made a demand for an increase of 1*d.* per hour in their wages. The notice was to terminate on July 1. The increase would mean an addition to the men's wages of about 4*s.* 6*d.* per week. The masters, as a compromise, offered an increase of one halfpenny per hour, but the men's leaders did not accept the offer. Twenty-six firms are involved in the dispute, which is not expected to last long. A meeting was held on the 1st inst. in the Society's rooms to consider the situation. There were about 200 present, and Mr. Richard Hogg was elected president. A strike com-

mittee was formed, and deputations were appointed to wait upon the employers with a view to endeavouring to induce them to concede to the increase demanded. It was intimated that two firms had agreed to grant the advance.

PROPOSED STRIKE OF PAISLEY MASONS.—The Paisley masons recently intimated to the masters that as the annual agreement regarding wages, hours, and limitation of apprentices had not been signed, they intended to go out on strike. The masters, however, informed the men's representatives on the 30th ult. that they had resolved to sign the agreement and the strike has consequently been averted.

THE CARPENTERS AND JOINERS' STRIKE, OXFORD.—Latest inquiries in regard to the dispute between the master builders and carpenters and joiners seem to show that there is at present little prospect of the strike terminating, the masters still demurring to sign the code of rules. Some of them, however, have agreed to pay the halfpenny an hour extra wages, whilst some of the smaller masters have also signed the rules. One firm of builders has inserted an advertisement in an Exeter paper for men, and have offered the 8*d.* per hour for which the Oxford men ask.

THE WAGES OF WEST BROMWICH CARPENTERS.—In accordance with an arrangement made between the master builders and carpenters and joiners of West Bromwich and the surrounding district, an advance of 1*d.* per hour in the rate of wages has come into operation. On April 1 last the masters granted the men an increase of 1*d.* per hour, but only half of that amount was to be given at the time, the second instalment being deferred until now. This makes the current rate of wages 8½*d.* per hour.

THE MASONS' STRIKE, WESTON-SUPER-MARE.—This dispute has now been settled by a compromise. At the invitation of Mr. Hans F. Price, a deputation from the Master Builders' Association met a deputation of the masons. The result of the conference was that several alterations suggested by the master builders were made in the masons' rules, and the masters agreed to pay competent workmen at the rate of 7½*d.* per hour, instead of 7*d.*, but the hours of labour are to remain as before.

THE MANX PLASTERERS' DISPUTE.—This dispute has now been settled. Messrs. Christian & Faragher, the firm with whom the dispute originated over six months ago, are the only employers still standing out, and the masters who have made terms are Messrs. L. Kelly, John Moore, E. Taggart, and S. Faragher. The minor differences that existed between them and the men have been arranged by the men agreeing to six months' notice of any alteration being given instead of three, and the masters agreeing to pay the increased wages, to take not more than one apprentice on every three years, and to let the boundaries remain the same as heretofore. It is understood that by coming to terms with the men the three masters last named have severed their connexion with the Master Builders' Federation. Mr. Kelly was never a member and has been working all along.—*Manx Sun.*

BRICKMAKERS' WAGES, NEWCASTLE AND DISTRICT.—A meeting of the trades-union men engaged in the manufacture of bricks in Newcastle and district was held on the 5th inst., to consider their position with regard to the employers. It was stated that none of the brickmakers' unions had been asked to come out on strike if a 15 per cent. all-round advance was not granted. A deputation had waited upon the employers to see what was to be done. The meeting was reported as having been most satisfactory, because of the evident desire of the masters to meet the men's demand. The right of the latter to claim an advance because of increased prices, it was stated, had practically been admitted; and the employers were asked to extend their notices for a week in order to give time for full consideration of the position by the masters with a view to settlement. Having regard, therefore, to the amicable spirit shown by the employers, it was agreed that the notices as desired should be extended, but that the extension, instead of being a week, should be only until Saturday. In the meantime everything is to be done to come to an agreement, it being considered more easy to do so in than out of work.—*Newcastle Journal.*

THE PLASTERERS' STRIKE, TUNBRIDGE WELLS.—At a private conference of the Tunbridge Wells Plasterers' Union and Master Builders' Association recently, the question of the present strike in the building trade was discussed. The masters agreed to give the plasterers an advance of 1*d.* per hour, and this was accepted by the men, who will return to work. The carpenters demand 9*d.* per hour, and will also ask for a nine hours' day, beginning next year. Mr. Croxon presided the same night (the 1st inst.) at a meeting of the Tunbridge Wells Labourers' Union, when the situation was again discussed. It was reported that some of the building firms, in view of pressure of business, had agreed to yield the extra halfpenny per hour, and that by means of it was hoped the numerous other Tunbridge Wells builders would also concede the amount and thus ensure the resumption of building operations in Tunbridge Wells.

THREE TOWNS BUILDING STRIKE.—The plasterers and labourers still on strike in the Three Towns continue to adopt a dogged determination not to give up the struggle. Now that the difficulty between the carpenters and the employers has been

removed it is felt in some quarters that a compromise may before long be brought about between the present disputants. At all events, nothing can be lost by a coming together of the parties, and possibly a great deal gained, as in the case of the carpenters. So far as the plasterers are concerned they are on strike little more than in theory, seeing that the number on the strike list is reduced to fourteen, including the Committee. Each man out receives 5s., excepting those on the Committee, who are paid as much as if they were at their ordinary work. The labourers on strike number about 100.—*Western Morning News.*

CARPENTERS AND JOINERS' STRIKE, BOURNE-MOUTH.—Carpenters and joiners at Bourne-mouth are still on strike, the masters being firm in refusing the advance of wages demanded by the men.

LEGAL.

ACTION BY A PETERBOROUGH CONTRACTOR:

IN THE QUEEN'S BENCH DIVISION.

The case of *Thompson v. Tallerman* came before Mr. Justice Wills, sitting without a jury, in the Queen's Bench Division on the 3rd inst., it being an action brought by Mr. John Thompson, J.P., of Wood-street, Peterborough, builder and contractor, to recover from the defendant, Mr. Daniel Tallerman, 7201, for work and labour done and material supplied, the work in question having been executed on premises in Christian-street, White-chapel, between December, 1895, and July, 1896.

Mr. Lowe appeared as counsel for the plaintiff, and Mr. Hammond Chambers for the defendant.

Mr. Lowe, in opening the plaintiff's case, said that the Master in Chambers made an order that the capital sum charged, viz. 7201, should be brought into Court as a condition of defence, but the judge on appeal—the defendant having filed a further affidavit—directed that the case should be set down and tried as a short cause. The defence suggested by the affidavits seemed to be that the plaintiff was to give unlimited credit or until a certain society, called the Commercial and Agricultural Co-operative Society, was in a condition to put the defendant in funds in order to pay the money claimed. There was a further point raised suggesting that some of the prices charged were excessive, and that some of the work had not been done. The plaintiff, however, had sent in his account to the defendant over and over again since 1894 until the present time, and there had not been a single suggestion until now that the whole of the amount claimed was not due, and that the charges were not perfectly proper. The learned counsel stated that Mr. Thompson was at present very ill, and was unable to be present. His evidence, however, was contained in his affidavit.

Edwin Russell, examined by Mr. Lowe, said that he was the plaintiff's manager, and remembered the works in Christian-street, Whitechapel, being carried out for the defendant. The original estimate was 4261, but extra works were ordered, bringing the amount up altogether to 7201. The works were carried out under witness's personal control, and the charges which were made were fair and reasonable. Mr. W. H. Crossland was the defendant's architect and he from time to time attended at the works to see what was going on. Mr. Crossland and his clerk gave the orders for the extra work, and he (Mr. Crossland) expressed his satisfaction as to what was done several times and after the work was finished.

Mr. Chambers said that the defence in the case was this: The defendant did not deny that when the time came he was the person who would have to pay the amount claimed. The defendant did not suggest that the Society in question were the people who had to pay. The defendant had for years interested himself very much in agricultural matters throughout the country, and the object of the Society was to acquire premises in the country so that farmers should be able to send their produce direct to that society and thus dispense with the middle-man, and so get retail prices for their commodities. The Society was incorporated under the Industrial Acts, and the defendant, who was very much interested in it, managed to get the refusal of the premises in Christian-street. These premises were very extensive, covering something like two acres, the defendant getting them rent free for the first year, and afterwards at a certain definite rent. The idea was that the defendant should lecture and get persons interested in agriculture to attend the meetings, in order to do this it was necessary that the premises should be cleaned out and a lecture-room provided. To do this money was required, and Mr. Crossland, the architect, told the defendant that he probably could find somebody to assist him in the matter by doing such work as was necessary, and waiting to be paid for it until he (the defendant) obtained the money from the Society. Mr. Crossland introduced the defendant to the plaintiff, who was a contractor in a very large way of business at Peterborough, and who was also very much interested in agricultural matters throughout the country. At an interview, which the defendant had with the plaintiff at Peterborough, defendant told him that he had no money of his own and that he was not in a position to pay for work at once; but

if the plaintiff would do the work he would pay him, the understanding being that the plaintiff was to wait until the defendant received what was due to him from the Society, which was, in fact, started, but which, at that time, had not paid him anything. There was in point of fact an agreement between the Society and the defendant providing that the Society should pay the defendant 2,500l. That was brought to the notice of the plaintiff, who agreed and promised to work on the terms the defendant suggested. It was held out as an inducement to the plaintiff to do so, that if the Society became a prosperous one, they would want work executed to the extent of 50,000l. or 60,000l. and that he (the plaintiff) would probably be selected as the contractor. It was, however, an understanding that the money for the work, which the plaintiff was then to undertake, should not become payable until the defendant himself received the money due to him from the Society.

The defendant gave evidence substantially bearing out his counsel's statement, and said that as soon as he got payment of the money due to him he was quite willing to discharge the plaintiff's debt.

Cross-examined by Mr. Lowe, Mr. Crossland, the architect, made the arrangement with the plaintiff himself. Mr. Crossland did his portion of the work on the terms that he was not to be paid until witness got his money from the Society.

His Lordship, in giving judgment, said that it was incumbent upon the defendant to prove the case he had set up. He had read through the correspondence and in no single place did the defendant say or suggest that his bargain with the plaintiff was that he should look to a particular fund for payment. On the other hand the correspondence frequently disclosed admissions by the defendant of liability, and in one letter he wrote asking the plaintiff to hold his hand inasmuch as he then had no funds to meet his claim, although he hoped from time to time to be in funds. It seemed to him that the correspondence was in favour of the plaintiff's view, and that the utter absence of any definite statement in it of any bargain or understanding of the kind suggested by the defendant was fatal to the case which he set up. There would be, therefore, judgment for the plaintiff for the amount claimed, with costs.

MEETINGS.

FRIDAY, JULY 9.

Association of Municipal and County Engineers.—Annual Meeting (continued). Visits to be made subsequently to the Central London Railway Works, and to Messrs. Doulton's Works, Lambeth.

SATURDAY, JULY 10.

Association of Municipal and County Engineers.—Visit to the Works of Messrs. Aveling & Porter, at Rochester.

MONDAY, JULY 12.

Royal Institute of British Architects.—Special General Meeting to confirm the resolutions with regard to the additions to By-laws 9 and 15, carried at the meeting on June 14. 8 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

14,113.—**BRICKS FOR FLAT AND CYLINDRICAL STRUCTURES.** *L. Weiss.*—Inventor claims a brick for flat structures, made in the form of a parallelepiped, with through passages, and having two wave-shaped side faces, so that the projecting parts are provided with ribs corresponding to the grooves, the through passages serving to receive a tie-bolt. Also bricks for curved structures made in a similar form, but curved in the direction of the length, so that their parallel flat surfaces form concentric arcs of circles.

14,657.—**PORTABLE HOUSES.** *H. J. Lawson.*—This invention relates to portable houses, &c., adapted to be moved about from place to place, more particularly by power contained within the structure itself. Framework consists mainly of steel tubes, walls of metal, wood, straw-board, &c., as desired. Inventor claims a portable house of the structure described, and also a folding automotive house, and an automotive house provided with folding rooms.

15,682.—**WATER-CLOSETS.** *R. Evered.*—The invention relates more particularly to pedestal wash-down closets provided with outlet valves, and inventor claims a water-closet having an inclined valve situated at the mouth of its outlet, and so arranged that it opens inwardly, and in combination with this, trapped overflow passages with the closet pan for discharging the overflow water.

16,590.—**FANLIGHTS.** *W. Youden.*—Inventor hinges each side of a fanlight at or near the level of its top rail to the face of the frame and hinges, or makes otherwise readily movable the side and bottom beads, which are usually fixed to the frame. This fanlight can not only be opened outwards for ventilation, but by taking down the beads, &c., it may be drawn into the room for cleaning the outside thereof.

16,789.—**STONE DRESSING TOOLS.** *C. Clark.*—Forhand tool for working stone, marble, &c., inventor uses double tapered points or cutters, either having a central ridge or a central portion left flat. Handle has a slot at end, to receive cutter, which the extremities of the slotted part grip beyond the central ridge.

16,818.—**FIXING DOOR HANDLES.** *C. A. Conder.*—One handle is fixed, and the other moveable. Inventor claims details relating to the fixing of door handles, consisting in the combination of an internally threaded rose, an edge-threaded prismatic shaft, a handle with prismatic recess and means for engagement of the handle with the rose, and a coupling for connecting the handle and the rose.

16,923.—**LOCK FOR FASTENING SLIDING DOORS, WINDOWS, &c.** *A. Barker.*—This invention has for its object the construction of a lock for sliding doors and windows (including those of show-cases and the like), in which the

bolt may be moved by the action of the key in a plane at right angles to the plane of the door or window to which the lock is fixed, which purpose inventor effects by the combination with the plate of a bolt or barrel, with spiral external worm, a case or cap, and a key.

16,993.—**HINGES.** *E. Massey.*—Invention consists in a hinge for doors and windows, characterised by the flap with the holes in for the pivot being provided with a screw-thread like projection, which slides upon the corresponding screw-thread like upper edge of the bottom flap in such a manner that the friction of the surface is minimised.

NEW APPLICATIONS FOR LETTERS PATENT.

June 21.—14,943, T. Fawcett, Machinery for Making and Cutting Slabs, Tiles, &c., and also improvements in Brickmaking Machinery.—14,946, A. Thomas, Window Sash Fasteners.—14,954, J. Hodgkinson, Wood Working Machines.—14,965, J. Taylor, Catches for Show Case Doors, Furniture, &c.—14,967, F. Drake and F. Dyson, Ventilating Buildings.—14,973, T. Morgan, Window Sash Fastener.—14,975, P. Graham, Window Sash Fastener.—14,985, B. Foster, Window Sash Fastener.—14,993, J. Backhouse, Exhibition Buildings.—14,995, P. Leonard and W. Hall, Syphoning or Flushing Apparatus.—15,000, W. Kenham, Window Sash Fasteners.

June 23.—15,021, P. Webster, Chimney Pot.—15,025, J. Brook, Hinges for Doors, &c.—15,028, A. Wincott, Drain Pipes.—15,050, P. Ruckert, Artificial Stones.—15,083, F. Lehmann and P. Kohlstaal, Fireproof Buildings and Structures.

June 24.—15,116, E. Pease, Fireproof Flooring and like Structural Arrangements.—15,134, W. Johnson, Fireproof.—15,146, R. Schofield, Brick and Tile Making Machinery.—15,153, J. Johns, Window Sash Fasteners.—15,181, G. Freeman and W. Shoosmith, Covers for Inspection Apertures in Interceptors or other Traps, Drains, &c.

June 25.—15,196, G. Slack and B. Marriott, Self-acting Safety Bolt Indicator, Pull Handle, and Lock combined.—15,218, A. Spratley, Fasteners for Windows, &c.—15,219, J. Lewis, Window Sash Fasteners.—15,220, W. King, Window Sash Fasteners.—15,224, E. Howell, Window Sash Fasteners.—15,235, J. Amey, Window Sash Fastener.—15,255, B. Thomas, Window Sash Fastener.—15,266, R. Hope, Window Wedge.—15,284, W. Freer, Doors.—15,310, J. Whitely, Sash Fasteners.—15,311, W. Jones, Fastening for Windows.—15,314, G. Daniels, Sash Fasteners.—15,316, F. Williams, Fasteners for Windows.—15,324, J. Hammond, Sash Fasteners.—15,328, F. Shoosmith, Window Sashes.—15,364, C. Charter, Alarms or Signals for use upon House Doors, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

12,155, G. Phillips, Window Fastener.—12,368, E. Nash, Window Sash Fastener.—12,423, J. Dixon, Electric Bell Pusher, &c.—12,478, R. Chamberlain, Sash Cord Fastener.—12,717, W. Morrison, Window Sash Fastener.—12,722, J. Cracker, Sash Fasteners.—12,756, A. Smille, Chimney Pot to Prevent Down Drafts.—13,601, W. Kirkland and R. Mathers, Tool Grinding Machines.—13,773, J. Duckett & Son, Limited, and J. Duckett, Water Closets.—13,790, E. Morgan, Window Sash Fasteners.—13,812, J. Nicholls, Fireplaces and Stoves.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

17,806, J. Pickering, Horticultural Structures.—18,486, R. Evered, Flushing Cisterns.—3,102, C. Kunkel, Door Releasing and Opening Appliances.—10,679, A. Emley and J. Springing, Apparatus for Preventing or Reducing Back Draft in Chimneys.—10,773, J. Bowles and C. Mitchell, Saw Sets.—12,242, A. Fordyce, Fireproof Construction.—12,285, J. Heaton and Others, Parquetty Floors and like Surfaces.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

June 14.—By DORE, FIELDER, & MASKELYNE (at Swindon).
Blunsdon, Wilts.—"The Home Farm," 45 a. 2 r. 1 p. 1 f. ... 45,300
A shop, five cottages, and 4 a. 2 r. 8 p. 1 f. ... 1,000
Four allotments, 4 a. 2 r. 31 p. 1 f. ... 140
June 16.—By LANGRIDGE & FREEMAN (at New Romney).
New Romney, Kent.—High-st., "Plumtree House," f. ... 400
"Hope Field" and "Plumtree Field," 55 a. 3 r. 19 p. 1 f. ... 580
By A. DOWELL (at Edinburgh).
Bothwell, &c., Lanark.—"The Estate of Cleland" (southern portion), about 200 a., including minerals ... 8,500
June 17.—By SIMMONS & SOVS.
Spitalfields.—14 and 16, Wilkes-st., u.t. 80 yrs., g.r. 304 ... 890
18, 20, and 22, Hanbury-st., u.t. 80 yrs., g.r. 804 ... 1,050
Blackfriars.—39, Grey-st., f. ... 360
68 to 76 (even), Friar-st., u.t. 56 yrs., g.r. 251 ... 1,410
Walworth.—60 and 66, Westmoreland-rd., u.t. 52 yrs., g.r. 121 ... 750
Pimlico.—172, Cambridge-st., u.t. 34½ yrs., g.r. 94 ... 465
Walthamstow.—28 and 30, Ickworth Pk.-rd., f. r. 46½ ... 470
By NEWBORN, EDWARDS, & SHEPARD.
Islington.—35, Florence-st., f. r. 404 ... 670
Balls Pond.—Balls Pond-rd., l.g.r. of 63½ 14½, u.t. 24 yrs., g.r. 121 ... 340
New Cross.—Baldwin-st., l.g.r. of 48½ u.t. 20 yrs., g.r. 81 ... 430
Barnsbury.—3 and 5, Cornelia-st., u.t. 51 yrs., g.r. 124 ... 370
Bloomsbury.—38, Gower-st., u.t. 10 yrs., g.r. 104 ... 210
Tottenham Ct.-rd.—35, Southampton-st., f. r. 734 ... 1,630
Hartwell Heath.—"Worsley-rd.," Maurice Villa, u.t. 84 yrs., g.r. 71 ... 630
Forest Hill.—3 to 9, Shaw's Cottages, and the "Prince of Wales" b.h., u.t. 14 yrs., g.r. 524, r. 184 ... 540
Barnsbury.—11, Westbourne-rd., u.t. 86 yrs., g.r. 77½ ... 530
Hornsey Rise. 148, 150, and 154, Elthorne rd., u.t. 84 yrs., g.r. 124 ... 580
17, Tottenham-rd., u.t. 31 yrs., g.r. 41 ... 310
Hackney.—36 to 39, Duncan-sq., u.t. 16 yrs., g.r. 241 ... 215

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 4 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender, and we cannot publish anonymous tenders. Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £500, unless in some exceptional cases and for special reasons.]

BATLEY.—For the erection of thirty-five houses, Whitaker and Alton streets, For Messrs. Talbot Bros. Mr. J. H. Breasley, architect, Hanover-street, Batley. £6,700
Tanner, J. W. 6,700
Stirling—Geo. Fawcett, Dewsbury 6,850
Plummer—S. Crawshaw, Batley 6,850
Plummer—J. W. Whitaker, Batley 6,850
Plummer—W. Kanahaw, Dewsbury 6,850
£6,475

BATLEY.—For the erection of ten houses, Denison-street, For Mr. George B. Mr. J. H. Breasley, architect, Hanover-street, Batley. £500
Tanner—Edward Peckitt, Batley 500
Tanner—Edmund Peckitt, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
£500

BATLEY.—For the erection of five houses, &c., Princess-street, For Mr. David Midgley, Mr. J. H. Breasley, architect, Hanover-street, Batley. £500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
£500

BATLEY.—For the erection of store premises, Purcell-street, For Messrs. Talbot Bros. Mr. J. H. Breasley, architect, Hanover-street, Batley. £500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
£500

BATLEY.—For the erection of eight terrace houses, &c., East Bath-street, For Messrs. Talbot Bros. Mr. J. H. Breasley, architect, Hanover-street, Batley. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BATLEY.—For erecting four houses &c. Dark Lane, Batley, for John Woods trustees, Mr. John H. Breasley, architect, Batley. £500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
Tanner—J. W. Whitaker, Batley 500
£500

BIRMINGHAM.—For the execution of road works, for the King's Norton Rural District Council, Mr. A. Cross, C.E., 25, Valentine-road, King's Heath, near Birmingham. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BIRMINGHAM.—For the execution of road works, for the King's Norton Rural District Council, Mr. A. Cross, C.E., 25, Valentine-road, King's Heath, near Birmingham. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BIRSTALL (Yorks).—For alterations &c. to two shops, Market-place, For Mr. H. Hodgson, Mr. J. H. Breasley, architect, Hanover-street, Batley. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BEXHILL.—For the erection of three shops and dwellings in St. Leonard's-road, For Mr. W. S. Tinsley, Mr. Wm. Cooper, architect, 21, Haydock-road, Hastings. Quantities by the architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BLACKBURN.—For the erection of steam bakery, stables, &c., Blakey-street, Messrs. Simpson & Duckworth, architects, Richmond-chambers, Blackburn. Quantities by the architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BOLSOVER.—For the rebuilding, restoration, and enlargement of St. Mary's Church, Bolsover, near Chesterfield, Derbyshire. Messrs. Ambler, architects. Quantities by Messrs. Pinks & Watson, Pall-mall-east, Westminster, London. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BROMLEY ST. LEONARD.—For cleansing and redecorating the parish church of St. Leonard, Middlesex, for the churchwardens. Messrs. Walter A. Hills & Son, architects, 24, Bon-road, E. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

BRYNAMMAN (Wales).—For the erection of a Congregational chapel, Messrs. Uwen Morris Roberts & Son, architects, Port-Thomas. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

CHATHAM.—Accepted for the supply and erection of iron hut for H.M. War Department—
Humphreys, Ltd., Knightsbridge. £500

CARLTON (Notts).—For the erection of co-operative stores, Mr. R. Whitbread, architect, Carlton. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

CROMER.—Accepted for the additions of a cookery-class room to the new Board Schools for the Cromer School Board, Messrs. Bottle & Oley, architects, Great Yarmouth—
J. White, Cromer. £375

COLNE (Lancs.)—For the construction of a chimney, Burnley-road, For Corporation, Mr. T. H. Hartley, Borough Surveyor, Town Hall, Colne. £2,000
Tanner—J. W. Whitaker, Batley 2,000
Tanner—J. W. Whitaker, Batley 2,000
Tanner—J. W. Whitaker, Batley 2,000
Tanner—J. W. Whitaker, Batley 2,000
Tanner—J. W. Whitaker, Batley 2,000
Tanner—J. W. Whitaker, Batley 2,000
£2,000

CWMAVON.—For the erection of a new Vestry at Cwmavon, P. H. Talbot, Mr. J. C. Rees, architect, Church-place, Neath—
D. Lloyd, J. C. Rees, architect, Church-place, Neath—
S. Rees, J. C. Rees, architect, Church-place, Neath—
T. Jenkin, J. C. Rees, architect, Church-place, Neath—
£470 14

DEWSBURY.—Accepted for the erection of two cottage homes, Heads-road, for the Union Guardians, Messrs. Hogg & Fox, architects, Wigan, Dewsbury. Quantities by the architects. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

DEWSBURY.—For the erection of six terrace houses, Saville-road, For Mr. J. A. Brier, Mr. J. H. Breasley, architect, Hanover-street, Batley. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

DOVER.—For the erection of carshed, Buckland, for the Town Council, Mr. H. E. Stilgoe, Borough Engineer, Town Hall, Dover. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

EARLSHEATON (Yorks).—For the erection of two houses and a cubby-hole, for Mr. Porter Garforth, Mr. J. H. Breasley, architect, Hanover-street, Batley. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

ELGIN (N.B.).—For the construction of three-quarters of a mile of public road and three bridges, Cardow to Burnmouth, Knock, &c., for the Elgin County and Surveyor, 24, Academy-street, Elgin. Quantities by Surveyor. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

GATESHEAD.—For the erection of mission church and vicarage, Westmill-street, Salwell-lane, Mr. E. E. Clephan, architect, St. Nicholas-chambers, Newcastle-on-Tyne. Quantities by Mr. George Bell, Newcastle. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

GREAT YARMOUTH.—For alterations to girls' department, St. George's school, for the Great Yarmouth School Board, Messrs. Bottle & Oley, architects, Great Yarmouth—
J. White, Cromer. £375

HASTINGS.—For reconstruction of premises and building new clothes shop to No. 26, Queen's-road, for Mr. L. H. Ward, Mr. L. H. Ward, architect, 9, Ruard-road, Hastings. Quantities by the architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

KINGSWEAR (Devon).—For additions to the Redoubt, for Mr. Smith, Mr. W. F. Tubb, architect, Gave House, Tones. £475
R. T. Pillar. £500
Accepted.

LONDON.—For alterations to premises and shopfronts, 197-199, Commercial-road, E. £120
George Barner. £120

LONDON.—For construction of 12 in. and 9 in. sewers, at Bittney Hill and Mill Hill, Hendon, N.W., for the Urban District Council of Hendon. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—Accepted for a schedule price, for erecting bottling warehouse and alterations at Tyndal-road, Perham—
George Barker, Mile End.

LONDON.—For new stone yard, store-rooms, and offices, in completion of Town Hall buildings, Clerkenwell, for the Vestry of Clerkenwell, Mr. C. Evans Vaughan, architect. £5,500
Tanner—J. W. Whitaker, Batley 5,500
Tanner—J. W. Whitaker, Batley 5,500
Tanner—J. W. Whitaker, Batley 5,500
Tanner—J. W. Whitaker, Batley 5,500
Tanner—J. W. Whitaker, Batley 5,500
Tanner—J. W. Whitaker, Batley 5,500
£5,500

LONDON.—For additions and alterations, St. John's Schools, Falmouth, Mr. Robert Willey, 35, New Bridge-street, E.C. £3,000
Tanner—J. W. Whitaker, Batley 3,000
Tanner—J. W. Whitaker, Batley 3,000
Tanner—J. W. Whitaker, Batley 3,000
Tanner—J. W. Whitaker, Batley 3,000
Tanner—J. W. Whitaker, Batley 3,000
Tanner—J. W. Whitaker, Batley 3,000
£3,000

LONDON.—For rebuilding No. 47B, Walbrook-street, W., for the architect, Mr. Robert Willey, 35, New Bridge-street, E.C. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For reinstating damage done by fire at No. 19, Ivy-lane, E.C., for the Hand-in-Hand Insurance Society, Mr. Robert Willey, surveyor, 35, New Bridge-street, E.C. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For the construction of new roads at Illegation Cemetery, East Finchley, for the Vestry of St. Mary, Islington, Mr. Patten Barber, M.Inst.C.E., Vestry Hall, Upper-street, Islington, N. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations and additions to the Regent's Vase Schools, Custom House, for the West Ham School Board, Mr. William Jacques, Architect to the Board, 2, Pen-court, E. C. Quantities by Messrs. P. L. Curtis & Sons. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—Accepted for the erection of a club room and skittle alley at the Grove Hotel, Dulwich, Mr. E. H. Mullins, architect, 97, Barry-road, S.E. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, &c., at Nos. 1 to 10, Sator-road, Nunhead, S.E., for Mr. W. Dunn, Mr. Arthur E. Mullins, architects, 97, Barry-road, S.E. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—Accepted for new stone staircase from nave to crypt, at St. Mary Magdalene Church, Faddington, Messrs. Duckhall & Cowper, architects, 35, 1/2 Queen-street—
W. H. Handover & Son, Ilarow-road. £100

LONDON.—For cleaning, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For repairs, alterations, painting, and decorations to the "White Swan" hotel, High-street, Bedford, Mr. J. M. Jones, architect and surveyor, 23, Flushing-circuit—
For repairs, &c. £415
Tanner—J. W. Whitaker, Batley 415
Tanner—J. W. Whitaker, Batley 415
Tanner—J. W. Whitaker, Batley 415
Tanner—J. W. Whitaker, Batley 415
Tanner—J. W. Whitaker, Batley 415
Tanner—J. W. Whitaker, Batley 415
£415

LONDON.—For alterations, painting, and decorations to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—For alterations, painting, whitewashing, and repairs to the Infirmary, Fulham, Palace-road, W., for the Guardians of the Poor, Mr. A. Saxton Snel, architect. £1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
Tanner—J. W. Whitaker, Batley 1,000
£1,000

LONDON.—Accepted for the supply and erection of iron roofs, at the Foreign Cable Market, Deptford, for the Corporation of the City of London, Mr. A. Murray, Engineer—
Humphreys, Ltd., Knightsbridge. £4,700

LONDON.—For painting, whitewashing, and cleaning at the Fairway, Cale-street, Chelsea, S.W., for the Chelsea Board of Guardians. Messrs. Landell & Harrison, architects, Highbury, N. —

W. Bolton.....	£1,425 0 0	W. F. Picken.....	£775 0 0
The House Cleaning Company.....	950 0 0	Gardner & Hazell.....	635 0 0
The Co-operative House Decorators.....	201 6 0	J. O'Sullivan.....	597 17 6
Barrett & Power.....	889 0 0	Rise (accepted).....	517 6 0

MIDDLEBROUGH.—Accepted for the erection of twelve houses, Holt-street, and ten houses, Lampport-street. Mr. W. G. Roberts, architect, 6, Albert-street, Middlebrough. —

C. Zealand, 35, St. Paul's-road, Middlebrough.....	£1,983
--	--------

[Exclusive of ironmongery, hardware, and fire-grates, &c.]

MIDDLEBROUGH.—For the erection of two shops, Haslington-road, for Mr. L. L. L. Roberts, architect, 6, Albert-street, Middlebrough. —

Brickwork, Plastering, Joinery, and Slating 11/6th.

Wm. Sturdy, Bremal-street.....£27 6 4

Plumbing, Glazing, and Gasfitting.

Walton & Garthwaite, Corporation-road.....£27 6 4

NORTH WALSHAM.—For additions to the boys' department of the North Walsham School Board. Messrs. Borth & Olley, architects, Great Yarmouth. —

I. White.....£595 10 0 J. Batchelor, Stralham.....£438 10 0

W. Wilson.....497 10 0 * Accepted.

PENTRE BROUGHTON (Wales).—For the erection of a school, room, &c., for the Trustees of the Methodist Free Church. Messrs. Davies & Moss, architects, 71, Rye-street, Wrexham. —

S. Moss.....£716 12 6 W. H. Wycherly & Co. Broughton, Wrexham (accepted).....£530 0 0

T. Williams.....884 9 6

SALE (Cheshire).—For the execution of sewerage works, &c., (Contract No. 13, for the Urban District Council. Mr. A. G. M. Beah, engineer, 4, School-road, Sale. Quantities by engineers. —

A. Taylor.....£716 12 6 Matthew Naylor & Co. Sons.....£400 0 9

J. Farrell.....457 9 10 Simon Johnson.....353 3 10

C. Bracegirdle.....497 18 6 George Bosson, Sale.....295 0 0

William Wilson.....415 0 0 * Accepted. [Thos. Rowland.....582 13 8

[Engineer's estimate, £295.]

SEVENOAKS.—For the leveling, metalling, kerbing, tar-paving channelling, and making good the Mount Harry-road, East, and the laying of about 3,100 ft. run of 6-in. stoneware pipe sewers, for the Urban District Council of Sevenoaks. Mr. Jabez Mann, C.E., Surveyor to the Council. —

Thomas Adams.....£1,976 0 0 Edmund Iles, John Jackson.....1,942 14 6 Micham Common, Sydney Hudson.....1,895 15 6 Surrey.....£1,644 0 0

* Accepted according to schedule of prices. [Surveyor's estimate, £1,761.]

SKEWEN (near Neath).—For extension and alterations at the Coalfranc School, Skewen, near Neath. Mr. J. C. Rees, architect, St. Thomas's Chambers, Church-place, Neath. —

T. Roberts.....£3,724 0 0 Brynion, Thomas, & Walters & Johns.....2,590 0 0 Lees.....£1,275 0 0

W. J. Bloxham.....1,466 0 0 D. Jenkins.....2,170 0 0

Erin Thomas.....2,394 0 0 David Brox.....1,170 0 0

D. W. Rosset.....4,920 0 0 Thomas, Watkins & Co., Swansea.....2,066 5 0

* Accepted. [Architect's estimate, £1,225.]

STENHOUSMUIR (N.B.).—Accepted for the erection of shops, &c., for the Easton Cooperative Society Limited. Mr. James Strang, architect, 6, High-street, Falkirk. —

Messrs. 111, 113, & 115, J. & P. McLachlan, Larkhall. Carpentry and Joinery.....J. Simpson & Young, Larkhall.

Plumbing and Gasfitting.....Gilbert Brunton, Larkhall.

Slating.....Drummond & Crowe, Laurenceston.

Plastering and Cementing.....James Millar, Falkirk.

Revolving Staircase.....William Dickson, Edinburgh.

The total cost of buildings is about £2,500.

SWANSEA.—For the erection of business premises, Caer-street and Goat-street, for Messrs. B. Evans & Co. Limited. Messrs. Jones & Rowlands, architects, 58, Wind-street, Swansea. Quantities by the architects. —

Thomas Watkins & Co. Ltd.....£2,710 15 0 Thomas Davies.....£3,473 12 10

Thomas Richards.....6,282 11 10 Gustavus Bros.....6,335 18 7

D. Jenkins.....6,500 0 0 Henry Billing.....6,335 5 4

E. Grood.....6,120 6 5 Lloyd Swaine.....6,200 0 0

* Accepted.

C.B. N. SNEWIN

MAHOGANY, WALNUT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,

No. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 89, RAY STREET, FAREINGDON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.

Telephone, 83, 74 Holborn. Telex, Address: "SNEWIN, London."

WHITBY.—For the erection of a pair of semi-detached cottage residences, Prospect Hill, for Captain T. Forth. Mr. E. H. Smiles, architect, 6, Finsbury-gate, Whitby. Quantities by architect. —

Robinson Harland.....£1,168 0 0 J. A. Palmerman.....£1,078 12 6

T. Fletcher.....2,165 0 0 Ben. Smith, Silver-street, Whitby.....2,455 0 0

W. G. Harrison.....1,125 10 0 * Accepted.

WHITBY.—For new Board school and master's house, at Glasdale, near Whitby, for Glasdale School Board. Mr. Edmund H. Smiles, architect, Whitby. —

C. Winstanley.....£2,775 0 0 Robinson Harland, Wiford Atkinson.....1,764 10 10 4, Finsbury-road, Whitby (accepted).....£1,750 3 0

[Lowest separate tenders, £1,874 121 2d.]

WOLDINGHAM (Surrey).—For the erection of a private residence, for Mrs. A. C. Beaking, Mr. Edgar Stones, architect, St. Lawrence House, Trump-street, E.C. —

Ricks & Barford.....£2,350 11 6 J. Ward.....£1,850

Battley, Sons, & Holmes*.....1,869 T. Crabbe.....1,835

* Accepted subject to modification.

TO CORRESPONDENTS.

T. R., J. F. W., H. C., W. M. Mc B., A. S. (anonymously should have been stated).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS IN LONDON AND THE SUBURBS (by prepaying at the Publishing Office, 19s. per annum of 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,

SLATER and TILER.

ESTIMATES GIVEN FOR

SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,

Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,

BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.

BATH,

FOR ALL THE PROVED KINDS OF

BATH STONE.

FLUATE, for Hardening, Waterproofing,

and Preserving Building Materials.

HAM HILL STONE.

DOULTING STONE.

The Ham Hill and Doulting Stone Co.

(Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Doulting Stone Co.)

Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,

Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,

flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte

Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.,

PHOTOLITHOGRAPHERS,

4 & 5, East Harding-street,

Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED

accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.

"QUANTITY SURVEYORS' TABLES,"

For 1897, price 6d. post 7d. In leather 1/- Post 1/4 [ADVT.]

SZERELMEY STONE LIQUID.

THE TEST OF TIME.

OVER FORTY YEARS' GENERAL EXPERIENCE

HAS PROVED THAT

SZERELMEY STONE LIQUID

ABSOLUTELY WATERPROOFS AND PRESERVES

BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.

Adopted by Governments and Public Bodies

throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE

French Asphalte

COMPANY.

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND

WORKMANSHIP FOR BUILDINGS,

DAMP COURSES, AREAS, ROOFS,

WASHHOUSE AND DAIRY FLOORS,

&c., &c.

This Asphalte was chosen to be

laid at Sandringham, on the new

General Post Office, and other

important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

CYLINDERS FOR HOT-WATER CIRCULATION.

Particulars on application.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL: 6 and 8, HATTON GARDEN.

GLASGOW: 47 and 49, ST. ENOCH-SQUARE.

BRISTOL: ASHTON GATE WORKS, CORONATION RD.

The Builder.

VOL. LXXIII. NO. 2841.

JULY 17, 1897.

ILLUSTRATIONS.

Derby Architecture:—

St. Mary's Church.....	Extra Large Page Ink-Photo.
The Town Hall.....	
All Saints' Church.....	
The Deaf and Dumb Institution.—Mr. Ernest Ryley, Architect.....	Double-Page Ink-Photo.
St. Werburgh's: Exterior and Interior. The modern portion by Sir A. Blomfield.....	Single-Page Ink-Photo.
The Free Library. (Mr. R. Knill Freeman.).....	Single-Page Ink-Photo.
The Infirmary. (Messrs. Young & Hall.).....	
The Technical College. (Messrs. Waller & Son.).....	Double-Page Photo-Litho.
The Gas Offices. (Messrs. Naylor & Sale.).....	

Blocks in Text.

Derby Architecture:—

St. Peter's Church.....	Page 39
St. Mary's Bridge Chapel.....	" 40
St. Andrew's Church. (Sir G. Scott.).....	" 41
Church of St. Werburgh.....	" 41
St. Augustine's Church. (Messrs. Naylor & Sale.).....	" 41
The Poor Law Offices. (Mr. E. Ryley.).....	" 41

Derby Architecture (continued):—

The Grammar School.....	Page 43
House at Wardwick.....	" 44
Gates of Old Silk Mill.....	" 46
The Park Hospital. Plan.....	" 46
A Ward in Park Hospital.....	" 48
Base of Column discovered in Northgate street, Chester.....	" 51

CONTENTS.

The Architecture of our Large Provincial Towns.....	39	Engineering Societies.....	59	Liskeard Church Tower.....	57
Notes.....	44	Architectural Museum and Westminster School of Art.....	59	General Building News.....	57
Electricity Supply.....	46	The London County Council.....	52	Sanitary and Engineering News.....	58
The National Gallery of British Art.....	47	Association of Municipal and County Engineers.....	53	Foreign.....	58
The Park Hospital. Hither Green, Lewisham.....	47	Applications under the 1894 London Building Act.....	55	Miscellaneous.....	59
Refuse Destructor.....	49	Books: G. A. Fryce Cusson's "Transactions of the Society of Engineers for 1896;" E. P. Spalding's "Hydraulic Cement.....	59	Capital and Labour.....	59
The National Trust.....	49	A. J. Wallis-Taylor's "Motor Cars;" H. Adams' "Elementary Machine Construction and Drawing;" E. B. Weston's "Tables Showing Loss of Head due to Friction of Water in Pipes.....	59	Legal.....	60
Buildings in Derby.....	50	Trade Catalogues.....	57	Meetings.....	61
The Royal Institute of British Architects.....	50			Recent Patents.....	61
The Roman Column Base at Chester.....	51			Some Recent Sales of Property.....	61
Archaeological Societies.....	51			Prices Current.....	61
				Tenders.....	61

The Architecture of our large Provincial Towns.

VIII.—DERBY.



DERBY is pleasantly situated in a valley on the western banks of the Derwent, from which the town spreads out towards the east, the land gradually rising towards the outskirts

of the town, so that the lie of the land is somewhat undulating.

The existence of Derby has from very ancient times been largely dependent upon manufactures. As far back as the days of King John, Derby enjoyed the exclusive privilege of dyeing cloth, whilst the first silk mill erected in England was built here about the year 1718 by Mr. John Lombe, who procured in Italy, by means of bribing two woodmen to accompany him to England, drawings and models of the silk machinery then in use in that country, for which he took out a patent. The factory stands on an island in the Derwent, and is built on oak piles driven close together and supporting the masonry of the building.

In 1796 Mr. Jedediah Strutt invented and introduced the Derby Ribbed Stocking Frame for which he obtained a patent. The porcelain manufacture was established in 1763, and the first fire-proof mill for spinning cotton was erected in Derby in 1793. The eighteenth century, therefore, was a time of great prosperity in Derby, and the town is rich in examples of domestic architecture of that date. The modern prosperity of Derby depends principally upon the Midland Railway Company, and the iron works of several important firms. One is therefore prepared to expect in Derby what, indeed, the visitor speedily discovers—that although the town can be said to possess no one building of any transcendent architectural merit, it is nevertheless a place where a few days may



St. Peter's Church.

be both profitably and pleasantly spent by the student and lover of architectural art. little ancient architecture dating farther back than the seventeenth century. The oldest

The town is of very ancient origin—how ancient it is difficult to say—although a Royal mint was established in Derby under the church of St. Peter, which, though chiefly of fourteenth century date, seems to have Saxons at least as early as the time of some fragments remaining of Norman Athelstan; but, nevertheless, there is very transitional work. The church is much



dilapidated, and even in a dangerous state, but is undergoing restoration or rebuilding, the south aisle having been already rebuilt and the north aisle being at the present moment in the builder's hands. There is much that is quaint and curious in this church, as, for example, the remarkable distortion of the design for the belfry stage on the west face of the tower, apparently original, but of which the reason is not now evident. It looks as if a triple window had been intended, but two openings only of the three have been executed, and the middle one is narrower than the other. The cusplless reticulated tracery of the rebuilt south aisle is also peculiar, though possibly, as in many other cases, it is the restoration of mutilated remains rather than of the original design.

Very quaint and interesting also is the little Bridge Chapel, dedicated to St. Mary, situated at the west end of the remains of the old pack-saddle bridge over the Derwent. The old bridge, of fourteenth-century date, was taken down in the year 1789, so that the chapel now looks rather stranded, the west end being masked by houses, and the south and east sides being enclosed by the yard of a boiler factory. It is nevertheless interesting, as being one of the very few English bridge chapels in existence and still in use for religious services, under the offices of the clergy of St. Alkmund's.

Of All Saint's Church, the mediæval work remaining is the tower, 174 ft. high (see lithograph), erected between 1509 and 1527, the master mason being one John Otes; and although the design is a little open to question, and somewhat coarse in detail, it reminds one of the churches

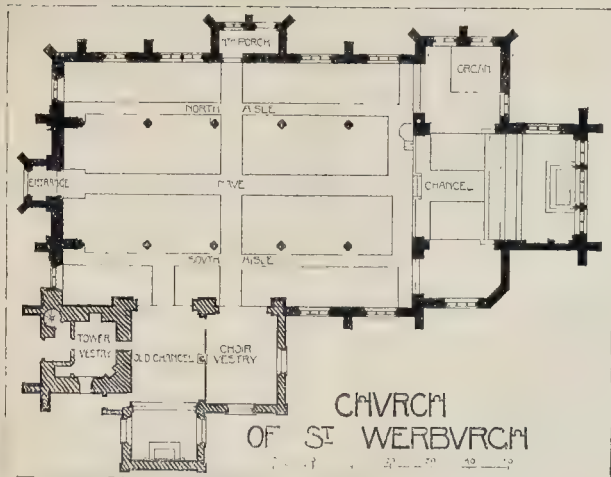
at Taunton and Wrexham, and of Magdalen College, Oxford; all of which it exceeds in height, though it may be inferior to them in design. The principal benefactor of the tower was Robert Liversedge, a wealthy dyer, who also made important bequests to the parish church of St. Peter; these are now known as the Liversedge Trust, from which were erected the Liversedge Almshouses—one of the picturesque features of the town, and to be found in the London-road. The body of the church of All Saints was erected in 1725 from the designs of James Gibbs, the architect of St. Mary-le-Strand, St. Martin's-in-the-Fields, and other well known works. It goes without saying, therefore, that it is a good example of English Renaissance; it is based on the Roman Doric order. The interior is particularly light, elegant, and spacious, divided into nave and aisles of the same height, covered with intersecting barrel vaults. The chancel is enclosed by some very fine wrought-iron screens, which are said to have cost the sum of 500*l.*, and were the handiwork of a clever smith named Bakewell. Amongst the monuments in the church may be noted that of William, Earl of Devonshire, who died in 1628, and his countess, and also that of the celebrated



St. Andrew's Church. (Sir G. Scott.)

Elizabeth, Countess of Shrewsbury, better known as "Bess of Hardwick," who was the builder of the three magnificent mansions, Chatsworth, Hardwick, and Oldcotes, and died in 1607. In the south-east corner of the church are the fine monuments of the Cavendish family, and there are several other items of interest, including examples of wood carving, and a fine incised alabaster slab.

St. Werbergh's church has recently been rebuilt from the designs of Sir Arthur Blomfield (see lithograph), the former erection having been put up in the eighteenth century. The tower is the only part remaining of the mediæval church, but the old chancel of the eighteenth-century church has been left as a side chapel eastward of the tower. The axis of the church now stands north and south instead of, as formerly, east and west. A good chancel screen in oak, and stalls, are now being made and will be presented to the church by Mr. W. R. Smith, a former churchwarden, as a memorial to his father and mother, and the tower will, before long, be repaired and heightened by an additional belfry stage. At present it looks rather dwarfed by the importance of the new church erected from Sir Arthur Blomfield's designs. The remaining churches have not



St. Augustine's Church. (Messrs. Naylor & Sale.)

even a vestige of old work, but are entirely modern, though not on that account unworthy of examination.

St. Andrew's Church was erected, from the designs of the late Sir George Gilbert Scott, to accommodate the large population residing in the neighbourhood of the Midland Railway works. The tower, with broach spire at the west end of the north aisle, is a very happy composition. The tower contains a fine peal of eight bells.

St. Alkmund's Church, dedicated to Alkmund son of Alured, King of Northumbria, was in mediæval times a famous pilgrim shrine. The old church was demolished in 1844, and the present church erected with its tower and spire. The design of the church is in the Decorated style, and, though somewhat hard, is good for the time at which it was built. This church was the burial-place of Joseph Wright, the painter (known in artistic annals as "Wright of Derby"), whose monument is here preserved.

St. Mary's Catholic Church (see lithograph), is a good specimen of the elder Pugin's work, and was completed in 1839. There is a good deal of Continental character about the design, produced by the capless piers to the nave, the apsidal chancel, the lofty internal proportions, and other features, but the detail generally is based on Perpendicular work. The interior is very pleasantly decorated in colour, and is in striking con-

trast in its brightness and cheerfulness to the dim religious light of its near neighbour, St. Alkmund. At the east end of the south aisle is a small chapel of Our Lady of Dolours, and north-east of the church is a morning chapel, with the sacristy east of the high altar. The organ is placed in the western gallery, and good musical services are given with full orchestra. The churches already described, although embracing the most important architecturally, by no means exhaust the list of churches of Derby, which is still being added to, the church of St. George, of which at present only the chancel and vestry have been erected, giving promise of a modest and simple but thoroughly good and satisfactory design of early character in red brick, while one of the latest additions, now in course of erection from the designs of Messrs. Naylor & Sale, is the church of St. Augustine (of which a sketch is given). This has advanced as far as the level of the sill of the west window and crown of the nave arcade, and is being built in red Loughborough bricks, with Coxbench sandstone dressings, and Westmoreland slate roofs.

The Nonconformists also are well supplied with chapels, foremost amongst which in architectural interest may be placed the Baptist Chapel in St. Mary's Gate. This was erected in 1750 by one of the Osborne family, whose seat it con-

tinued to be until it passed to the Bateman family, from whom it was purchased at the end of the last century by Mr. Evans, the banker, whose descendants sold the premises to the chapel trustees in 1841 for the sum of 4,000*l*. In the courtyard in front are some very excellent wrought-iron gates, the work of Bakewell, the artist whose handicraft is to be seen in the screens at All Saints Church and the gates of the old silk mill. The façade of the house is in red brick with stone Corinthian pilasters, and some very fine carving in the pediment containing the arms of the family, and their crest, a pelican in piety. Inside there are some beautiful carved doors, and even the rostrum contains some very excellent carving, apparently of eighteenth century date, and probably made up from parts of the original work of the house.

The Wesleyan Chapel in King-street, erected in 1841, is a good example of the time when Greek was the fashionable architectural mode, a period of which there are several highly creditable examples in Derby.

In Friargate the Unitarian Chapel, built in 1647, with some later additions and the date 1698, is picturesque, and to be remembered as the burial place of Joseph Strutt, the donor of the arboretum. This is the oldest Nonconformist place of worship, and originally belonged to the Presbyterians.

Several of the public buildings possess points of architectural interest. The Town Hall (see lithograph), was erected in 1842, on the site of the one destroyed by fire on October 21, 1841. The detail is largely tinged with Greek influence, but where Greek precedent has not sufficed the architect has resorted to a modification of Italian Renaissance, supplemented by a certain amount of originality. The exterior is certainly not very attractive, but the Council Chamber is a fine room, 55 ft. long, 35 ft. wide, and 24 ft. high, lighted principally from the top. The Corporation possesses several ancient and interesting insignia, including mace, mayor's chain, town seal, and other antiquities. The Town Hall is on the south side of the Market-square, which in itself is an epitome of the architecture of Derby.

The Assembly Room at the north-east corner of the Market-square, where Full-street enters, was erected in 1763, and is a good example of eighteenth century Renaissance work; the front only of the building being of stone, the sides and rear of red brick, without much attempt at architectural treatment. The pediment is enriched with a good piece of carving in bas-relief representing musical instruments. Several of the old houses in the Market-place have excellent interiors and fine ceilings, the room formerly known as the "Great Room in the Market-place" being quite of historical interest from its connexion with the Stuarts. On the west side of the Market-place Messrs. Samuel Smith & Co.'s bank is one of the most satisfactory designs amongst the architecture of Derby. The detail is of the type usually known as "Neo-Grec," the ground story being carried out in pink granite with Doric columns, the entablature in grey granite, and above the ground floor two stories of what appears to be Derbyshire sandstone. At the south-east corner is quite a different example of modern architecture, the Royal Oak Hotel, a very good design



The Poor Law Offices. (Mr. E. Ryley.)

carried out with Elizabethan detail, and the upper part pleasantly grouped with half-timber gables and cut plaster, the ground story being red and cream sandstone, apparently Mansfield; the whole, although perhaps a little florid in treatment, being an excellent attempt to give character to a somewhat difficult class of building. Contrasted with this are some old red brick eighteenth-century houses such as that now occupied by the offices of the *Derbyshire Advertiser*, its plain, simple treatment gaining its whole effect from the circular bays carried up the whole height of the façade, although this effect is somewhat spoilt by the removal on the ground floor of the old white sashes, with their comparatively small panes.

The Free Library and Museum, in Wardwick, is one of the characteristic designs of Mr. R. Knill Freeman, of Bolton (see lithograph); and though an example of now somewhat unfashionable Gothic, is, as our illustration shows, a fine building, and worthily holds its own with the more fashionable Renaissance, whether of eighteenth century or nineteenth century date.

Another example of the modern Gothic period is the Municipal Technical College and School of Art and Science on Green Hill (see lithograph), the design of Messrs. Waller, of Gloucester, an example of Godwinesque Gothic of early French character, to which important additions are now in progress, the same style being maintained.

The Midland Deaf and Dumb Institute in

Friar Gate (see lithograph), designed by Mr. E. Ryley, is a good piece of modern Renaissance in red brick and sandstone, and one of the most satisfactory pieces of modern design to be seen in the town.

The Derbyshire General Infirmary, situated in the London-road, commenced with a comparatively small building in 1810, and has gradually grown until it has received its present form (see lithograph), at the hands of Messrs. Young & Hall, who have skillfully managed to get considerable architectural effect towards the London-road, or principal frontage, by treating the ends of the ward pavilions with open loggie in stone connecting the sanitary turrets.

The Poor Law Offices erected in Beckett-street in 1893, from the design of Mr. Ryley, are an example of somewhat ornate Italian Renaissance of official character, the detail good and refined, but the proportions not quite satisfactory, and in this respect contrasting unfavourably with the eighteenth century façades in the town. In one direction old tradition has been followed, in the erection of a stone front with brick sides and back, not a commendable practice, but a very general one with the eighteenth century builders of Derby.

The School Board offices are opposite the Poor Law offices, more modest, but still official in design, and, compared with its neighbour, verging on the commonplace, though this perhaps is rather the effect of the contrast.

The General Post Office at the corner of Victoria-street and St. James's-street, opened in 1869, is an admirable piece of dignified and restrained design in Classic Renaissance, somewhat formal and cold perhaps, but not more so than academic treatment demands, and refreshing as a draught of cold spring water after so much of the fussiness of modern work. The proportion is good, the detail refined and correct. The Mechanics' Institution close by (though the thoroughfare here takes the name of Wardwick), is another example of academic Classic Renaissance design, and though not so scholarly as the Post Office, is nevertheless a satisfactory instance of dignified workmanship.

The latest addition to the municipal architecture at Derby is seen in the new County Court and Inland Revenue Offices recently completed in St. Peter's Churchyard, an example of official architecture, faced with dull red terra-cotta bricks, with bands and dressings of buff terra-cotta, and green slate roof. An attempt has been made to infuse a Flemish feeling into the Late Gothic detail, and, though not equal to the level reached by some of the work recently turned out by the Architect's Department of the London County Council, the design very nearly attains a satisfactory level of excellence that is seldom seen in official architecture.

The Corporation Art Gallery in the Strand, at the rear of Mr. Knill Freeman's Free Library, was completed in 1882, from the designs of Mr. Story, of Derby, and, though well planned for its purpose and good in design, lacks the *verve* of its earlier neighbour, to which it is attached.

The famous Grammar School of Derby, founded in 1160 by Walter Durant, Bishop of Coventry, in connexion with the Monastery of St. Helen's, is now located at St. Helen's House, the residence of the Strutt family, on the site of the ancient Abbey of St. Helen's. The older building, in which John Flamsteed, the first Astronomer Royal, and other distinguished scholars were taught, still stands in St. Peter's Churchyard. St. Helen's House is a charming example of eighteenth-century design, with its tetrastyle Ionic treatment over the arcaded ground story. Here, however, we once more have an instance of the stone front, with brick side and back. To this old family mansion many additions have been made to meet the growing needs of the school, departing from the stateliness of the foundation, and picturesque rather than dignified. The School chapel, in red brick and white stone, with shingled fleche, is amongst these later additions, simple and quiet, and a good specimen of modern design based on fifteenth-century detail.

In the Uttometer New-road is the Diocesan Institution for the training of schoolmistresses, a large and important building of red brick and stone, erected in Jacobean style from the designs of Mr. H. J. Stevens. The building is four stories in height, with a lofty tower. Internally the plan is remarkably convenient in arrangement, and admirably adapted for its purpose of providing accommodation and training for forty-four students.

Amongst modern business premises may be mentioned the central offices of the Derby Gas Light and Coke Company, in Friar Gate (see lithograph), a large and important building in red brick and stone by Messrs. Naylor & Sale, in which a successful attempt has been made to grapple with the large scale



The Grammar School.

which the exigencies of modern plate-glass almost imperatively demand.

A very admirable piece of design is the Windsor Temperance Hotel in the London-road, in which good effect is gained by the use of a big red-tiled roof with dormers. The facing is in red brick, and relief is obtained by the use of a modelled frieze in buff terracotta and oriel windows on the second floor. Another spot where a not unsuccessful result in street architecture is obtained is at St. Peter's Churchyard and its junction with St. Peter's-street, where two examples, one depending on half-timbering and gables, the other on slightly florid red Renaissance work, are a welcome relief to the commonplace that so much predominates in all street architecture.

In domestic architecture the oldest house in the town, if we except some scarcely legible remains in Nuns-street, is a picturesque and very charming half-timber house, hidden away behind the present modern houses in Tenant-street. The date of this house is probably about 1483. The house is all in half-timber work, with four gables and oriel windows of very flat projection irregularly disposed with embattled lead cresting to the small flats over the oriel. The building has been repaired and new lead quarried glazing inserted, but the work of restoration has been very conservatively and wisely done, and the house remains one of the most delightful antiques in Derby.

There are numerous examples of seventeenth century brick houses in various parts of the town, as in Tenant-street, Full-street, Bag-lane, Walker-lane, St. Peter's Churchyard, King-street (where the "Seven Stars" Inn, opposite the Grammar School, bears

date 1680) and Friar Gate. Foremost of the work of the seventeenth century in interest is the mansion of the Gisbornes, in the Wardwick, opposite the Free Library, and bearing the date 1611, which we illustrate. A picturesque group of this period, though without much detail, is to be seen in the old "White Lion" Inn, situated where the Friar Gate merges into the Ashbourne-road.

As we have already premised, Derby is rich in domestic work of the eighteenth century, and some of the best examples are to be seen in the Friar Gate, a walk along which, with its trees on one side, is on a fine day a very pleasant experience, although its fair prospect is unfortunately guillotined by the Great Northern Railway bridge which spans the road.

Amongst these eighteenth-century houses in Friar Gate may be particularly noticed St. Werbergh's Institute, in red brick and stone, with a very excellent wood cornice. There are also some other examples in Wardwick, notably the house at the corner of Becket-street, opposite to the seventeenth-century mansion of the Gisbornes. The house now occupied by the Beaconsfield Club, in Full-street, is another instance that should not be missed, with its quaintly treated doorway.

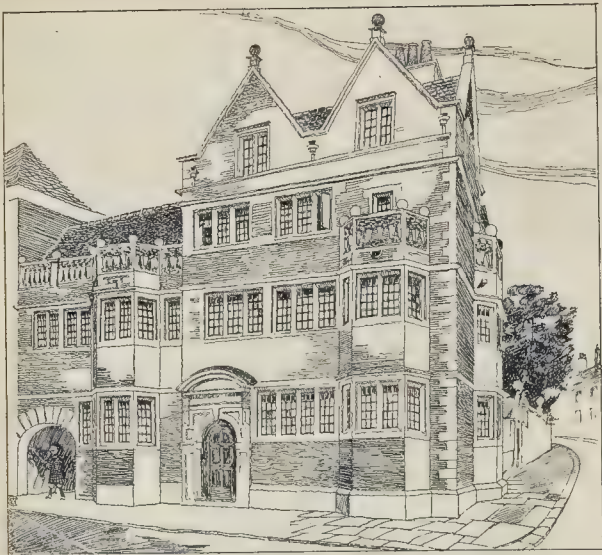
The old silk mill, already referred to, is chiefly interesting architecturally for its fine wrought iron gates (see sketch), which we have previously mentioned as the work of Bakewell. Yet another instance is the block of now very dilapidated buildings known as the Countess of Shrewsbury's Almshouses, situated in Full-street, which are now unoccupied, and still bear notices of their sale by auction on September 22, 1893. The continuation of their existence is therefore likely to be short.

These were founded in 1599 by the celebrated "Bess of Hardwick," but the existing buildings were erected in 1777, and from the character of the detail appear to have been designed by Robert Adam, whose work at Kedleston is only a few miles from Derby. The front of the Almshouses towards Full-street is carried out in stone, the Doric order being employed with a kind of screen enclosure to the quadrangle, reminding one of that to the Admiralty buildings in Whitehall.

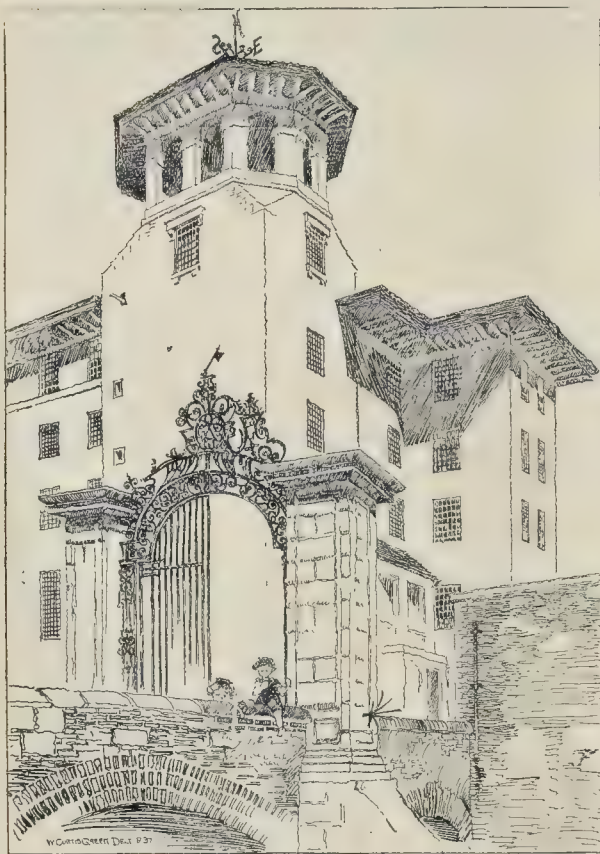
The house formerly occupied by the well-known painter, "Wright, of Derby," is in Queen-street, and is yet one more excellent example of eighteenth century work in red brick. Very near to this house, on the opposite side, are two old inns, "The Bull's Head" and "The Dolphin," with picturesque gables, but not very much detail, although the former has some good wrought iron work in its sign.

Amongst the examples of the Grecian phase of fashion, the important block of buildings in Victoria-street, comprising the Royal Hotel and Athenæum, must be mentioned. These were erected in 1839, on the site of two of the old inns of Derby, which were pulled down for the purpose.

The wealth of Derby in eighteenth century houses, which are still comfortable and commodious, has probably operated prejudicially on the development of modern domestic architecture in the town, and there are comparatively few examples which reach a higher level than that of the suburban villa. Amongst the exceptions may be mentioned a house on Burton-road, known as "The Gables," and recently built upon an elevated site commanding extensive views of Derby, for



House in Wardwick.



Gales of Old Silk Mill.

Mr. Smart, from the designs of Mr. R. W. Naylor, who, by the employment of red brick, red-tiled roofs, sandstone dressings, wooden barge boards, and half timber, has produced an excellent example of modern domestic architecture, picturesque in grouping and refined in detail.

In the Utttoxeter New-road are several blocks of comparatively small villas, to which, without extravagance, a pleasing character has been given, stamping the buildings as the work of educated architects, and so contrasting with the commonplace efforts of the speculating builder.

Thus it will be seen that, though Derby possesses nothing that can be called a great building, there is much of architectural interest both old and new, alike in ecclesiastical, municipal, and domestic work.*

NOTES.

Peterborough Cathedral.

THE work of rebuilding the north gable of the west front at Peterborough is now complete all except the pointing, and making good the roof up to the gable wall. The orders of the great arch which had failed and partially dropped have been rebuilt with scarcely a new bit of stone in them, and the gable above has been rebuilt in a solid and permanent manner with a fragment of new stone here and there, where a moulding was entirely decayed and where the stone would have decayed further if left. The remainder of the visible work on the gable consists entirely of the old stones replaced in the positions they occupied before, and so conscientiously and carefully has this been done that there is really nothing in the appearance of the work to indicate that it had been taken down and re-erected, and it only looks as if a few new stones had been inserted here and there. Its appearance affords the best possible answer to and comment on the ridiculous storm of indignation which was got up on the subject by persons who either did not know what they were talking about or who had purposes of their own to serve, and it is to be hoped (though we fear hardly to be expected) that the authors of this clamour that "the west front was about to be destroyed" will have the honesty to withdraw and express some regret for their remarks when they see the result. In order not to show too obtrusively the difference between the "plumb" of the rebuilt gable and the overhanging lines of the other two, the work has not been rebuilt quite perpendicular, but leans outward about 5 in., a degree of deviation which does not of course endanger its stability at all, though the fact that it has been thought necessary to do this illustrates the difficulty which must naturally arise from attempting to set right a portion of a front of which the remainder is leaning outwards; and our own opinion has been all along that the three gables ought to have been taken down and reset at the same time. However, there were reasons against this, of a pecuniary kind at all events; and what has been done has been done as carefully as possible in every sense, practical and æsthetic. The cross of the gable, which was all but falling in two, was just preserved in time, and has been cemented together and re-instated without a new bit on it. Some of the parts which had decayed most were in the

* The next of this series of articles, on the architecture of Nottingham, will appear in our issue of August 22.

mouldings of the lower portion of the wheel window, which, being inverted, formed water-bearing hollows, and it is proposed to fill up the hollows with cement, both in the renewed portions and in the still undecayed portions of the old work, so as to leave a surface from which the water will run, as the difference cannot possibly be seen except from the scaffolding. The pier has been tied back at each side, at the springing, by two $2\frac{1}{2}$ in. steel ties bolted into flanges on the face of the masonry and anchored into the interior wall at the junction of the west wall with the nave, where the weight of the angle of the tower comes on it, so that this may be considered to be a pretty firm anchorage. We may congratulate the Dean and Chapter and their architect on the successful completion of an anxious and difficult piece of work, carried out in the face of an unexampled storm of archaeological bigotry and intolerance.

The Gallery of some particulars as to the new British Art.

WE give in another column Gallery of British Art, which is to be formally opened by the Prince of Wales next Wednesday. Internally, the building is well planned and well lighted for a picture-gallery. The central hall with the glass dome or lantern over it has a good effect in the main, and the four large niches will form fine positions for groups of sculpture. It may be hoped that the fountain basin in the centre will eventually receive a decorative fountain design of some kind—not too large, so as not to fill up the central space too much. The best part of the design is the upper story with its coupled columns and arches. The details are rather commonplace, and the large projecting entablatures breaking over the columns have an even worse effect, owing to their position, than this objectionable feature in "classic" architecture usually has. The effect of the glass lantern, circular on plan, rising immediately above the octagon line of the balustrade which finishes the walling, is very awkward, and looks as if a lantern had been fitted on which was not intended for the building. On the other hand, the planning of the angle staircases and the access to them is ingenious and effective, and the rooms are certainly well adapted for the display of pictures and for convenience of circulation. Of the exterior we prefer to say as little as possible; it is done now, and cannot be undone, and it would seem ungracious to dwell on the defects of a building which is a gift to the nation, at the very moment when its formal opening is in preparation. But, looking at the really fine examples of English painting displayed in the interior, one cannot but regret that the building which contains them does not furnish a better example of English architecture.

The Workmen's Compensation Bill. So far as the building trade is concerned we think the last word has been said on this Bill. In one of the recent discussions on the report, as our issue of last week was going to press, the question of the limitation of the Bill to work on buildings exceeding 30 ft. in height again was brought forward. This limitation, as we have already said, appears to be one only calculated to cause dissatisfaction among such workmen as are excluded by it from the benefit of the Act in

regard to accidents. It was said in the recent discussion that to make the measure applicable to all buildings would press hardly on small country builders. But why the country builder is to be protected more than the town builder it is difficult to understand, more especially as much country work is already executed by builders from adjacent towns. However, the measure is thus drafted as applicable to the great majority of builders and their men, and excluding from it a few workmen engaged on very small jobs.

The Canal from Paris to Rouen.

THE French Chamber of Deputies will be occupied, in the ensuing session, with the project of the proposed ship canal from Paris to Rouen. According to the scheme drawn up by the eminent engineer, M. Bouquet de la Grye, the canal would follow the course of the Seine from Rouen to Paris, except at two points where it will cut the curves of the river, viz. between Oissel and Pont de l'Arche and between Sartrouville and Bezons. This will reduce the course by the Seine by 33 kilometres, leaving the canal of a total length of 185 kilometres, with a width varying from 35 to 45 metres, and a depth of 6.20 metres, allowing the passage to Paris of all classes of vessels which can now reach Rouen from the sea. The canal would terminate at Clichy with a basin of about 100 acres in superficial extent, with a quay-length of 6,340 metres. Other less important towns would be served by the canal at various points. The cost of this operation, which would probably have a very important effect on the commerce of Paris, is estimated at about 150 million francs.

New Sewers and the Public Health Act.

THE way in which some persons go to law is really astonishing. An instance of this is to be found in the case of The Handsworth District Council v. Derrington, which was tried before Mr. Justice Kekewich last week. This District Council served the owner of the houses in a street in Handsworth, so long ago as February, 1894, with notice to sewer the street. As they did not comply with it the Council did the work, and the surveyor apportioned the cost of the work among the frontagers. This was objected to, and an arbitration ensued, which resulted in the surveyor's apportionment being lessened by the trivial sum of 2*l*. The amount awarded was 158*l*. odd. The defendants were not satisfied with their former obstruction, but now refused to pay the amount, and contested the legality of the charge on various technical legal grounds, the chief of which was that the street in question had been already sewered to the satisfaction of the Local Authority within the meaning of Section 150 of the Public Health Act, and that therefore they could not be compelled to do the work again. It was clear, however, that the street had never been sewered as a whole; there were drains serving one or more houses, which were connected with a main sewer in another road. The street was a growing one, and the judge came to what appears the obvious conclusion, that it could not be reasonably held that the street had ever been sewered within the meaning of the Act. It would certainly be very undesirable that a number of separate drains in a street could be held to constitute a sewerage of the street. On the

other hand, it is certainly desirable that what may be called the permanent sewerage should be done at the time the houses are being built.

St. Mary, Battersea, Public Baths.

THE announcement of the terms of the competition for new Public Baths for the vestry of St. Mary, Battersea, is not satisfactory. The vestry announce, it is true, liberal premiums of 100*l*., 50*l*., and 25*l*.; but this is coupled with the emphatic declaration that "the design finally selected is to become the absolute property of the Vestry, and if the Vestry engage the successful architect to carry out his design" (the italics are ours) "the premium is to merge into and form part of the commission or remuneration to be paid him." The Vestry therefore formally retain the power to appropriate his plans and get some one else to carry them out; and at the best, the extra work which he does in preparing the competition drawings (which can never be used as working drawings) is to be so much loss of labour to him. The objectionable practice of charging competitors a guinea before they can have the "Instructions" by which alone they can discover whether it is worth their while to compete, the sum to be refunded only on the receipt of a design, again appears here. Not a word is said as to the employment of a professional assessor. Architects of any standing will hardly be likely to go into a competition on these terms—they will be very unwise if they do; and we recommend the Vestry to reconsider the matter and amend their advertisement next week.

Dangerous Electrical Works.

THE Departmental Committee appointed by the Home Secretary to report on certain dangerous trades, have issued an interim report dealing with electrical generating works. For their purpose they class as high-pressure stations all those where the pressure exceeds 700 volts, if direct, and 350 volts, if alternating. The recommendations are numerous, and some of them are distinctly good. To cover the floors of all places near where it would be possible to make contact with metal at high pressure with insulating mats is a cheap and effective expedient. The recommendations about protecting switchboards and having a special disconnecting switch on street arc lamps are necessary. The importance of india-rubber gloves is dwelt on, and the necessity of making the manager responsible for seeing that they are worn by the workpeople and are kept in a proper state of repair. Our recent suggestion that the covers of transformer sub-stations should be made to automatically cut off the high pressure when lifted is not adopted, but the useless expedient of an outside switch is recommended. Transformer boxes must be efficiently "earthed," but no hint is given as to how this is to be done. We should be sorry to see workmen's lives left to the mercy of an "earth" which might easily cease to be an "earth" if the wire corroded away, or if the ground got dry, or for any other reason. We think that all persons engaged in electricity works ought continually to be reminded of the dangers to be avoided. Last week a workman was killed at Bourne-mouth by his head touching a synchronising switch while he was drilling a hole into an iron column.

It should be part of the duty of the electricians connected with the works to instruct the workpeople as to what are the dangerous parts of the machinery, cables, and connections.

House of Parliament for Mexico.

ACCORDING to official notification from the Government of Mexico, the new Republic is to have a large building to fulfil the purposes of Houses of Parliament, at a cost not exceeding 150,000*l.*, and an international competition has been opened for the design. The conditions of this competition are of considerable interest. There are to be seven assessors, three of whom will be chosen respectively by the Chamber of Deputies, the Senate, and the Ministry of Public Works, whilst the four others are to be chosen by the candidates who are sending in designs. Another feature of the competition is a statement that the first premium will have a value of 1,500*l.*, of which, however, only half will be paid on the decision of the assessors, whilst the other half will not be granted until the completion of such supplementary drawings as the assessors may consider necessary. Nothing is said as to the commission being given to the recipient of the first premium. There will be several other valuable premiums, however, and the conditions as regards the number of drawings required, and the scale, which is one to two hundred (or about one-sixteenth of an inch to the foot), are moderate. The sending-in day, however, which is November 30 next, is very early, if one considers the time that has to be deducted for sending a package to Mexico. We may add that the Council Chamber for the Deputies is to have 336 seats, and that for the Senate eighty seats.

A German Criticism on the Jubilee Decorations.

THE London decorations for the Jubilee are the subject of an article in our official contemporary at Berlin. The author considers the work to have been of a low standard, and attributes this to the absence of any organised plan for the treatment of the thoroughfares—a criticism in which there is, no doubt, some truth. London, he observes, cannot expect much in the way of decoration until the conception of any scheme is taken out of the hands of so-called “decorators,” and the commission placed in the hands of artists of high standing. This also is, perhaps, true; but, for all that, we do not wish to see our street decorations under State control (which is evidently what is intended), and would rather see individual efforts, even of a rather low artistic standard, than the compulsory treatment so common in Russia. In England we should hardly appreciate the system of decorations being ordered by the Imperial authorities for their own glorification, and it should also be remembered that our Royal Family does not aspire to the same authority in art matters as some of the members of foreign reigning houses, nor do they publicly criticise what their people do with the view of honouring them: it would be considered “bad form.”

Liskeard Church Tower.

We print in another column a letter from Mr. J. D. Crace, protesting against the proposed destruction of the old church tower of Liskeard. From a letter by Mr. Fellowes Prynn, printed in *The Church in the West* for July

10, it appears that in 1890 a lady (Miss Pedler) left 1,000*l.* towards the rebuilding of the tower, on condition that a new tower at a cost of 3,000*l.* was erected within ten years; otherwise the 1,000*l.* was to go to the Truro Cathedral fund. Mr. Fellowes Prynn, who had been professionally engaged to report on the condition of the tower, stated that though the tower was the oldest architectural monument in Liskeard, it is in a perfectly stable condition; but apparently the Liskeard people are determined to have it down in order to secure Miss Pedler's 1,000*l.* and prevent it flying off to enrich Truro: truly a pretty reason for destroying an ancient monument! If they want to secure the money, why cannot they build a new tower in another position, and leave the old one alone?

The Académie des Beaux-Arts.

THE result of the election of the new member of the French Académie des Beaux-Arts, in the place of the late Duc d'Aumale, is rather a surprise. The choice has fallen on the Prince d'Arenberg. There were six “*tours de scrutin*,” and on the final occasion M. Chas. Yriarte, who had been classed in the first rank of the candidates, received only three votes. M. Georges Berger obtained fifteen, and M. Jules Comte one. We do not know the claims of the new Academician to be elected into an Academy of Fine Arts, but we do know those of M. Chas. Yriarte very well; all the educated world knows them; and the election seems to argue that the Académie des Beaux-Arts is more attracted by aristocratic titles than by solid accomplishments. In a few days the Académie will proceed to the election of a successor to the late painter, François. The candidates are (in alphabetical order) MM. Busson, Dagnan-Bouveret, François Flameng, Harpignies, Albert Maignan, Aimé Morot, Roybet, and Vollon.

Liverpool Architectural Society.

THE Annual Report of this Society, a very brief pamphlet, records, we regret to see, that the number of members (all classes) has decreased from 137 last year to 121 this year. On the other hand, the attendances at the meetings are stated to have been much better than formerly, and some very good papers have been read, though there is a complaint that the discussions were not well supported. The Society seems to be under the same difficulty as the Institute of Architects in regard to Associates who ought to become Fellows and do not, as there is a sentence in the Report impressing on Associate members the desirability of their becoming Fellows as soon as they are eligible, and also intimating that the Rule which states that “Student members shall be pupils not exceeding twenty-three years of age” will be strictly enforced in future. The Liverpool Society reaches its Jubilee year next year, and it is hoped to celebrate this in a fitting manner. We may recall to the present generation of members the fact that in its early days the Society published an excellent annual volume of Transactions, which in fact was superior to that of any other architectural Society at that time, not excluding the Institute.* It would be a very good form of Jubilee cele-

* The publications of the Liverpool Society were held up as an example for the Institute to emulate, in an article (we think) the *Quarterly Review* some forty years ago.

bration if the Society could see its way to renew its annual publications in a form worthy of their ancient reputation.

Society of Fine Arts.

THREE new collections were to be seen at the private view at the Fine Art Society's Gallery on Saturday last. A number of originals of Mr. Sambourne's drawings for *Punch* show his bold and decisive style of drawing, but it can hardly be said that either in an artistic or humorous sense the majority of these impress one as very remarkable; there are, however, two exceptions, “The New Poet-Laureate” (61), a caustic and well-merited piece of satire, and “The Princes' Message” (76), showing the American eagle reading the pacific telegram from England after President Cleveland's demonstration; this is a really powerful thing, both as a drawing and as satire. Mr. Hugh Thompson's drawings belong to a higher level; the principal set are the illustrations to Jane Austen's “Emma,” many of which are quite admirable; one of the very best is “Mrs. Elton was first seen at Church” (111), which does not show us Mrs. Elton, but the members of the congregation looking at her; an admirable sketch of rural personalities of a bygone day. Mr. Thompson, however, seems to be more successful in getting the general character of Jane Austen's people than in realising special characters; his Mr. Elton in No. 96 is good, certainly, but Mr. Knightley and Mr. Darcy (“Pride and Prejudice”) are by no means done justice to; Mr. Knightley was a man of thirty-eight, of considerable force and dignity of character, not the mere good-looking youth portrayed in No. 117. The sketch of Mr. Weston running out with the umbrellas (94) is a very good representation of action and movement in the figure, reminding one of Leech's excellence in this respect. The fourteen silver-points by Mr. Charles Sainton include some charming artistic fancies, and also some ugly and rather vulgar ballet-girl subjects, which are not worth so refined a medium of artistic expression as silver-point.

ELECTRICITY SUPPLY.

AN application of the County of London and Brush Provincial Electric Lighting Company for an extension of their area of supply over a portion of the Holborn and Strand districts was considered before a committee of the House of Lords last week. The area they wanted to supply is already served by the Metropolitan Company, and as they opposed the granting of the Provisional Order, many arguments for and against the scheme were brought forward by the interested parties. Lord Kelvin, on behalf of the Metropolitan Company, laid down as a general principle that when a company which had been a pioneer in a new industry did its work well there ought to be no interference with it. Evidence was, however, brought to show that the work of the company had not been always well done. On more than one occasion the lights in the district had gone out for several hours.

The company's engineer tried to explain this away by saying that on one of the occasions referred to the Royal Music Hall had been trying experiments, with the result that they had short circuited the mains, and so the lights at the Holborn Town Hall went out. This itself seems to prove that there must be something wrong with the system of supply, for the lighting of a whole district is apparently at the mercy of any large consumer who may be experimenting with new lamps.

Professor Kennedy stated that the wiring of the Holborn Town Hall was very defective;

that 4 per cent. of the power supplied was wasted for causes outside the control of the Supply Company. Lord Heneage, the Chairman, however, stated that as the complaint had been made about the lights going out, the state of the wiring had nothing to do with it.

It seems to us that Lord Kelvin's appeal for a monopoly on behalf of a pioneer company has no equitable basis in this case. If the company were truly a "pioneer" company, and if its shares were at a discount, this appeal for pity might be listened to; but as the shares of this company and of other similar "pioneer" electric lighting companies are at a premium of from 50 to 300 per cent., it seems that the pioneers have already been rewarded for their public services.

The main argument brought forward by the County of London Electric Lighting Company was that they were going to supply direct current whilst the Metropolitan Company's supply is alternating. Their counsel quoting from a report of Major Marinin, one of the Board of Trade engineers, made in 1889, said that "in the abstract, competition was desirable as tending to keep down the price." The general policy of the Board of Trade has been to restrict the competing companies to two, one direct and the other alternating, as has been done in Chelsea, Hanover-square, the Strand, and Westminster. This has worked well in practice, in keeping down the price, and it is obvious that competition with gas alone would be not nearly so effective.

As the County of London Company had up to a month or two ago been supplying nothing but alternating current, counsel argued that the Metropolitan Company could supply direct as well as alternating by means of motor-transformers, i.e. by means of continuous current dynamos directly coupled to alternating current motors.

After throwing out this suggestion it was carefully kept in the background as it had obviously not been seriously considered by the Company's engineers.

It was stated that the Chelsea company bought alternating current at wholesale rates from the London Electric Supply Corporation, and then, by means of motor transformers, delivered it to their consumers as continuous current. Counsel endeavoured from this to prove that alternating current motors nowadays are highly efficient, but Mr. Swinburne clearly exposed the fallacy of this reasoning.

The size of motor, for which there is a demand in the area of supply considered, is from one to fifteen horse-power, mainly for printing establishments and small workshops. It is just this size of alternating current motor that is unsatisfactory, according to Mr. Swinburne. Very small alternating current motors, for driving fans, &c., compare favourably with very small direct current motors, and very large alternating current motors, such as those used by the Chelsea company, may be highly efficient, especially as they are kept working continuously at their most efficient load, the external load being kept constant by means of secondary batteries. It is the medium-sized alternating current motors that are very troublesome and difficult to work. For the same efficiency also they are much more expensive than direct current motors, and the difference between the starting and the running torques is less.

The managing director of the Otis Elevator Company said that his company either used hydraulic or electric power to work their lifts. The cost of working with electric power was much less than with hydraulic power, but as the lifts are worked by motors of only about five horse-power, they could only make use of direct currents.

Apart also from the motor question, alternating currents are unsuitable for general electrolytic work and for charging accumulators. It is thus greatly in the interests of consumers to have a choice of either alternating or direct currents; besides that, competition always has a tendency to lower prices. Seeing that the House of Lords had, in 1895, decided a somewhat similar case in the Charing Cross district in favour of allowing two companies to serve one district, it is not to be wondered at that, after a very few minutes' consideration, they allowed the Provisional Order to proceed.

WESLEYAN CHAPEL FOR CASTLETON.—It has been decided to invite tenders for the erection of a new Wesleyan Chapel and school at Castleton. Plans prepared by Mr. H. W. Lockwood, of Sheffield, have been accepted. The estimated cost, exclusive of the land, is about 1,800l.

THE NATIONAL GALLERY OF BRITISH ART.

THIS building, which is a gift to the nation by Mr. Henry Tate, for the special illustration of British Art—a Luxembourg Gallery for London—is to be opened by the Prince of Wales on the 21st inst.

The foundations are carried down about 30 ft. below ground level, and cost alone about 12,000l. The architectural style of the building is "Free Classic." The elevations are faced with Portland stone. The front elevation has a shallow portico of six Corinthian columns, with pediment over. A flight of steps leads up to the entrances; and at the extreme ends are two pavilions with an order of Corinthian pilasters raised on pedestals and terminating in pediments; between the pilasters are deep niches with an Ionic order of columns and pilasters supporting entablatures with semicircular arches over. Between the end pavilions and the central portion is a plain ashlar wall to give relief to the surrounding features; in the centre of this portion is another niche flanked with Ionic pilasters with a small Doric order between them with semicircular arch over to form the niche. The Ionic order finishes with a pediment. A rusticated basement, 10 ft. high, runs entirely round the building.

The entrance doors lead into a rectangular vestibule 50 ft. long and 26 ft. wide, with an Ionic order of columns round the sides in Portland stone; the ceiling is a plaster barrel vault, with panelled stone ribs springing from the Ionic entablature over the coupled columns.

The vestibule gives access to a corridor 12 ft. wide which surrounds the central octagonal sculpture hall, which is 38 ft. wide, and has four entrances and four semicircular niches or recesses for seats or sculpture. From the corridor or sculpture hall the various picture galleries are entered, and are so arranged that there is no necessity to retrace one's steps.

There are seven picture galleries, three of them being 50 ft. long by 32 ft. wide; the long gallery is 93 ft. long by 32 ft. wide, and the square gallery 32 ft. by 32 ft.

The interiors of the flanking pavilions are treated as octagons, and are also to form picture galleries; they are each lighted from the top by a glass dome, with panelled and ornamental plaster ribs and cornices.

The other galleries are all top lighted, the ceiling being formed with elliptical panelled plaster ribs and ornamental spandrels, Messrs. W. E. Rendle & Co.'s patent glazing being used.

The corridor on the ground floor is divided up by piers into squares and ellipses, and has small flat domes over each. At the ends of the corridors are circular staircases which lead up to the first-floor sculpture gallery, which is 15 ft. wide, and to the picture gallery over the vestibule, which is about the same size. The stairs are entirely in white marble, polished. The upper sculpture gallery is lit by circular skylights. The central sculpture hall is open at the first floor, and has an area with coupled Ionic columns with balustrades dividing it from the upper sculpture gallery, which runs all up into rooms, similar to the galleries, to be used for picture restoring and cleaning rooms, students' easels, store-rooms, offices, and boiler house. The basement is entered from the ground floor by circular staircases, which also lead to the lavatories and cloak-rooms in the basement.

The floors of the central portion are in Sicilian marble and marble mosaic, and the galleries have polished oak floors.

The warming and fire appliances are carried out by Messrs. Z. D. Berry & Sons, and the drainage, sanitary fittings, &c., by Mr. G. Jennings; the whole of the ironwork was done by Messrs. Handyside & Co.; Mr. Stone has supplied all the casements, iron doors, and window fittings, and Mr. W. Ramsey is carrying out the glazing; Messrs. Dennett & Ingles' fire-proof construction is used for floors; the carving has been carried out under the direction of Mr. Christopher Smith, and Messrs. Drake & Gorham and Mr. Russell are responsible for the electrical lighting, and (as before mentioned) Messrs. Rendle & Co. have done the roof glazing; Messrs. Starkie Gardner & Co. made the presentation key and ornamental ironwork, and the pavings have been done by Evans, Mainzer, Simpsons, and De Grelle & Co. The walls of the galleries are lined with Tynecastle tapestry. The builders are Messrs. Higgs & Hill. Mr. Sidney R. J. Smith is the architect.

Provision has been made for a considerable future extension of the building, by which the now existing hanging space would be nearly doubled. An illustration of the building appeared in our issue for January 2, this year.

COMPETITIONS.

UNION HOSPITAL, PATRICROFT, NEAR MANCHESTER.—On the 7th inst. the Barlow Board of Guardians recommended the following as the order of merit of the plans which had been selected for the erection of the new Union Hospital at Patricroft—1, Sanitas; 2, Red Cross; 3, Aut Optimam aut Nihil. It was stated that Messrs. Thomas Worthington & Sons, Lombard Chambers, 46, Brown-street, Manchester, had secured the first premium of 50l. for the plans signed "Sanitas." Messrs. Booth & Chadwick, Patricroft and Manchester take the second premium of 30l. with the plans signed "Red Cross"; and the third premium of 20l. was awarded to Messrs. Maxwell & Tuke, Manchester, whose plans bear the signature of "Aut Optimam aut Nihil." Mr. Berry, in reply to members, stated that after the Board had paid the premiums they were at liberty to accept what plans they choose for the erection of the new building in the grounds enclosing the new union workhouse.

BOARD ROOM, &c., ORMSKIRK.—Some time ago the Ormskirk Board of Guardians offered premiums of 20l., 15l., and 10l. for the three best designs for a new board room with committee-rooms, &c. There were twenty-four competitors, and these were reduced by the General Purposes Committee to twelve, whose plans were sent to Mr. J. Dod, architect, of Liverpool, for a final selection. His report and awards came before the Building Committee, and their recommendation that the awards be accepted was adopted by the board at its fortnightly meeting on the 9th inst. The awards were as follows—1, "Economy," Messrs. Willink & Thicknesse, architects, Castle-street, Liverpool; 2, "A.B.C.," Mr. H. E. Peach, architect, of Southport; 3, "Cawdor," Mr. Robert J. M'Beath, architect, of Sale, near Manchester. According to the conditions the Guardians do not bind themselves to carry out any design, and undertake to return all designs except the winner of the first premium, which becomes the property of the Board. The Building Committee were authorised to consider the designs with a view of recommending one to be carried out.—*Liverpool Courier*.

THE PARK HOSPITAL, HITHER GREEN, LEWISHAM.

ON Monday the Prince of Wales, accompanied by the Princess and Princess Victoria, opened the new fever hospital at Hither Green, Lewisham, which will be the ninth hospital under the management of the Metropolitan Asylums Board.

The building is situated on an elevated site (the highest in the district) near Hither Green Station, on the South-Eastern Railway, about three-quarters of a mile from Lewisham and six miles from London Bridge. The average level is about 95 ft. above high-water mark, there being a difference of over 30 ft. in altitude from east to west, and of 25 ft. from north to south. The "infected" buildings are generally about 100 ft. from the boundaries of the site. The site consists of 20 acres of ground.

The hospital is intended for cases of scarlet fever, enteric fever, and diphtheria, and the accommodation is as follows:—Scarlet fever, 48 wards for 368 patients; diphtheria and enteric fever, 24 wards for 120 patients; isolation wards, 36 wards for 60 patients. The disposition of these is shown on the accompanying block plan—the scarlet fever wards lying to the right, the diphtheria and enteric fever wards to the left, and the isolation blocks to the rear of the former. The pavilions are disposed on a roughly radial plan, and are connected by covered ways with the kitchen, stewards' stores, water tower, dispensary, and telephone exchange, all of which are in the centre, together with the male and female servants' residences, the latter facing the road. As the receiving rooms for the different diseases are at the outer or zone ends of the respective covered ways, the danger of patients suffering from different diseases coming into contact is very remote, all direct source of contagion being thus kept away from the central block, to which tradesmen and others have access. The nurses are located on the summit of the site, having to the south of their homes grounds where they may get rest and recreation away from the sight and sound of their work. To the south-east are placed the laundry, the boiler and engine houses, workshops, disinfecting house, well and water-softening apparatus. The medical superintendent's house is near the entrance and the offices. The discharging rooms, mortuary, post-mortem rooms, &c., are close by. The assistant medical

THE PARK HOSPITAL BLOCK PLAN



A Ward in the Park Hospital.

officers house is near the diphtheria pavilions, and the steward's house commands the entrance to the stores and kitchen yard.

The number of staff for whom accommodation has been provided is 310.

All pavilions are axially nearly north and south, and are two-storied, with fire-proof and sound-proof floors. There is no internal communication between the two stories—the upper floor being reached by an external staircase opening from the covered ways. Lifts are provided at each staircase for coals, food trolleys, &c. A scarlet-fever pavilion contains on each floor three wards—one for twenty beds, one for two beds, and one for one bed—a ward scullery, and other offices, the scullery being fitted with hot-plate kitchen, sink, &c. There are also provided a bath-room, two water-closets for patients and one for staff, sink-room, two bed-pan slop-sinks, lavatories, movable baths, &c. In addition to hot-water radiators, there are central open fireplaces and stacks of flues. In these central stacks every smoke-flue can be swept from the external basement. The smoke-flues are surrounded by aspirating-flues, which, being thus heated, induce an up-current, and so draw off the heated vitiated air from the centre of the wards. In each stack (which is externally made of glazed faience) are eight of these air-flues and four smoke-flues, and the whole are contained in an area 3 ft. 6 in. square. All these air-flues can be swept, and all have outlets on two sides. Throughout the

pavilions there is not a single buried pipe or inaccessible space of any kind. The linings of the sash-windows are made to open for sweeping. Weights and sash-lines can be removed and renewed without taking out the sashes. In some of the buildings is a new type of sash-window, designed by the architect. There are no hollow linings, the frame is solid but the sashes slide up and down. In addition, they are made to open inwards to throw the air upwards. They can be regulated to any angle, and can be opened to admit air through the full area of the frame—i.e. double the area of an ordinary sash-window. For "scouring" a ward this is of value. They can also be cleaned, painted, and reglazed from the inside. The mode of securing these sashes is by a fastener on the bottom rail, avoiding the necessity in high windows of steps. It also enables the sashes to be made rigid, so that they cannot rattle in a wind. In one of the wards ordinary hollow sash-frames have National Accident Prevention Window Company's sashes, which are hung on centre pivots, and are similarly accessible for cleaning, painting, and reglazing from the inside. The water-closets used are of the bracket type, fixed clear above the floor, which can thus be kept clean. The main waste from the baths is an open trench in the floor. Attached to the pavilions at both ends are airing balconies to which the beds can be wheeled for "sun" baths, and every pavilion has its own airing-court.

The laundry—divided into two parts for patients and staff respectively—is a long rectangle. Soiled linen enters at one end and passes through the several cleansing processes to the distributing-room at the other. The disinfectant is at the entrance to the laundry-yard, and is fitted with a Lyon's apparatus. The boiler-house is partly under the laundry. There are four large boilers with "Economiser" connected to the furnace shaft. The engine-room contains laundry-engine and the electrical plant of three engines and dynamos for lighting the hospital.

The hospital is to be supplied by water taken from the chalk, and the wells are now being sunk. The water will be pumped into a softening apparatus alongside, and thence to the water tower and the various other storage tanks. The water-tower forms a central feature, and contains a four-dial clock, visible from all parts of the premises. The kitchen-block is a one-storied building, the walls internally faced with glass. Close by are the larger (also faced internally with glass), the steward's stores, and all the servants' homes, &c.; this group enclosing a large yard.

The female servants' block contains a separate cubicle for each maid, large mess and sitting rooms, and offices. The matron's quarters consist of a separate "flat" in the same block. The male servants are similarly housed on the opposite side of the quadrangle. The nurses' home is divided into three houses, connected with glass and iron corridors on every floor as an additional means of egress in case of fire. Separate dining and sitting rooms are provided for charge and assistant nurses, and a common writing and reading room. Each nurse has a separate bedroom. In these residences, as well as in the fever pavilions, all water-closets, lavatories, &c., are in detached towers, approached by enclosed passages, so that every building is practically separated from its sanitary annex. All annexes are warmed, and hot water is laid on to baths and lavatories.

There are telephones in the various buildings, and from any one an official can communicate with every other building throughout the hospital. Fire hydrants are fitted throughout the buildings and in the yards, and fire-alarms in every block communicate with six alarm bells in various parts of the hospital, while a special arrangement is made to call all the staff together in emergencies. It has been already noted that covered ways connect all parts. These are of brick and concrete. The floors and steps are of red granolithic concrete. Under all these covered ways are well-lighted subways in which are fixed the water and steam mains and heaters, electric light, telephone and fire alarm cables, &c., all accessible at any point for repair.

The heating of the hospital is carried out on the

low pressure hot water system, the heat being generated separately in each pavilion by means of one of Messrs. Z. D. Berry & Son's improved multitubular heaters, fixed in the subway at the point where each pavilion branches from the main corridor. A flow and return main is then taken off the heaters, and run right round the walls of the pavilions under the ground floor, and vertical pipes are taken from this main to supply the radiators on the ground and first floors, a separate pair of verticals to each radiator on each floor. Steam is conveyed from the boilers to each of the heaters, and the condense water from each heater is collected into a condense main and taken back to the hot well in the boiler-house, and thence pumped back to the boilers. The wards are heated by means of radiators fixed in cast-iron cases. Behind each radiator are two large fresh air inlets fitted with cast-iron hit and miss gratings, and coupled together and connected with a lever taken to the top of the radiator case, so that the quantity of fresh air may be regulated; the fresh air is then warmed and discharged into the wards through a large hit and miss grating constructed in the top of the radiator case. The radiator cases have been specially designed to meet the requirements of a fever hospital. Each case is fitted in the front with a large pair of doors which are opened with a key so that the interior of the case and the radiators can be dusted out and thoroughly cleaned by those in charge of the wards. In the bottom of each door is provided a hit and miss grating, which in very cold weather enables the air in the wards to be circulated through the radiator. The hot water which supplies the baths, lavatories, sinks, &c., is generated in a multitubular heater similar to those used for the hot water heating (one for each block), and a flow and return main is run by the side of the main for heating, and branch loops are taken off to supply the various fittings. All branch loops are in circulation. The whole of the horizontal pipes and valves are so arranged that they can be attended to and examined without the engineer having to enter the wards.

There are some six miles of pipes within the area of the hospital. The various diseases are kept separate in the drainage scheme, and all "non-infected" drains are kept distinct from the others. The manholes or inspection chambers are of solid glazed fire-clay (Borden's patent), the bottoms and all the branches being cast in one piece. The pipes are of the Archer jointed type, laid on and covered with concrete. The whole pipe system is divided into separate lengths for efficient ventilation, and all drains are fitted with flushing tanks.

The architect of the hospital is Mr. Edwin T. Hall, and his design was selected in competition. Mr. Turner has acted as chief clerk of works, and Mr. Mansell as assistant clerk of works. In the special electrical work Mr. Wray was clerk of works. The electric scheme has been designed and supervised by Messrs. Burstell & Monkhouse, civil engineers. Mr. Dolby, C.E., has advised on the mechanical engineering throughout, and has supervised the erection of the boilers and machinery. The contractors were Messrs. Leslie & Co., Limited, of Kensington. The contract sum is 210,000*l.*, a little less than the architect's estimate. The work has been carried out under the personal supervision of Mr. Shingleton, Managing Director of Messrs. Leslie & Co., assisted by his manager, Mr. Kitchener, and the general manager of the works, Mr. Easter. Messrs. John Hall & Co., of Southampton, supplied all the ivory-coloured glazed bricks used in the building. Messrs. Colledge & Bridgen made and supplied the locks, lock furniture, and brassfoundry work.

Additional particulars of the building, and illustrations will be found in our issue for September 8, 1894.

REFUSE DESTROYERS.

This was the title of a short paper read recently by Mr. H. P. Boulnois at the Engineering Conference of the Institution of Civil Engineers. The paper was read before the "Waterworks, Sewerage, and Gasworks" Section, and was as follows:—

"It is clearly the legal duty of local authorities to remove the contents of ashpits or dustbins where the contents are not trade refuse, and this is effected with more or less expedition and care by nearly all the local authorities throughout the country. The quantity of refuse that thus has to be removed and dealt with in some manner varies in every community and at various seasons of the year, but it may be roughly estimated at about $\frac{1}{2}$ -ton of refuse per head of the population per annum. Without touching upon the various methods at present adopted for the purpose of disposing of the refuse thus collected, the author will at once state what are the necessary requirements of a good refuse destructor, bearing in mind that the refuse is never destroyed, but is converted by heat into steam, vapour, and various gases, leaving behind a varying quantity of fine ash and clinker.

Ease of access is very necessary, as cartage beyond certain limits would convert any saving by this process into a loss.

A suitable locality is important, for if a destructor is properly constructed and managed, it need be no nuisance to the neighbourhood, except from the frequent passing of the carts.

Steep gradients either to the site or to the platform of the destructor are obviously to be deprecated.

The tipping-platform is an important feature; any crowding of carts or difficulties add greatly to the cost and to the chances of nuisance.

Strength of construction in all its details are essential in a destructor that is roughly handled and subjected to fierce and varying temperatures, and where any breakdown seriously dislocates the disposal of the refuse, which must be dealt with day by day and hour by hour.

Ease of charging the furnaces is most important on economical and sanitary grounds. The organic matter contained in house refuse should not be heated in any way until it is absolutely in the furnace, and the less it is handled with or without tools, the more sanitary and economical is the process. Any picking or sorting of the filthy mass is, in the author's opinion, objectionable, and it should be put direct from the cart into the fire if possible.

The question of the heat generated in a destructor furnace is the crux of all such processes, and many are the opinions expressed on this point.

If too fierce a temperature, injury may be done to the firebrick lining, or even to the destructor itself. If too low a temperature, complete destruction does not take place. The heat is nearly always a question of how much air is admitted by steam blast or fan, the area of fire-grate, and the form of flue and dimensions and height of chimney. In some cases temperatures of only about 800 to 900 deg. F. are raised in the cells, but the fumes are made to pass over cremator fires, where coke-breeze fires double the temperature of these fumes. In other cases the temperature in the cells is raised by air or steam blasts to 1,500 or 2,000 deg. Time will not permit the author to discuss these questions, which will, no doubt, be taken up by his hearers.

Speedy and complete combustion is, however, essential, as the more refuse which can be passed through each cell the better; but it is useless to pass it through unless there is complete combustion, as the fine ash and clinker left is nearly proportionate to the heat in the cell, and varies from 24 to 33 per cent. of the refuse dealt with. It follows that the less clinker the more economical the process, and the less organic matter left in the clinker the more sanitary the process. The ease and speed with which the clinker and ash can be removed from the furnace depends in large measure upon the form of cell and fire-bars. The nature of the material burnt produces a clinker which adheres tenaciously to the sides of the furnace and to the bars, and several modifications of moving, rocking, or joggling bars have been introduced, as well as hollow sides to the furnaces, to minimise this evil.

It is almost unnecessary to say that the avoidance of all nuisance is essential with refuse destructors, and that it is difficult of accomplishment, owing greatly to sentimental objections. Possible nuisances may, however, arise—(a) From the concentration of the carts conveying the material to the destructor; (b) from the fumes or fine ash from the chimney; (c) from dust blowing about; (d) from vapours of distillation, if the refuse is only partially burnt or allowed to 'stew' on the charging platform. The first of these can only be avoided by having properly constructed and covered carts or waggons for the conveyance of the refuse. The second can be avoided by height and construction of chimney, and the placing of screens at its base, or by ensuring such heats that nothing but harmless gases shall pass up the chimney from the flues. The third possible nuisance is more difficult to avoid, especially in high winds; but if the destructor is surrounded by high walls, and the refuse is not allowed to lie about, but is tipped directly into the furnaces, or other suitable arrangements are made, this nuisance is only confined to the premises themselves. The fine ash drawn from the furnaces can be received directly into movable covered receptacles, and thus at once confined until it is tipped out on the heap, or wherever is its ultimate destination. The last nuisance can easily be avoided by not allowing the refuse to remain on the charging platform, but by tipping it into iron tanks, from which it is discharged directly on to the fires in the furnaces.

Economy in working is essential, as otherwise the process of burning the refuse would be abandoned for some less costly process, such as barging away to sea, or tipping into quarries, etc. The less handling or labour in the process the less cost. It is difficult to arrive at any definite conclusion as to what the average cost of destruction is, as in the returns so many varying elements are usually taken into consideration; but it may be assumed that 10*d.* per ton covers labour. The cost of burning the refuse is, of course, lessened if the clinker can be utilised at a profit either for mortar, flag-making, or other purpose. The cost is also much lessened if the heat generated can be usefully applied.

As to the utilisation of the heat generated, some exaggerations have been made as to the thermal value of house refuse; but there is no doubt that a greater use may be made of the heat generated than has hitherto pertained. This can be done by placing the boilers in more direct contact with the heat than in the flues, and by increasing the heat in the cells. The author suggests that the following trials should be made in order to arrive at an approximation of the so-called H.P. derivable from any refuse destructor:—

- (a) Time of duration of trial.
- (b) Total amount of refuse burnt.
- (c) Refuse burnt per hour.
- (d) Refuse burnt per square foot of grate area.
- (e) Total gallons of water evaporated per hour.
- (f) Quantity of water evaporated per square foot of grate area.
- (g) Water evaporated per lb. of fuel at 80 deg. Fahr.
- (h) Steam pressure.

If some such experiments as these could be made by the same individual with a number of destructors, and a fixed allowance of water evaporated per H.P., some valuable statistics would be produced. It must be remembered that house refuse as a fuel varies in quality in every town—it varies with the seasons, it varies daily and almost hour by hour."

THE NATIONAL TRUST.

On Friday afternoon last week the annual meeting of the National Trust for Places of Historic Interest or Natural Beauty was held in the rooms of the Society of Antiquaries, Burlington House, Piccadilly, the chair being occupied by the Duke of Westminster, President of the Trust.

The hon. secretary (Rev. Canon Rawnsey) read a letter of apology for absence from Mr. Frederick Harrison who, in wishing all success to the movement, expressed the hope that some day it would be found practicable to preserve the Tower of London—the entire Tower, and all its wards and remains—from the desecration and risk involved in maintaining private families and troops within it.

In their annual report the Council stated that from the beginning of July, 1896, the Trust had been active, with most satisfactory results in all these branches of its work to which it was the object of its existence to devote itself. The undertaking which stood first in importance among those carried out by the Council was the purchase of Barras Head, near Tintagel. The Council wished it were possible to speak in an equally encouraging manner of the work which was being carried out at Alfriston, near Eastbourne. The old Clergy House there, which was an almost unique monument of the dwellings of the pre-Reformation secular clergy, was made over to the Trust for a nominal sum, and the Trust, acting always with the co-operation and valuable help of the Society for the Protection of Ancient Buildings, had continued, as far as the sum at their disposal had allowed, to carry out such work as was absolutely necessary for its preservation. This consisted of making the building water-tight, putting it into permanently safe condition, and enacting the damage caused by the division of the building into labourers' cottages. It was hoped the supporters of the Trust would not allow its first purchase to be rendered abortive through lack of funds to carry out the necessary work of maintenance. By deed of gift the Trust had become the Guardian of the Falkland Monument, which had been transferred to them by the Newbury Field Club, and was a comparatively recent memorial to Lord Falkland and others who fell in the battle at Newbury during the Civil War. The thanks of the Trust were accorded to Mr. W. G. Mount, M.P., for the retelling of the transcription, and to Mr. Valpy, of Newbury, who kindly took upon himself the expense of some small repairs necessary to the base of the monument. The cases in which the Council had acted by protest were numerous enough. The growth of popu-

lation in this country was accompanied by almost daily danger to some building or place of historic interest or natural beauty. When indispensable works of utility were being carried out, it was often the case that a little extra expenditure of care and thought on the part of those responsible for the planning, arrangement, and conduct of such works would obviate such needless acts of destruction or the careless desecration of natural scenery. A case in which the protest of the Trust, in co-operation with the Society for the Preservation of Ancient Buildings, was effective was that of a proposed addition to the almost unique group of buildings known as the Hospital of St. Cross, near Winchester. These buildings, the report remarked, have amongst their notable features an entrance gate and tower over it, a church—of Norman date—and a quadrangle, round which are grouped the dwellings of the inmates, with a cloister-walk on one side. They are situated about a mile from the city of Winchester, and are unspoiled by the existence of incongruous structures in the neighbourhood. Indeed, almost the only externally visible changes the buildings had had to undergo since they were completed by Cardinal Beaufort in the middle of the fifteenth century had been those of diminution, not of accretion, one of the four sides of the quadrangle having been pulled down in 1790. It was with great regret that the Council had been obliged to witness the destruction of one of the few remaining portions of the old Abbey buildings of Westminster under their very eyes. The old wall in Great College-street is the south boundary of the precinct of the Benedictine Monastery of Westminster, and from the day it was built until February, 1897, it existed practically unimpaired. In that month, however, a portion was pulled down in order to make way for a boarding-house for Westminster School, to be erected under the design of a well-known architect; and it is understood that the building scheme contemplated will involve the destruction of a further portion. This was pre-eminently a case, it would have seemed to the Trust, in which to compromise between the claims of antiquity and present utility might very well have been made; but here, again, it had once more been exemplified how easy and thought-saving it was to destroy; how unwilling were even those who had had the best opportunities for learning what the past had to teach, to take the extra trouble involved in providing for the preservation of its remains. The case of Peterborough Cathedral, again, was one in which the Trust joined in the protest against what it believed to have been the precipitate and ill-considered action of the Dean and Chapter. With regard to the Chelsea Embankment, the proposals of the London County Council as to the extension of the existing embankment, between Battersea Bridge and the Railway Bridge engaged the attention of the Council; and in this case they were able to obtain a modification of a scheme which seemed to them to include objectionable features. The original suggestion of the County Council contained, among others, the following two proposals: one, that the embankment should be taken in a straight line right across the reach, without any regard to the natural curve of the river; the other that the land so reclaimed should be used for building purposes. They had the satisfaction of subsequently receiving an assurance that the proposed embankment, as shown on the deposited plans was arranged in conformity with the curve of the river, and that it was the intention of the Council to keep the land reclaimed as an open space. Parliament was, however, of opinion that no sufficient case for the expenditure of public money on the proposed embankment had been shown, and the scheme had therefore been abandoned. The movement for the preservation of open spaces was indeed one which engaged much of the attention of the Council. Among the numerous projects which had been set on foot during the present year to commemorate the Queen's long reign was one which had been promoted by this society in connexion with the Commons Preservation Society, the Kyrle Society, and the Metropolitan Public Gardens Association. A joint circular was sent out to all the local authorities in the kingdom suggesting the idea that each locality, which was taking common action for the purpose of founding some memorial, should provide for itself a plot of ground, or place of natural beauty or historic interest to be dedicated to the common use or enjoyment of its people. This idea had been acted upon in more than a hundred cases. The Town Council of Tamworth had recently acquired the freehold of the historic castle and once royal residence of Tamworth, which stood surrounded by its grounds and partly bordered by running water in the middle of the borough. Similar to this was the action of the Corporation of Rochester in undertaking to acquire the beautiful half-timbered building known as Eastgate House, to be preserved as a local museum, and of the Town Council of Tonbridge in acquiring the old gatehouse and castle, with its surrounding gardens there. Similarly the Corporation of Newcastle-upon-Tyne had obtained a lease of the old tower known as the Herber Tower, with a view of preserving it from destruction, and had also undertaken to prevent any further damage to the interesting old house known as St. John's Palace, in Henton Park. It was to the awakening of local bodies to a conscientiousness of the value

of historic buildings and places in their own neighbourhood that they must look in a large measure for the preservation of such buildings as at present only too often disappear under the operations of individual speculators. Reference was made last year to the old Joiners' Hall, at Salisbury, an interesting half-timbered structure which could be bought outright for 600l., with a clear prospect of returning a moderate dividend on the outlay. Since making this announcement the Trust had had an offer to provide the purchase money required subject, of course, to a reasonable guarantee as to the proper management of the property, and a sub-committee was now engaged in studying the best practical means of carrying this proposal into effect.

The Duke of Westminster proposed the adoption of the report.

Sir Robert Hunter, in seconding, said that the first and main object of the Society was to hold interesting monuments and buildings for the benefit of the country. In that respect the Society stood alone. At their own doors, the London County Council, which could not be looked upon as a conservative body, had during the year appointed a special committee to watch over the ancient buildings and places of architectural or historic interest in London. That sub-committee had recommended that a register or list of buildings of historic or architectural interest in London should be kept; and it would remain to be seen what subsequent steps should be taken. It must be of very vital importance that London should know what interesting remains it possessed, and should have notice when any of them were threatened by removal or by the construction of any new buildings or railways. That this work should be taken in hand in its initial stage by the controlling body of the metropolis was a matter for sincere congratulation. The Council had issued papers to correspondents and friends in various parts of the country with the view of procuring something like a catalogue or register of interesting buildings and ruins remains. Although no doubt local antiquarian societies had such records, there was no official or complete statement of the possessions of the country in this respect, and it was a matter of importance that such should be procured. Many of these places were in no way safe, and might be threatened at any moment. Another matter to which the Society had given attention was in connexion with the legislation which had been passed in other countries for the preservation of monuments, historic buildings, and beautiful scenery. In Ireland there was a much more effective Act for the preservation of these than existed in England. He did not know if the legislation which existed in France could be introduced in England, but he did hope that next session what legislation would be most appropriate would be considered, and that at least the Irish Act should be extended to England. He did not know that in the making of towns that the English stood forth as skilful. In all the new towns there was a tendency to radiate from the business centre in a formless, heterogeneous way, and any monuments or buildings with historic associations were ruthlessly destroyed in the process of making them. When one went abroad, even to towns of fourth or fifth-rate importance, one was impressed by the plenitude of public buildings, and generally by the conscientious effort to make the life of the community tolerable. These were conspicuously absent in all our large towns, but even in London there had been lately more of a desire to preserve what was left of history written in our buildings and ruins, and to make better provision of what they might call the amenities of public life.

Sir John Brunner, Bart., also spoke, and the report was ultimately adopted.

The Right Hon. J. Bryce, in proposing the re-election of the office-bearers of the Trust, mentioned three instances of the great destruction that had been caused to historical places. The first of these was that wrought on the only remains of Roman antiquity which they had in the neighbourhood of London. The present condition of the Roman camp at Wimbledon was due to an accident to some extent, but still it had suffered a great deal within the last twenty-five years. In India we came into possession of a most magnificent series of buildings, but destruction had to a great extent followed them. At Allahabad the great baroque hall, which was a splendid example of the work of the Mogul architect, had been cut in two, and converted into a barrack. In a similar case, within the last fourteen years, the ancient castle of Northampton was destroyed in order to make room for the goods station of the

London and North-Western Railway Company. These three occurred to him out of an immense number of cases. Surely it became them to bestir themselves in order to stop this process of destruction. He admitted that there were cases in which beauty of scenery must give way to matters of practical convenience, but there were other cases where the traditions of practical convenience were very slight. Even in cases where it might be necessary that a railroad should be made there were many precautions which might be taken to prevent it spoiling the beauty of the scenery. They would agree with him in thinking that the railway engineers required to be very carefully watched, and that there should be some better safeguard for ascertaining whether their undertakings would seriously injure the scenery, and, if it became necessary to sanction them, whether the injury which would be inflicted could not be mitigated by conditions imposed on their construction. These considerations seemed to suggest that there was a need for even wider action than what the National Trust was able to take. The functions of the Trust should be enlarged so as not only to accept gifts made to it, but also to undertake the duty of safeguarding these objects of national interest, and of agitating for their preservation, and oppose those who endeavoured to destroy them.

Sir Henry Howarth seconded the re-election of the office-bearers.

Professor Geddes and Miss Octavia Hill also spoke.

A vote of thanks to the Duke of Westminster for presiding concluded the meeting.

Illustrations.

BUILDINGS IN DERBY.

THE subjects of our illustrations this week all relate to the architecture of the town of Derby, which forms the subject of the leading article, being No. VIII. of the series on "The Architecture of our Large Provincial Towns."

The buildings illustrated are the Town Hall, St. Mary's Church (by Pugin); All Saints Church, with a mediæval tower to which Gibbs attached a classic nave; the Deaf and Dumb Institution, by Mr. E. Ryley; St. Werburgh's Church, a modern Gothic church by Sir A. W. Blomfield, in which the ancient tower however is retained; the Free Library, by Mr. R. Knill Freeman; Bolton; the Infirmary, by Messrs. Young & Hall; the Technical College, by Messrs. Waller & Son, of Gloucester; and the Gas Offices, by Messrs. Naylor & Sale.

All these buildings are referred to and commented on in our first article.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A special general meeting of this Institute was held on Monday, at No. 9, Conduit-street, Regent-street, Mr. H. L. Florence in the chair.

The alterations in the by-laws required to carry out the resolutions passed at the meeting of June 14 were duly confirmed, and it was resolved that the following paragraph be added to by-law 9:—

Provided always that when the Council of the Institute receive a unanimous recommendation formally submitted by the Council of any allied society that a practising member of the profession in their district is eligible and worthy of being elected a Fellow, the Council shall have power to elect him, his work being of sufficient merit, and that the operation of this provision be limited to a term of five years. The Council may also admit annually to the Fellowship, without ballot, the President or President-elect of any or all of the allied societies who may be eligible and apply for admission.

It was further resolved that clause (a), by-law 15, be added to as follows:—

Provided always that the Council may, during their pleasure, dispense with the payment of an entrance fee in the case of non-metropolitan Fellows.

The Chairman then announced that the following candidates had passed the June preliminary examination, and had been registered as Probationers:—

C. G. Agate, A. R. Aiken, T. F. Amery, M. D. Barton, J. H. Belfrage, S. C. M. Bellairs, R. Berrill, A. W. Blomfield, J. S. Brocklesley, P. A. Brohier, H. Brown, J. T. Burt, T. J. Byrne, A. E. Catt, J. C. Clark, F. Clegg, W. E. Couch,



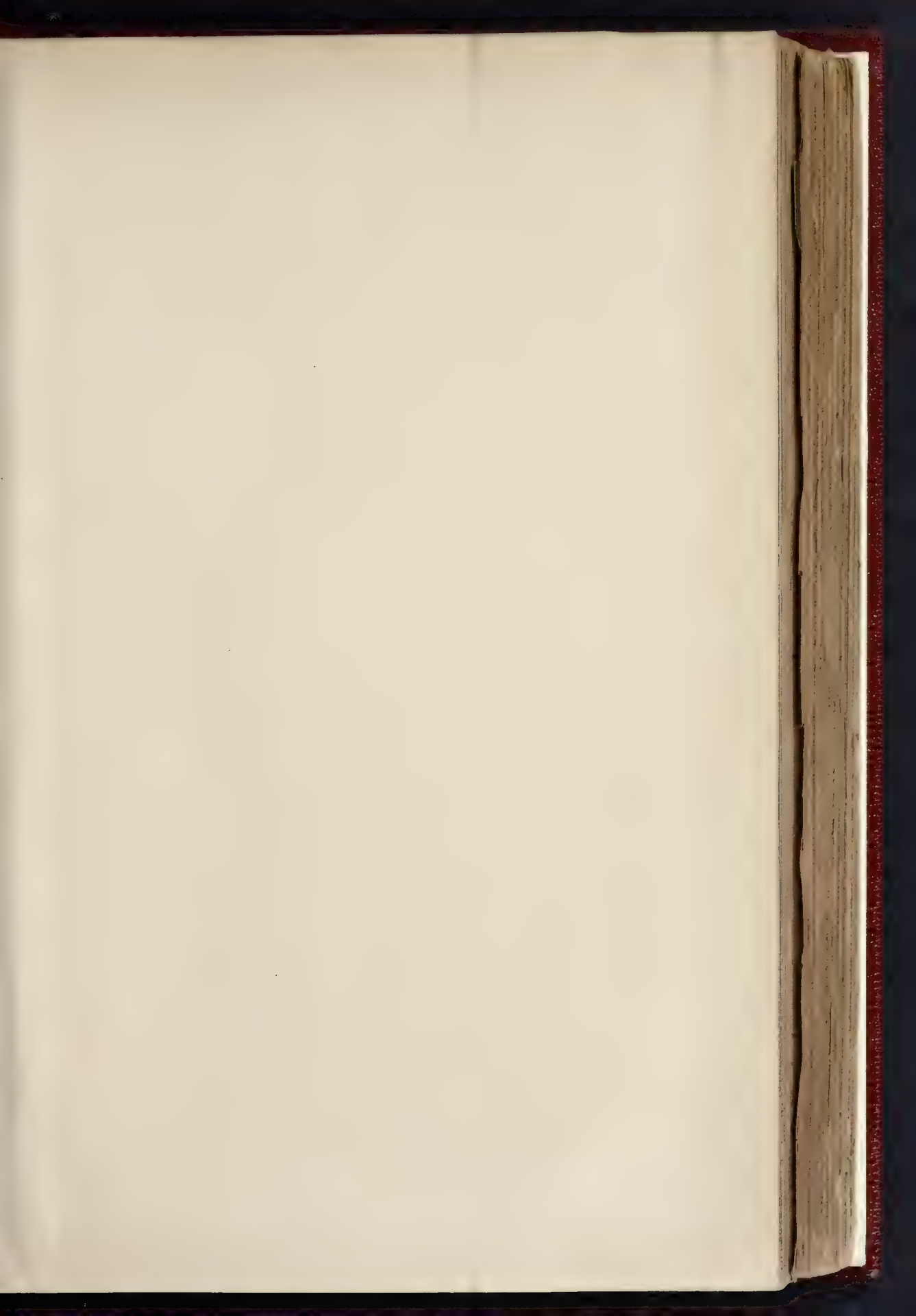
ST. MARY'S CHURCH



THE TOWN HALL
DERBY ARCHITECTURE



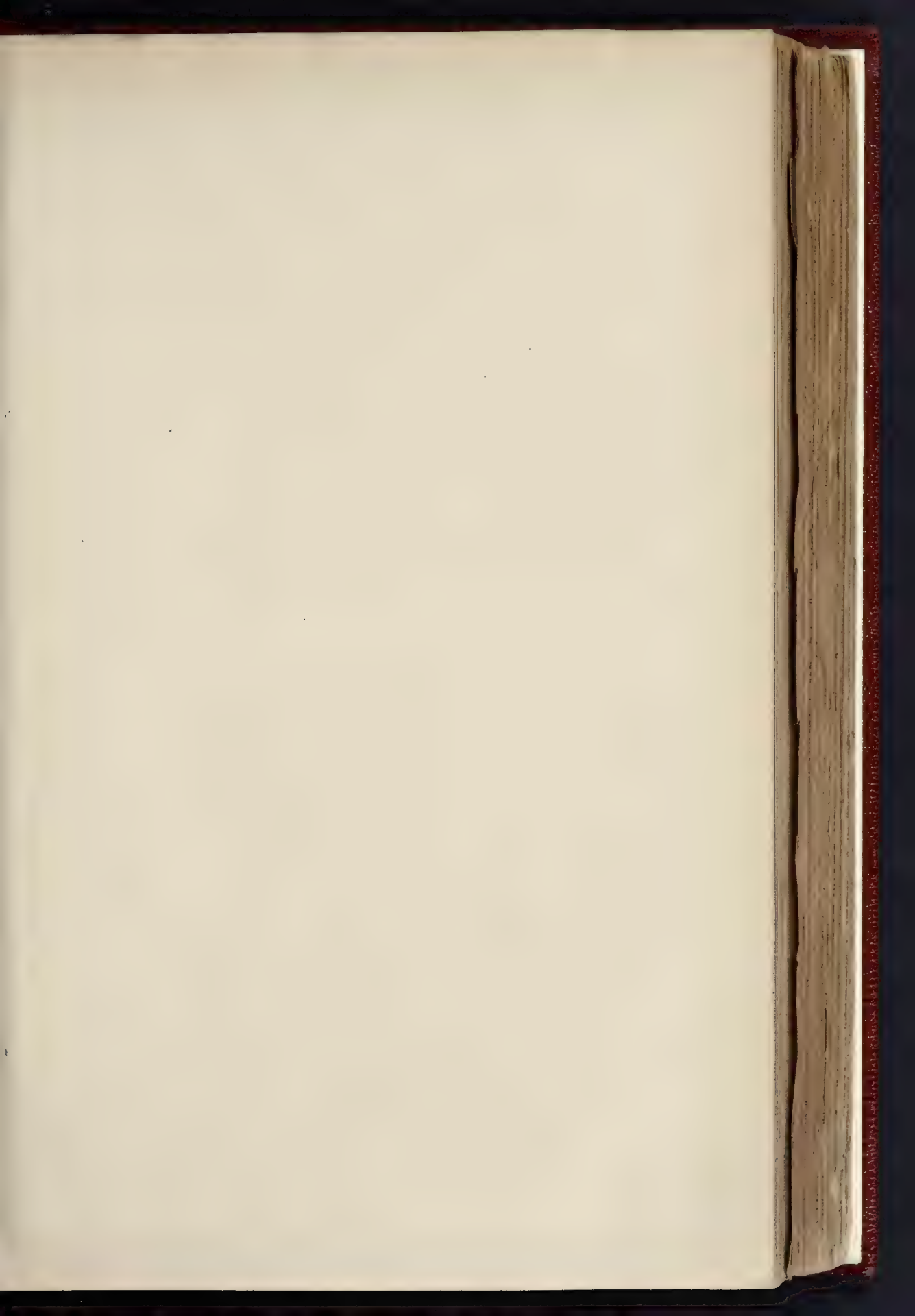
ALL SAINTS CHURCH

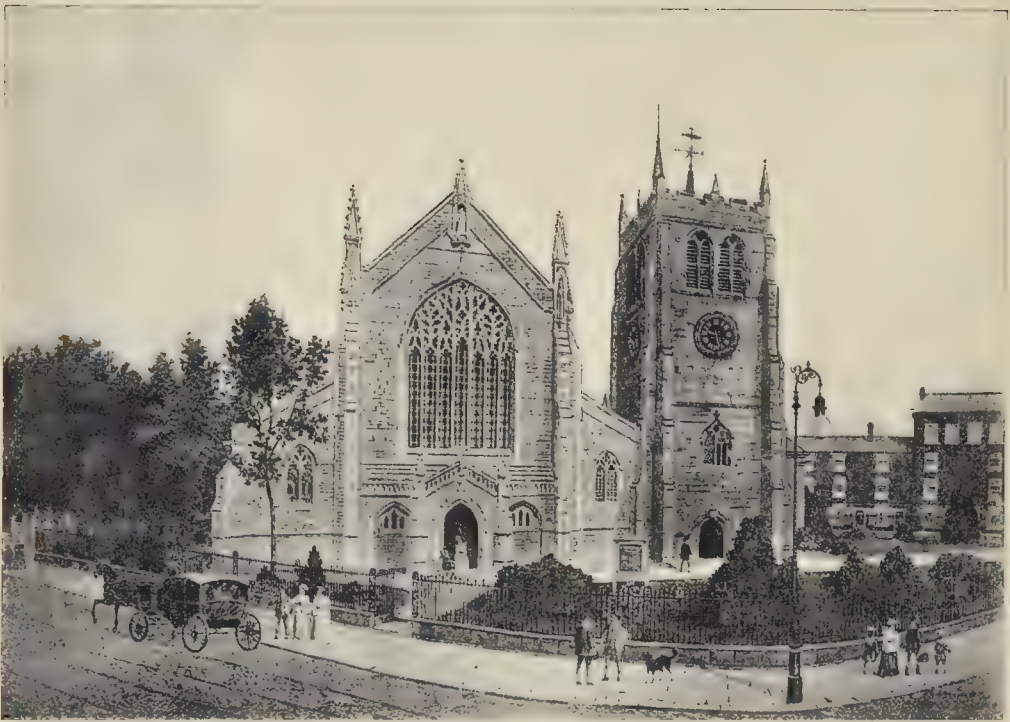






AF AND DUMB INSTITUTION.





ST. WERBERGH'S: EXTERIOR.
(The modern portion by SIR A. BLOMFIELD, A.R.A.)



ST. WERBERGH'S: INTERIOR. SIR A. BLOMFIELD, A.R.A.



THE FREE LIBRARY. (MR. R. KNILL FREEMAN, F.R.I.B.A.)

DERBY ARCHITECTURE.



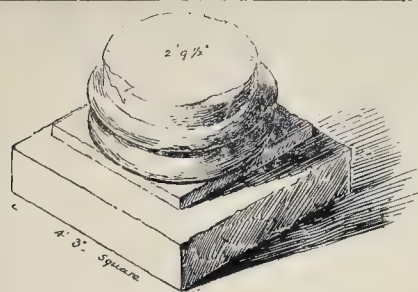
THE INFIRMARY (MESSRS YOUNG AND HALL)



THE TECHNICAL COLLEGE (MESSRS WATKINS & SONS)



THE GAS OFFICES



Base of Column discovered in Northgate-street, Chester,
July 6, 1897.



Half Elevation and Section
(the dotted lines show section
through angles).

D. W. Crawford, A. G. Crimp, P. B. Dannatt, W. J. Davies, P. M. Davson, S. C. Densham, O. S. Doll, J. L. Donnelly, B. Drummond, A. A. Eedes, R. G. G. Ell, P. C. Farquharson, C. Finch, A. Foxley, C. George, D. M. Gordon, L. U. Grace, J. V. Gray, T. Gregg, W. G. Green, T. H. Griffiths, J. P. Hall, H. A. Hardcastle, G. R. C. Harding, S. Harrison, J. Haslam, R. H. Haslam, A. D. Haxton, C. H. R. Hennian, H. W. Hobbs, H. R. Houchin, E. E. Insley, H. M. Jeffery, H. W. J. Jones, J. Keenan, F. L. Koelman, L. A. Loades, G. W. Lord, B. Sc. W. T. Loveday, H. B. McKenzie, W. P. Marr, R. H. T. Mayhew, A. J. Mays, L. Morris, P. E. Nobbs, M. A. E. B. Norris, E. G. Nye, W. M. Opie, A. Wyatt Papworth, Harry Prince, J. Quail, E. W. Ralph, J. G. Ross, H. A. Rowbotham, J. T. Scobie, G. M. Scott, E. J. Sharp, G. L. T. Sharp, W. B. Simpson, J. E. Spain, G. Spragg, E. G. Stevenson, E. J. J. Swindells, Noel Thomas, F. Thorpe, W. G. Trew, A. R. Wells, P. Westcott, A. N. Williams, C. L. H. Williams, W. N. F. Woodland, E. L. Wratten, F. Wrigley.

The following have passed the Intermediate, and been registered as Students, their names being given in order of merit:—J. A. Moore, A. H. Verstage, H. T. Bromley, L. E. Pryke, J. Goodland, H. Cooper, T. S. Gregson, C. W. Smith, E. F. Reynolds, H. J. Pearson, T. B. Ball, K. Gammell, T. M. Smith, A. H. Goslett, H. F. Ponton, C. Hale, F. Newman, W. Driffield, G. S. Nicol, T. E. Abbott, C. H. E. Bridgen, H. Cayley, E. V. Harris, C. E. White, A. Pickup, A. H. Foster, R. H. Butterworth, W. C. Butterworth, H. A. Douglas, G. R. Ellis, J. Embling, H. W. Featherstone, J. S. Heath, A. H. Locock, A. E. Watson.

The following have passed the examination qualifying for Associateship:—W. S. Bates, J. H. Coram, J. R. Fleming, G. W. Hatcher, R. H. E. Hill, T. Honnor, E. W. Marshall, P. W. Meredith, P. Morris, S. S. Reay, C. D. Rochester, A. J. S. Shaw, H. C. Sinnott, Osgood Smith, H. C. Trimmell.

The meeting then terminated.

THE ROMAN COLUMN BASE AT CHESTER.

THE accompanying sketch shows the appearance and a sketch section of the mouldings of the base of a Roman column discovered on the 6th inst., in Shoemaker's-road, Northgate-street (not far from the crossing of the main street). It was found in excavating the foundations for a new building. It stands upon rock, which in this case appears to represent the original level of the ground, only about 2 ft. below the present level of Northgate-street, which is unusually near the modern ground level for a Roman ground line in a city; in other words, the usual rise in the surface in cities seems to have been checked here by some local circumstances. A piece of entablature, and some other fragments, were found near the base.

CHURCH, HORNSEY.—The memorial stone has just been laid by Mrs. Creighton, wife of the Bishop of London, of the permanent Church of St. Peter, Hornsey, now being erected in Wightman-road. The new church is designed to accommodate 950 worshippers when completed, the total cost of building and furnishing being estimated at 10,000. The architects are Messrs. James Brooks & Son, of London, and the builder is Mr. W. Parmenter, of Baintree. An illustration of the building appeared in our issue for August 15, 1896.

friezes—indicating the great prosperity of the city under the Roman Empire.

ESSEX ARCHÆOLOGICAL SOCIETY.—The excursion of the Essex Archæological Society took place recently to Southminster and neighbourhood. The party assembled at Southminster Railway Station. At Asheldham, by the water tower, some earthworks were visited. These are nine or ten acres in extent, and Dr. Laver explained that it was impossible to say the date of their construction: it was either British or Saxon, or it might be even Danish. Up to a few years ago this earthwork was not noticed. At Asheldham Church Mr. G. F. Beaumont read notes, and the company drove on to Bradwell-on-Sea. Luncheon was provided at the King's Head Inn, and at the close Mr. J. C. Gould read a brief sketch of the career of Sir Henry Bate Dudley, "parson, fighter, squire, magistrate, editor, author, playwright, poet, farmer, surveyor, or engineer." The party proceeded to "Othona," the site of a Roman camp, on which stands the ruins of St. Peter's Chapel. What remains of this old chapel, the walls of which are composed to a great extent of materials taken from the old Roman castrum, is now used as a kind of barn.

LINCOLN AND NOTTINGHAM ARCHÆOLOGICAL ASSOCIATION.—The members of the Architectural and Archæological Society of the counties of Lincoln and Nottingham visited Louth recently. Leaving Louth shortly after ten o'clock the party proceeded in waggons on an excursion in the marshes. On the outward journey Grimsby, South Cockerington, South Somercotes, North Somercotes, Skidbrook, and Saltfleet were visited. At Grimsby the church of St. Edith was inspected. It is a Gothic fabric. The chancel was restored some twenty years ago, and the interior thoroughly renovated in 1890. The church of St. Leonard at South Cockerington is noted for a fine chancel screen and an altar tomb, on which rests the effigy of Sir Adrian Scrope (who died in 1623), with the figures of his seven sons and two daughters at the side. Near the entrance of the church is an ancient holy water stoop. St. Mary's, South Somercotes, was next inspected. The tower contains three bells, two of which are dated 1423. At the next halting place (North Somercotes) the church of St. Peter was inspected, and at Skidbrook the pulpit of the time of Charles II., in St. Botolph's Church, was much admired. At Saltfleet the party had lunch. On the return journey the excursionists halted at Saltfleet (St. Clement's and All Saints'), Theddlethorpe (All Saints'), Great Carlton, and Legbourne. The tower of the old church at the first-mentioned place alone remains, the other portion of the edifice having been pulled down some twenty years ago and the materials used in the construction of a modern building, but the Church of All Saints', Theddlethorpe, is a structure of the fourteenth century, containing several carved screens. St. John's Church at Great Carlton was also the object of a good deal of interest. It is an Early English edifice. The tower was rebuilt nearly forty years ago. The building contains a reredos, which encloses a representation of the Last Supper. At Legbourne the attention of the party was drawn to the remains of the old Cistercian Priory founded by Gilbert de Lekeburn before the reign of King John. The Church of All Saints' was also inspected. It was restored thirty years ago, several stained-glass windows being inserted.—The dinner at night was followed by a public meeting, at which the Mayor of Louth (Alderman H. D. Simpson) presented an address on behalf of the Corporation and burgesses. The address gave a cordial welcome to the members of the Association, and referred to its foundation at Louth in 1844. A paper on Louth Church was read by Mr. J. J. Cresswell, and Mr. R. W. Goulding (the local secretary) gave a paper on "The Lords of the Manor of Burwell." In illustration of Mr. Gresswell's paper a subscription list for the re-pewing and re-seating of the church, dated 1730, and the Bishop of Lincoln's charters, dated 1317, founding the chantry of Thomas de Luda in the chapel of the Blessed Mary, Louth, were exhibited; and Mr. Goulding's paper was illustrated by several engravings, &c.—On the second and concluding day of the excursion, a visit was paid first to St. James's Church (the parish church) of Louth, the interesting features of which were pointed out and described by Mr. J. J. Cresswell. To all intents and purposes it is a fifteenth-century church, built in the following order: The chancel from about 1400 to 1445, the steeple from 1445 to 1500, the nave,

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—At the general meeting of the Royal Archæological Institute on the 7th inst. (Judge Baylis, vice-President, in the chair, Mr. F. G. Hilton Price exhibited a silver water-bailiff's mace, 6 in. long, consisting of a tube or barrel, surmounted with the Royal crown. At the lower end of the tube is a small seal-shaped cap which unscrews. This tube or barrel is the receptacle for a silver oar, 4½ in. in length. When the water-bailiff or constable was ordered to board a ship to arrest some offender, he would proceed to unscrew this end, withdraw the little oar, refix the cap and screw the oar into a hole in the cap, thus forming an instrument 10½ in. in length. When closed it formed a constable's staff for service on shore. The hall-mark on the mace is nearly obliterated, but the shaft of the oar bears a hall-mark with date letter P, for the year 1830, and the maker's mark, "F. H." Chancellor Ferguson exhibited a hippo-sandal, into which he had placed a horse's hoof, showing it to be undoubtedly a horse-shoe, probably used to protect a broken or injured hoof. It was discovered in a Romano-British village near Kirkby Lonsdale in Westmoreland. He also exhibited two hippo-sandals of neo-archaic date, one from Poulton-in-the-Fylde in Lancashire, the other from the banks of the Solway, and both formed to enlarge the surface of the tread, so as to prevent the horse sinking in the soft mosses once peculiar to those districts. Chancellor Ferguson also exhibited three photographs of an iron chest which was recently brought to light in the post-office at Carlisle, being very similar to one in the Iron Room at South Kensington, and labelled "Coffer or deed chest, wrought iron, painted, German, sixteenth century." Mr. Somers Clarke read a paper on "Some Social Customs of the Copts." The paper, written in English by a Coptic gentleman in Cairo, Simaika Bey, was a brief account of the customs observed at weddings, christenings, and on the death of a relative, most of these usages being of the highest antiquity, some dating, unquestionably, from pre-Christian times. Many of these are fast disappearing. Professor Bunnell Lewis read a paper on the "Gallo-Roman Museum at Sens." It consists of stones discovered in excavating the walls of this city; they had been taken from sepulchral monuments and other structures and used as building materials to fortify the place against attacks of barbarians. The stones may be divided into two classes—those that are inscribed and those that are sculptured. Amongst the former the most remarkable inscriptions, seven in number, relate to the family of Magilus Honoratus, which held a high position at Lyons also. Another epigraph is short but interesting; it records the erection of a colonnade and covered walk ("porticus et ambulatorium") and a distribution of wine and oil by magistrates, probably Ædiles, at their own expense ("proprios impensis"). The reliefs include a great variety of subjects, mythological, domestic, and funeral. Most important among them is the one that represents a scene from the legend of Iphigenia in Tauris. In this series we find many persons engaged in the trades and occupations of daily life, e.g., a bird catcher, a fuller, a tailor, a musician holding cymbals, and painters decorating the wall of a house. Architectural fragments are very numerous—cornices, capitals of columns, and

or-at any rate the westernmost part of it, at some period between the completion of the chancel and the completion of the tower. Of the thirteenth-century church immediately preceding the present one, the north and south doorways remain. The present arcades also belong to this earlier church, but the pillars have been lifted some 3 ft. or 4 ft., and placed further apart, making the new nave 8 ft. wider than its predecessor. The new church was lengthened by the addition of a large bay and two heavy piers. The bases of the thirteenth-century church were revealed by the excavations of the late Mr. James Fowler, in 1867-8. On the back of an archstone of the thirteenth century work were remains of an earlier moulding, which brings the earliest evidence of a site back to the time immediately succeeding the Norman Conquest, and contemporaneous with Alexander, Bishop of Lincoln, 1100. The party then left Louth in waggons on an excursion. They first halted at Keddington, where the church was examined. At Alvingham the church of St. Adelwold was visited. It is a small structure with a tower. Proceeding to North Cockerington the excursionists were informed that the church of St. Mary went to decay several centuries ago, and that the inhabitants had long used the priory chapel in the adjoining parish of Alvingham. The party then journeyed to Yarburgh, and inspected the church of St. John the Baptist. This church is an ancient structure, in the Pointed style, consisting of a nave, chancel, north aisle, and a western tower containing three bells. On one side of the western tower is a representation of Adam and Eve, under the branches of a fruit tree, on the trunk of which is the dart of death. The church of St. Clement's, at Grainthorpe, was next visited. It is chiefly noted for its fine tower with eight pinnacles. At Marsh-chapel the Church of St. Mary was visited. This church was restored in 1804, at a cost of 5,000*l.* It consists of a nave, chancel, aisles, pinnacled tower containing three bells, and is fitted with open oak seats with carved ends. The church also contains a fine chancel screen, and a monument on which are kneeling figures of Walter Harpham and his wife and daughter. The two churches of St. Mary and St. Bartholomew at Covenham were also visited. The church of St. Bartholomew was originally an extensive cruciform structure, but it is now a small antique fabric. On their return to Louth the party inspected the small church of St. Andrew at Utterby.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—On the 3rd inst. a large party of the members availed themselves of Professor Ewing's invitation to visit the Engineering Laboratory at Cambridge in connexion with the University. All the apparatus was displayed in the various rooms; the engines, &c., were running, experiments were conducted on the testing machines, and on the elasticity and other instruments. After the reception by Professor and Mrs. Ewing, the members were shown over the whole building. The laboratory was only opened in 1893. The teaching is carried on by the Professor and five demonstrators, with workshop instructors in carpentry, pattern making, fitting, and forging. Lectures are given on the subjects of the Mechanical Sciences tripos: viz., Mathematics, Mechanics, Strength of Materials, and Theory of Structures; Principle of Mechanism, Heat and Heat Engines; Applied Electricity, along with practical work in Mechanics and Elasticity, Heat, Surveying, Drawing, and Electricity. In the teaching of these subjects a variety of machines and apparatus are employed, most of which have been made in the University workshops.

BUSINESS PREMISES, DUNDEE.—On the 9th inst. new business premises for Messrs. Smith Brothers were opened in Murraysgate. The building has a frontage of 88 ft. and is five stories in height, with basement. The three uppermost flats have been let as dwelling-houses, while the first floor will be tenanted by the Dundee Conservative Club and by an insurance company. A central doorway gives access to these premises and to the dwelling-houses. The architect of the building was Mr. William Alexander, and the list of contractors is as follows:—Mason, Mr. R. Sheach, junr.; joiner, Mr. Alexander Young; plumber, Mr. D. Brown; plasterer, Mr. A. McRitchie; painters, Messrs. Petrie & Greig; slater, Mr. James Porter; heating apparatus, Mr. A. L. Peacock; electric lighting, Messrs. James Maxwell & Son.

THE ARCHITECTURAL MUSEUM AND WESTMINSTER SCHOOL OF ART.

THE annual general meeting of the Royal Architectural Museum and Westminster School of Art was held at the Museum, Tufton-street, Dean's Yard, Westminster, on the 9th inst., the Duke of Westminster, K.G., President, presiding.

The minutes of the last meeting having been read and confirmed, it was moved by Dr. Garnett, seconded by Mr. Sydney W. Lee, and carried, "That the Duke of Westminster be re-elected President for the ensuing year." The Vice-Presidents were also re-elected.

The Chairman having briefly replied, Mr. M. B. Adams, Hon. Sec., read the following report of the Council, which, on his motion, seconded by Mr. W. Pain, was adopted:—

"The Council of the Royal Architectural Museum and Westminster School of Art, in presenting their report for the year 1896, are pleased to state that, although the exceptionally favourable result of the previous year's operations has not been reached, there is a balance of income over expenditure amounting to 58*l.* os. 7*d.* As before, this result is due to the continued success of the School of Art, the fees from which amounted to 1,000*l.* os. 6*d.*, whilst the grants from the Technical Education Board of the London County Council (500*l.*) and from the Science and Art Department (201*l.* 6*s.*) on the students' works, examination, and attendance, were larger than in 1895, so that the total receipts on account of the school were 1,811*l.* 6*s.* 6*d.*, against 1,843*l.* 10*s.* 6*d.* in the previous year. There is very little fluctuation in the subscriptions to the museum, amounting in 1896 to 86*l.* 16*s.*, and derived chiefly from subscribers who have from its earliest years been staunch supporters of the institution.

It was stated in last year's report that it was in contemplation to acquire premises adjacent to the museum for the purpose of building additional classrooms, and the Council, after much consideration, decided to carry out this proposal, seeing that the opportunity for enlargement was not likely to recur. Plans were accordingly prepared by Messrs. Lee & Pain, and a contract has been entered into for the erection of the new building at a cost of 2,321*l.* The full expenditure, including the provision of lighting and warming apparatus, will probably amount to about 2,630*l.*, exclusive of architects' charges. The work is now proceeding, and is to be completed by Christmas next. It is hoped that the additional accommodation thus provided will not only relieve the museum from some encroachments necessitated by the growth of the School of Art, but that it will conduce greatly to the extended success of the school itself, which, from small beginnings, has been gradually developed until it has become known far and wide, attracting students from all parts of the United Kingdom, and even from Canada and the United States.

Towards this large outlay subscriptions have been received or promised amounting to 310*l.* 3*s.* 0*d.*, including the sum of 100*l.* contributed with his customary munificence by His Grace the Duke of Westminster; 100*l.* has been transferred to the enlargement fund from the current account, and there is also a reserve fund of 100*l.* Consols. and the Technical Education Board of the London County Council have undertaken to advance 500*l.*, to be repaid by deductions from their annual grants, in four instalments. There is also a considerable balance at the bank, from which, perhaps, 1,000*l.* may be provided in the course of the current year. Nevertheless, a substantial amount remains to be found, and additional subscriptions from friends of the museum and school will be gratefully accepted."

Mr. J. H. Pollen moved, and Mr. W. R. Lethaby seconded, that the following gentlemen be elected as members of Council during the ensuing year, in addition to the President, the Hon. Treasurer (Mr. E. L. Somers Cocks), and Hon. Secretary, viz.:—The Earl of Wemyss and Mr. W. Carew Cousins (Vice-Presidents), Messrs. C. F. Hayward, F.S.A., Sydney W. Lee, W. Pain, J. Hungerford Pollen, M.A., J. P. Seddon, Aston Webb, and as representatives of the London County Council, Mr. Sidney Webb, Dr. Garnett, and Mr. W. R. Lethaby.

This having been agreed to, on the motion of Mr. Seddon a vote of thanks was accorded to the Chairman for presiding, and the Duke, in reply, said it was a matter of satisfaction to know that additional accommodation was being provided for the school, and that there was reasonable hope for believing that the new buildings would be completed by Christmas next.

Mr. F. Ford (the curator) announced that out of fifty-three candidates who went up for the South Kensington examination in drawing from the antique, thirty-six were successful, and of sixty-one for drawing from life, only two failed. Of the fifty-nine who succeeded, eight attained excellence, twenty-nine first-class, and

only twenty-two second class. In anatomy, there were eighteen candidates, of whom thirteen succeeded.

The meeting then terminated.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. W. J. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Mile End Vestry 1,950*l.* for sewerage works in Branbridge-street, Eric-street, and Bow Common-lane; the Paddington Vestry, 13,000*l.* for wood-paving purposes in Formosa-street, Warwick-road, and Shirland-road; the Mile End Guardians, 110*l.* for the erection of a laundry at the infirmary; the Deptford Baths Commissioners, 2,500*l.* to defray the cost of an installation of electric light at the baths and washhouses; the Metropolitan Asylums Board, 94,462*l.* for additions to various hospitals.

The Works Department.—Mr. T. W. Williams asked the Chairman of the Council whether the resolution adopted on the motion of Mr. E. White recently, as to the future management of the Works Department, would take out of the hands of the Works Committee such works as were now in their charge under previous resolutions of the Council, and would put them in the hands of the manager instead. He desired to know whether such a course could be properly adopted without a rescinding of the previous decisions of the Council.

The Chairman said the resolution had been referred to the General Purposes Committee, and it would be disrespectful to that Committee for him to give any interpretation of it pending their report. No objection that the resolution was out of order was taken at the time it was moved and carried, and, in his opinion, it was in order. The Committee would report next week.

Schedule of Prices for Jobbing Works.—The General Purposes Committee reported as follows, the recommendation being agreed to:—

"The Works Committee, in a memorandum dated the 21st ult., informed us that on June 1 the rate of wages of labourers was increased 7*d.* per hour, and that the manager had reported that such increase of wages was equivalent to 2 per cent. on the total cost of the jobbing works, including labour and materials. In November last a similar increase to the rates per cent. above the schedule of prices was agreed to by the Council in consequence of the rise in wages of bricklayers, carpenters, plumbers, &c. In the circumstances we see no alternative but to submit a similar recommendation in the present case. We accordingly recommend—That the rates per cent. allowed above the schedule of prices for jobbing works be respectively increased by 2 per cent."

Lighting the Embankment.—The Highways Committee recommended—"That the Council do approve the estimate for 22,000*l.* submitted by the Finance Committee, and that the Highways Committee be authorised to take all necessary measures for establishing, at a cost not exceeding 22,000*l.*, the electric lighting installation authorised by the Council's General Powers Act, 1893, for the Victoria-embankment (but not the ornamental gardens thereon), and the Waterloo and Westminster Bridges; and that for this purpose the Committee be authorised to obtain tenders and to enter into contracts on behalf of the Council."

Lord Onslow moved an amendment to refer the report back to the Committee, on the ground that the proposed expenditure was unnecessary and premature. The proposal to have the electric light was not made in the interest of the poor, but of wealthy persons driving between the West End and the City, and who did so mostly in the daylight. Gas was ample sufficient for the lighting of the Embankment, and the money required for the proposed installation would be better devoted to other purposes.

Mr. Hoare seconded the amendment, which gave rise to a long discussion. The Council divided, and there voted for the amendment 43, against 63.

Mr. Holland, M.P., then moved a further amendment, which was seconded by Mr. Goulding, M.P., requiring parochial contributions towards the cost of the Committee's proposal.

Mr. Holland's amendment was rejected by a show of hands; and Mr. Bicker-Caarten there-

upon moved an amendment for fuller particulars from the Committee. This was agreed to, and the Committee's recommendation, as amended, was then adopted.

The Water Question.—The adjourned report of the Water Committee relative to the evidence which should be given before the Royal Commission on the Metropolitan Water Companies was then considered. The Committee recommended the Council to pass the following resolutions as embodying certain main principles for the guidance of its witnesses:—

"(a) That in the opinion of the Council the water supply of the metropolis should not continue in the hands of private companies. (b) That in the opinion of the Council the undertakings of the metropolitan water companies should forthwith be purchased at the fair and reasonable value of the same, regard being had to the rights, special circumstances, and obligations of the companies. (c) That the management of the water supply should be effected either (1) by the London County Council supplying its own area directly and outside authorities in bulk at a fixed price; or (2) by the London County Council supplying its own area only, and the outside authorities supplying their areas; or (3) by a new body supplying directly the whole area both within and without the county. (d) That, in any case, as the County of London contains 87 per cent. of the rateable value and over 79 per cent. of the population of the area supplied by the metropolitan water companies, and will thus be liable for more than four-fifths of the purchase money, it is desirable that the London County Council should, in the first instance, be the purchasing authority on behalf of the population of the whole area concerned. (e) That if the undertakings of the water companies are not acquired, it is essential that effective powers of control should be given to the County Council, and, further, that the position of the companies should be reconsidered and the law amended, particularly as regards their power to make and recover rates and charges and divide profits, and their obligations respecting the supply of water."

Mr. Beachcroft proposed the following amendment to the recommendation (a):—

"That in view of the reference to the Royal Commission it is undesirable that the Council should pass any further resolutions affecting the acquisition of the water supply of the metropolis; and accordingly that the recommendation be referred back to the Committee for further consideration."

The Earl of Dunraven, in seconding the amendment, said that seeing the Council was so hopelessly divided on the subject he did not see how it was possible for them to send any recommendations as a corporate body. He suggested that members of the Council might attend and give evidence before the Commission as individuals.

On a division the amendment was defeated by 54 votes to 35.

Dr. Longstaff moved a further amendment to make resolution (a) read as follows:—

"That in the opinion of the Council the water supply of the metropolis should not continue wholly in the hands of private companies, but should be under effective public control."

This amendment was under discussion when the Council was counted out at ten minutes past seven.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS:

ANNUAL MEETING.

The annual meeting of the Association of Municipal and County Engineers was opened in the Town Hall, Westminster, on the 8th inst. Mr. F. J. C. May, C.E., of Brighton, the retiring President, presided at the opening of the meeting, and was supported by Sir A. R. Binnie, Chief Engineer to the London County Council, President-elect; Messrs. C. Jones, Ealing; E. Pritchard, Birmingham; J. Lemon, Southampton; H. Percy Boulnois, Liverpool; T. de Courcy Meade, Manchester; Lewis Angell, West Ham; C. H. Lowe, Hampstead; W. Weaver, Kensington; J. P. Barber, Islington; W. N. Blair, St. Pancras; P. Dodd, Wandsworth; L. H. Isaacs, Holborn; C. Mason, St. Martin's-in-the-Fields; J. P. Norrington, Lambeth; J. C. Radford, Putney; G. R. W. Wheeler, Westminster; J. T. Eayrs, Birmingham; S. S. Platt, Rochdale; A. M. Fowler, Manchester; J. Lobley, Hanley; J. Cartwright, Bury; E. R. S. Escott, Halifax; E. P. Hooley, Nottingham; J. H. Cox, Bradford; A. Greer, York; O. C. Robson, Willesden; T. Walker, Croydon; C. F. Wike, Sheffield; A. T. Davis, Shrewsbury; T. W. Stainthorpe, Exton; F. S. Button, Burnley; J. W. Cockrill, Great Yarmouth; S. Stead, Harrogate; R. E. W. Ber-

lington, Wolverhampton; J. W. Bradley, Wolverhampton; W. Brooke, Strood; J. W. Brown, West Hartlepool; Greatrex, West Bromwich; A. H. Campbell, Canterbury; H. J. Clarkson, Tamworth; G. E. Shore, Crewe; W. Santo Crimp, Westminster; C. H. Cooper, Wimbledon; J. A. Crowther, Bootle; J. Hall, Cheltenham; G. B. Laffan, Twickenham; T. Cole, Westminster, Secretary, and others.

Mr. T. Cole, Secretary, read the annual report of the Council, which stated that during the year ended April 30, 106 new members, consisting of 94 ordinary members and 12 graduates, had joined the Association. The number of members on the roll was 9 honorary and 703 ordinary members, and 77 graduates, making a total of 789. The balance-sheet accompanying the report showed a balance in hand of £411, and invested capital amounting to £490. Since the last annual report two examinations had been carried out—the first at Liverpool, when 11 candidates were examined, and 9 satisfied the examiners, and were granted the Association's certificate; the second at Westminster, when 36 presented themselves for examination, of whom 15 satisfied the examiners, and were granted the certificate. The committee appointed to consider the suggested amendments to the Metropolitan Local Management Acts had reported that in view of the active steps that were being taken by various local authorities to obtain charters of incorporation, and the probable new legislation that would necessarily follow, it was not deemed desirable to advise any action being taken at present.

The President moved the adoption of the report, which was seconded by Mr. Lowe, Hampstead.

Mr. W. H. Savage, East Ham, suggested that the balance of £411 in hand should be invested.

The President said there was a committee appointed to deal with financial matters, and the question would be brought before the Council at an early date.

Mr. May then vacated the chair in favour of the new President, Sir A. R. Binnie.

Mr. J. Lemon, Southampton, then proposed a vote of thanks to Mr. May for his services as President during the year, which was seconded by Mr. J. P. Barber, Islington, and adopted.

Sir Alexander Binnie, C.E., then delivered his Presidential address, in the course of which he sketched the history and progress of London, and of the improvements carried out by the Metropolitan Board of Works, including the construction of intercepting sewers and the removal of the outfalls to Barking and Crossness, the freeing of the bridges over the Thames, the construction of the Embankment, the placing of the fire brigade upon an effective footing, the opening out of new streets such as Northumberland-avenue, Queen Victoria-street, Charing Cross-road, and the inauguration of the system of open spaces, and the obtaining of the Act under which had recently been constructed the Blackwall Tunnel. In 1888 the London County Council was established. During the short period that the County Council had been in existence, and notwithstanding the natural opposition to any new body, it had done an enormous amount of remarkably good work. The public out of doors were perhaps too much in the habit of judging of the work of the Council solely by those controversial matters which were the subject of discussion at its weekly meetings, and either forgot or ignored the enormous mass of work which was performed by means of its committees without controversy, and which was work for the public good unanimously acquiesced in by all its members. During the last seven years a vast improvement had been effected in the purity of the river by the mode in which the sewage was discharged at Crossness and Barking, and by the establishment of precipitation works at these stations, and the removal to sea, twenty miles below the Nore, of about two million tons of sewage sludge per annum. This was a matter which had engaged their daily and hourly attention. No doubt great improvements had been effected, but yet they had not approached what they might hope to attain when they became better acquainted with the right mode of dealing with huge volumes of sewage.

Turning to those duties which they had to discharge in relation to the great governing bodies with which they were connected, he felt that all of them must at times be actuated by a desire to promote a greater efficiency of the municipal and corporate bodies under which

they served. Those bodies were to a great extent elected and deliberative assemblies; but he thought it would conduce to the general welfare if there were less discussion of details and criticism of uncompleted work. To secure such a state of things the various bodies whom they served must be able to place the most perfect reliance and confidence in their professional advisers, and it behoved them one and all to endeavour by every means in their power to raise the social status of their profession. Their Association, by the certificated examinations which they had instituted, and the Institution of Civil Engineers, the general governing body of their profession, were now working on the same lines, and it was to be hoped that before long they would find that they received that confidence which their merits deserved.

On the proposition of Mr. Lewis Angell, seconded by Mr. C. H. Lowe, a vote of thanks was accorded to the President for his address.

Biological Purification of Sewage.

Mr. W. J. Dibdin, F.I.C., Chemist to the London County Council, then read a paper on the "Biological Purification of Sewage." After sketching the history of the development of the process of treating sewage by biological agency, he referred to the treatment of the sewage effluent at the works at the northern outfall, Barking Creek, where results never before anticipated were obtained. The fact that a bad effluent could be purified to a degree comparable in colour and character to that of a clean river water, and at a rate equal to one million gallons per day, came as a startling surprise upon the community, and although it was at first received with a considerable degree of doubt, the present experience throughout the country at many places where the coke breeze filters had been adopted had established the system as the most recent useful and economical advances of practical sanitation. During a period of a little over three years 500 million gallons of effluent were filtered at Barking. As this effluent contained 7 grains of suspended matter per gallon, a total of 2,232 tons of sludge of 90 per cent. moisture had been put upon the filter and entirely destroyed, as practically no suspended matters were in the filtrate. The enormous work accomplished led him to the conclusion that if the conditions were only favourably arranged there was no reason why the whole of the matters in suspension in the crude sewage should not be similarly treated. This suggestion was taken up by the Sutton District Council with the best results. A free supply of oxygen to support the minute living organisms which feed on the organic matter was the first point for consideration, and in order to secure this he arranged that only the coarse ballast which was rejected by a $\frac{1}{2}$ -inch mesh, should be used. The idea was first to ensure the coarse suspended matters getting into the whole body of the filter instead of forming a layer upon the top, and secondly, to also ensure the body of the filter being thoroughly aerated when the water was drawn off, it being impossible for such a coarse bed to become waterlogged. The experiment was commenced by turning the crude untreated sewage on to the bacteria bed on November 21 last, since when it had been almost constantly at work, at the rate of one million gallons per acre per day. The results had been all that could be desired, and after seven months' working the bed was now in as good a condition, and as free from nuisance as it was after the first filtering. While advances had been thus rapid by the process of treating the sewage by means of those organisms which fulfilled their life functions in the presence of oxygen, the complementary organisms, known as the anaerobic bacteria, had been at work. The now well-known septic tank system of Mr. Cameron, of Exeter, had been at work since August last, and at present appeared to be doing exceedingly well. It was true that the final purification was effected by the use of the coke breeze filter, which had thus been able to cope with organic matter which had undergone a process of purification.

Mr. Santo Crimp, Westminster, moved a vote of thanks to Mr. Dibdin for his paper, as he had the honour of being associated with the introduction of the Dibdin filter. He considered the phrase "coke breeze" unfortunate, as the filtering material was formed of cinders and not of coke, which was too expensive. He also pointed out that the average work of the filter was not more than half a million gallons

a day, and that the flow over the filter was a regular measured quantity, and not the varying flow which would have to be dealt with where the whole of the sewage was treated. He also wished to ask Mr. Dibdin the reason why the stream which received the effluent of the Sutton sewage was in such a disgraceful state below the Sutton sewage works.

Colonel Jones, V.C., who seconded, considered that the chief cause of failure in sewage treatment by land was leaving the sewage works to take their chance with some ignorant farmer or labourer, instead of treating them as a delicate piece of machinery.

Mr. Cameron, Exeter, said that it seemed to be quite overlooked that there was land *and* land for sewage treatment. It must be evident that land must perform the functions of a filter before the work desired could be accomplished.

Mr. Cooper, Wimbledon, having paid a tribute to Mr. Dibdin for the admirable way in which his filters were worked, endorsed the remarks of Mr. Santo Crisp as to the condition of the stream at Sutton.

Mr. Thudichum, Westminster, said that when working, the filters had regularly treated 1,166,000 gallons a day for six days a week.

Mr. Fowler, Manchester, said he was of opinion that the "microbe system" would fail to purify the difficult trade effluents met with in the sewage in Lancashire and Yorkshire towns.

Mr. Pritchard, Birmingham, said that he believed in the biological method, but at the same time was somewhat like the Local Government Board, desirous of making it perfectly sure by also having a small area of land properly prepared.

Mr. Greatrex, West Bromwich, said he was Surveyor to the Sutton District Council for three years, and the pollution of the stream below Sutton sewage works was not owing to those works, but from the district of Howell, which discharged into the stream before reaching the Sutton works.

Mr. Smith, Sutton, also explained that they were only treating a portion of the sewage at Sutton by the Dibdin process.

Dr. Reid, Stafford, and other gentlemen having taken part in the discussion, the vote of thanks was accorded, and Mr. Dibdin replied to the various points raised in the discussion.

The Buckinghamshire Road System.

Mr. R. J. Thomas, C.E., County Surveyor, then read a paper on the Buckinghamshire road system of the equalisation of Highway Rating. He said that to relieve the inequality of rating in the case of parishes which from their isolated position, distance from railway stations, or other reasons, had no roads coming within the definition of a main road, the County Council had adopted a comprehensive scheme for equalising the burden of highway rates by taking full advantage of the powers given under Sec. 11 of the Local Government Act, 1888, the contributing the cost of every public highway upon the basis of an average of the expenditure by each parish during a period of three years, subject to his certifying that such roads had been repaired and maintained to his satisfaction and in accordance with rules and instructions issued to each surveyor.

After a prolonged discussion it was resolved, on the motion of Mr. Campbell, Canterbury, seconded by Mr. Mann, Sevenoaks, "that the Parliamentary Committee of the Council of the Association take into their consideration the whole question of the systems of maintenance and the varying forms of administration of main roads, and the resolutions subsisting between the County and District Councils, with a view of making such representations as they think fit to the proper authority, and report their action to a future meeting of the Association."

Messrs. W. H. Savage, East Ham, and T. L. Lewis, St. George's, Bristol, were re-elected auditors; and the scrutineers and honorary district secretaries were re-elected.

The meeting then adjourned.

Annual Dinner.

In the evening the annual dinner was held at the Trocadero Restaurant, Piccadilly-circus, Sir Alexander Binnie presiding.

The loyal toasts having been honoured,

Dr. Rentoul, M.P., proposed the toast of "The Municipal Corporations of the Country," the Mayor of Eastbourne briefly responding.

Mr. B. Hopkins then gave the toast of the evening, "The Association of Municipal and County Engineers." The Association

began its existence in a very humble manner about twenty-five years ago, and the early efforts of its members were beset with many difficulties. But the progress of the Association had been very marked; it now had an effective membership of 800, it was an incorporated Association, and it was doing good work in examining young men in those departments of study which were most necessary to a municipal engineer. The existence of the Association had had the effect of raising the status of municipal engineers throughout the country. The speaker, in conclusion, paid a tribute to the retiring President, Mr. May, for his efforts on behalf of the Association.

The Chairman, in response, said he had served many municipalities, and among them a black municipality, from whom he had received all the consideration and respect that could be expected even from the most enlightened municipalities of this country.

Mr. Lewis Angell, the first President of the Association, proposed the toast of "The Visitors." There were, he said, only two remaining members of the Association who were present at their first meeting, viz, Mr. Lowe and himself. The Association had been the means of disseminating a great deal of useful information.

The Master of the Carpenters' Company and Dr. Shirley Murphy replied, and the toast of "The Press" having been honoured, the proceedings terminated.

The proceedings of the annual meeting were resumed in the Town Hall, Westminster, on Friday morning, the 11th inst, Sir A. R. Binnie, C.E., President, occupying the chair.

Mr. E. J. Silcock, Assoc. M.Inst.C.E., King's Lynn, presented a paper on tramway haulage, condemning both horse and steam traction; the steam engine occupied as much space on the road as horses, and wore the rails by an extra set of wheels travelling over them, carrying a load of about fifteen tons; and its steam, smoke, dust, and noise together, formed a great nuisance, not only to the passengers, but in an even greater degree to other persons using the roads and living in houses abutting on them. Oil, gas, and compressed-air motors had been tried, but hitherto the success attained had not been very great. It appeared that there were not great hopes of making a compressed-air motor commercially successful.

The disadvantages of cable traction were that the cable had to be hauled whatever the amount of traffic might be, involved a central rail with slot, and the inconvenience caused by a broken cable was very considerable. Electric traction hitherto had been mostly developed in the direction of overhead conductors. The accumulator system had not attained any great degree of success, chiefly owing to defects in the accumulators. The conduit electric system had the advantage over the accumulator system on nearly all the points named; but the slot in one rail was objectionable on various grounds. The overhead electric had been the most successful of the methods of applying electric power to tramway haulage, and, taken all round, it undoubtedly met the requirements of a tramway service more than any other. The chief objection to the system was the unsightliness of the overhead wires, which, no doubt, at first sight did offend the eye; but this was one of the things met with in large towns which, although ugly, soon became unnoticeable by reason of their great utility.* On the score of first cost, it had the advantage of a saving of 2,450l. per mile over the underground conduit. The cost of haulage on the Birmingham cable system was 6,350l. per car mile; and on the Roundhay electric tramway, 7,760l. per car mile, exclusive of capital and renewal account charges.

Mr. E. Pritchard, Birmingham, thought the horse was not yet doomed to extinction where they had easy roads and light loads. Although he had been the means of introducing nearly one hundred steam locomotives into Birmingham he could not say very much in their favour.

Mr. Price, Birmingham, said the Committee of the Birmingham Council which visited the Continent decided they would not permit the overhead system in Birmingham.

Mr. Cotterell, Great Yarmouth, said he had recently recommended the overhead electric system for a scheme of four miles of tramways at Yarmouth.

Mr. Lobley, Hanley, said that although he

* To this we entirely demur. People are getting to dislike them more and more.—Ed.

was at first prejudiced against the overhead system he was not in Boston, U.S.A., for twenty-four hours before he ceased to notice the unsightliness of the wires.

Mr. J. T. Eayrs, Birmingham, said they could not lay down a universal principle for underground conduit or overhead trolley which was suitable to every place. The decision with regard to Birmingham would no doubt answer admirably, but if they came to smaller towns and cities the great expense of putting down an underground conduit would be fatal to any successful scheme of tramway working.

Mr. Harpur, Cardiff, said he could not conceive in a large town that the overhead electric system would be tolerated.

The vote of thanks having been accorded, Mr. Silcock replied to the points raised in the discussion.

Mr. L. H. Isaacs, Assoc.-Mem.Inst.C.E., Surveyor to the Holborn District, read a paper on "Tramways laid in Asphalt Carriageway Pavements in Berlin." He said the new system which was being tried in Berlin was mainly, if not entirely, dependent upon the absolute rigidity of the tram rails. No movement or vibration in them was permissible. The depth of metal of the rail from the top to the under side of the bottom flange was 6 in., and the width of the latter was 4½ in., and the width at top, including the groove in which the flange of the wheel runs, was 4½ in. The method of laying the rail in conjunction with asphalt pavement was as follows:—The bottom flange of the rail rested upon a layer of mastic asphalt ¾ in. thick, and the same material 2 in. wide was placed next the upper flange and on each side thereof, the theory being that the mastic acted as a cushion or buffer, and received the vibration which might be occasioned by the passage of the tramcars or the ordinary wheeled traffic proceeding over the surface of the road. The result of this method of dealing with the subject, after two years' experience, was most excellent.

Mr. Boulnois, Liverpool, proposed a vote of thanks; but confessed in looking at the rail that he feared its renewal, embedded, as it appeared to be, in concrete, must be an exceedingly costly and troublesome affair.

Mr. Fowler, Manchester, seconded the proposition, which was supported by Mr. Pritchard, Birmingham, and others.

Mr. Barber, Islington, said he thought the success of the Berlin tram lines was entirely due to the police regulations in keeping off the rails and the tramway track the other vehicles in the streets. If a tramway of that description was laid in the Metropolis, where no such restriction of the ordinary traffic would be possible, he ventured to think it would be found quite unsuitable.

Mr. Price, Birmingham, said the character of the traffic in Berlin was mostly of the light carriage order, such as in the West End of London.

Mr. Harpur, Cardiff, said he had made inquiries into the tramway system of Berlin, and had come to the conclusion that the police regulations had everything to do with the success of the system there.

Mr. W. Nisbet Blair, St. Pancras, was of opinion that Major Isaacs would hesitate to lay this form of tramway in Gray's Inn-road.

Major Isaacs, in replying to the vote of thanks which was unanimously accorded, said a trial length would be tentatively laid in Theobald's-road, and if it proved successful it would be extended to the whole of that road, and to other roads in his district.

Brick Paving for Carriageways.

Mr. J. T. Eayrs, C.E., of Birmingham, next presented a paper on "Brick Paving for Carriageways." He said the question of paving roads with bricks had received very little attention in England, although this country was justly celebrated for the quality of its bricks. The suitability of bricks for paving purposes depended upon the nature of the clay from which they were made, method of manufacture and burning. The first point to note was the quality of the clay, the composition of which varied very considerably in different districts, but most bricks were made from a hydrated silica of alumina, generally containing traces of magnesia, iron, lime, and potash. Lime in excess was very injurious to paving brick, as it was changed to caustic lime in burning, and a small amount of moisture would cause it to slake and disintegrate the brick. A small amount of

magnesia aided in producing vitrification. The detailed results of analyses of clay were not easy to obtain, but the following might be taken as representative of their class:—

	No. 1.	No. 2.
Silica	60.31	61.46
Alumina	23.77	24.84
Peroxide of iron ...	7.99	7.5
Soda and potash ...	2.42	3.2
Lime	2.50	—
Magnesia	1.75	3.42
Water, &c.	1.79	3.46

The points to which attention should be directed in selecting a brick for paving purposes were (1) uniformity of size and shape, (2) absorption, (3) specific gravity, (4) transverse strength, (5) crushing strength, (6) abrasion. With regard to size, there was no reason why the English standard size of 9 in. by 4½ in. by 3 in. should not be adopted for street paving. In America the sizes varied considerably, the largest being 9½ in. by 4½ in. by 3½ in., and the smallest 7½ in. by 3½ in. by 2 in. The square edges appeared to be most in favour, and they would certainly form better joints, be less noisy, cleaner, and would be better for washing and scavenging purposes, but the sharp arrises would be more likely to be chipped by horses than the rounded nosings. Where tramways were laid a special brick was made to fit the well and head of rail which made a close joint and kept the paving level with the metals. The test for absorption was one of the most important factors in determining the life of a brick pavement as the continued action caused by wet and dry weather, freezing and thawing, tended to disintegrate the brick and the less absorbent it was the less harbour for filth and decaying organic matter. The average American specifications required that bricks should not absorb more than from 1½ to 3½ per cent. of moisture in twenty-four hours. The transverse strength, where this was required, varied from 1,600 to 4,000 lb., but generally about 2,000 lb. was considered sufficient. Importance was attached to the crushing resistance and the usual requirement was from 10,000 to 12,000 lbs. per square inch. The method of testing, however, varied considerably, some being made with half bricks, and others with 2-in. cubes. The recent experiments made at Watertown Arsenal showed the strength from 5,000 to 22,000 lbs. per square inch, and Professor I. O. Baker found that the average crushing strength of ten varieties of paving brick used in America was 7,150 lbs. per square inch. The crushing resistance found in samples of Staffordshire blue bricks tested by the late D. Kirkcaldy was from 15,000 to 18,000 per square inch. The abrasion test was one which was considered of the utmost importance, as it was well known that the greatest amount of wear on a road surface was caused by the pounding produced by horses' feet, and a material which would withstand this best would probably have the longest life. The test was usually made by placing bricks to be tested in a "tumbler" or "rattler," either with or without other materials. The bricks were weighed before being put into the "tumbler," and again after rattling for the specified period, the loss being noted. Mr. Eayrs next dealt with the laying of the brick, with regard to which he said the first point was the question of foundation. On this point American practice differed considerably. Although the majority of towns in which inquiries were made now provided concrete foundations, there were a great many where the foundation was either of macadam, broken ballast, slag, or gravel rolled down, and, in some instances, no foundation was provided beyond rolling the natural earth and laying a bed of sand for the bricks to rest upon. When the foundation was prepared a layer of clean dry sand was laid to form a bed or cushion for the bricks, varying in thickness from 3½ in. to ½ in. The thickness mostly accepted at the present time was 2 in., but there was evidence of this being reduced, and 1 in. would probably be found quite sufficient. The bricks were laid on the sand cushion in straight courses, either at right angles or to the kerbs or diagonally as might be desired. The bricks were laid right up to the kerbs, without any channel courses. The usual course was to lay the bricks solid end to end and side to side, without leaving any interstices, and, generally speaking, it was found that, owing to the bricks not being perfectly true in shape, there was sufficient space between the bricks—even when laid close—to allow for the subsequent filling. This plan was adopted in

81 per cent. of the towns from which inquiries had been made. The remainder of the towns left a space of about ⅓ inch between the joints to allow for filling and grouting. In order to avoid cutting bricks for closers, some engineers had special bricks made of ⅓, ⅓, ⅓, and ⅓ lengths. When the bricks were laid, and before any filling or grouting was done, the paving was either rammed with a hand rammer, or rolled with a steam or horse roller. Where rolling was adopted, the generally accepted weight was from five to seven tons, although there were several rollers of 10 tons and upwards. Where steam rollers were not used the rollers were drawn by men, probably to prevent displacement of the bricks by horses' feet, before filling and grouting. There seemed to be the same divergence of opinion amongst American engineers as with English as to the best kind of filling or grouting material, and opinion seemed to be about equally divided between cement, pitch, and sand. When the paving was finished, rolled, and grouted, it was then covered with clean, coarse sand from ½ in. to 1 in. in thickness, and allowed to remain for about a fortnight, during which the traffic was allowed to pass over it, when it was all swept off, and the work was completed. As to durability, the opinion of American engineers was that fifteen to twenty years was the life of the pavement under ordinary conditions. It must not be forgotten, however, that the climatic conditions in America were much more severe than in this country. Engineers were practically agreed that brick paving for carriage-ways was growing rapidly in public favour; it offered a minimum amount of resistance to the passage of traffic, and inflicted a minimum amount of wear and tear on horses and vehicles; it was practically impervious, and therefore perfectly sanitary; was easily cleaned, and required far less scavenging than any other paving; it could be washed without injury or becoming slippery when wet; was readily taken up and relaid; reasonable in first cost and maintenance; and had a life which compared favourably with other materials, such as asphalt, wood, &c.

Mr. W. Nisbet Blair, St. Pancras, in proposing a vote of thanks to Mr. Eayrs, said he had heard, from time to time, of this American brick pavement, and had felt rather sceptical of the advantages claimed for it. He felt until they could actually see these bricks and judge for themselves what they looked like, it was impossible to form an opinion. He was not aware that the strength of bricks to resist crushing was anything like that given in the paper, but he thought the strength of the brick should be determined as the point at which cracking commenced.

Mr. Campbell, Canterbury, said with brick-paved roads they got an easier traction than with granite, but he thought it would be both more slippery and more noisy. In the course of further discussion, Mr. Hall, Cheltenham, said he had paved crossings with brick in Cheltenham with complete success; Mr. Lobley, Hately, had not a favourable experience of footpaths paved with bricks; Mr. Crowther, Bootle, said he had had two tests with different kinds of brick, and in both cases they were complete failures.

Mr. Price, Birmingham, considered that if bricks were used they would have to set up very elaborate laboratories for testing purposes; and Mr. Montgomery said that a standard brick would have to be insisted on, and if that were done he believed they would have a material which would wear longer than any other in use to-day.

The vote of thanks having been passed, Mr. Eayrs briefly replied, and other papers having been read, the meeting adjourned.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At a recent meeting of the London County Council, the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions:—

Lines of Frontage.

Dulwich.—That consent be given to the erection of a one-story shop in front of a proposed building at No. 116, Lordship-lane, East Dulwich, at the corner of Bassano-street, on the further application of Mr. E. J. Strevens on behalf of Messrs. Golden.

Dulwich.—That consent be given to the erection of a one-story addition to the office at Westwood

House, No. 47, East Dulwich-road, Goose-green, on the further application of Mr. F. A. Powell on behalf of Messrs. Batey & Co., Limited.

Fulham.—That consent be given to the erection of a two-story building on the south-east side of Harwood-terrace, to abut upon Imperial-road, on the further application of Mr. C. Collins.

Hackney, North.—That consent be given to the erection of buildings upon part of the forecourt of Nos. 26 and 28, Shacklewell-lane, Kingsland, on the application of Mr. J. R. Vining on behalf of Messrs. Lloyd, Attree and Smith.

Hackney, North.—That consent be given to the erection of a bath-room upon the present one-story addition at the rear of No. 97, Church-street, Stoke Newington, to abut upon Defoe-road, on the application of Mr. W. J. Galloway on behalf of Mr. Jarrett.

Islington, North.—That consent be given to the erection of bay windows to four semi-detached houses on the south-west side of Sunnyside-road, and also to the construction of wooden balustrading and other woodwork to the porches of those houses, on the application of Mr. W. Graves.

Kensington, South.—That consent be given to the erection of a glass and iron covered-way in front of the porch at No. 10, Tor-gardens, Campden-hill, on the application of Mr. T. B. Reynolds.

Levensham.—That consent be not given to the erection of two houses on the north side of Bradgate-road, Catford-road, and of two other houses on the south side of a road skirting Ladywell Recreation Ground, such four houses to flank upon Doggett-road and Silvermere-road respectively, on the further application of Mr. F. Witt, on behalf of Messrs. Johnson and Aldridge.

Marylebone.—That consent be not given to the erection of three cottages with projecting upper stories, oriel windows and barge boards on the east side of Ranston-street, Lisson-grove, on the application of Mr. L. Ambler, on behalf of Mrs. G. M. Freeman.

Marylebone, East.—That consent be given to the erection of a porch, and a two-story oriel window over same, in front of a proposed new wing to the Middlesex Hospital, to abut upon Nassau-street, on the further application of Mr. K. D. Young, on behalf of the Weekly Board of Middlesex Hospital.

Marylebone, East.—That consent be given to the erection of a porch in front of No. 18, Queen Anne-street, on the application of Mr. W. H. White on behalf of Mr. F. G. Bridgman.

Marylebone, East.—That consent be given to the erection of a porch in front of No. 20, Queen Anne-street, on the application of Mr. W. H. White on behalf of Mr. J. Boyton.

Paddington, North.—That consent be given to the erection of a church on the west side of Saltram-crescent, St. Peter's-park, with two projecting porches to abut upon Croyley-road, on the further application of Mr. W. A. Pite on behalf of the Rev. W. P. Legg, M.A.

St. George, Hanover-square.—That consent be given to the erection of enclosures to the present open porch in front of the Primrose Club, Park-place, St. James's-street, on the application of Mr. V. Whiteley, on behalf of the club.

St. George, Hanover-square.—That consent be given to the erection of a bay window at the first floor level in front of No. 11, Old Bond-street, on the application of Mr. S. R. Tatham, on behalf of Mr. M. L. Procter.

Wandsworth.—That consent be given to the erection of a house on the west side of Criel-road, Wandsworth-common, at the corner of and to flank upon Killarney-road, on the application of Mr. E. L. Awerth.

Woolwich.—That consent be given to the erection and construction of a wooden porch, with tiled roof, at the new Health-Reiuge, Parkdale-road, Plumstead, on the application of Mr. W. C. Gow, on behalf of the Vestry of Plumstead.

Hackney, North.—That consent be not given to the erection of a one-story shop upon part of the forecourt of No. 22, Cazenove-road, Stamford-hill, on the application of Mr. W. M. Dabbs, on behalf of Mr. T. Dabbs.

Hackney, South.—That consent be not given to the erection of a billiard-room at the rear of the Clapton-park tavern, Chatsworth-road, Clapton, to abut upon Clifden-road, on the application of Mr. C. J. C. Pawley on behalf of Mr. G. T. Poole.

Islington, West.—That consent be not given to the erection of a two-story addition at No. 371, Holloway-road, to abut upon Camden-road, on the application of Messrs Lee & Pain on behalf of Dr. Smelt.

Levensham.—That consent be not given to the erection of one-story shops upon part of the forecourts of Nos. 155 and 157, Stanstead-road, Forest-hill, on the application of Mr. G. K. Deakin on behalf of Mr. E. H. Bray and Mr. Griffiths.

Fitcham.—That consent be not given to the erection of an addition at the rear of the Victoria Hotel, No. 79, Choumert-road, to abut upon Bellenden-road, on the application of Mr. W. S. Witherington on behalf of Mr. J. Cornell.

St. George, Hanover-square.—That consent be not given to the erection of an open iron verandah at the first floor level in front of No. 17, Eton-place, on the application of Mr. J. Darch, on behalf of Mr. A. Kennard.

St. George Hanover-square.—That consent be not given to the erection of an open porch at Nos. 47 &

48, Dover-street, Piccadilly, on the application of Mr. G. D. Martin on behalf of Mr. W. G. Hornsey.

St. Pancras, North.—That consent be not given to the erection of two stone pediments and two finials to a one-story addition in front of the Ball and Gate public-house, No. 380, Kentish Town-road, Kentish Town, on the application of Mr. A. J. Perriam on behalf of Mr. H. Morgan.

Strand.—That consent be not given to the erection of a glass and iron covered way in Crown and Sceptre-court, leading to No. 31, St. James's-street, on the application of Messrs. J. Lyons & Co., Limited, on behalf of Mr. E. Sandow.

Wandsworth.—That consent be not given to the erection of a house with shop on the south side of East Hill to flank upon Melody-road, on the application of Mr. E. J. Golds.

Width of Way.

Newington, West.—That consent be given to the construction and erection of glass and iron roofing upon iron columns in the stable yard at Mr. Tilling's premises, Devonshire-street, Newington-causeway, on the application of the St. Pancras Ironworks Company.

St. George-in-the-East.—That consent be given to the erection of a dwelling-house with shop on the north side of Watney-passage at the rear of No. 52, Watney-street, and to abut also upon Winterton-street, at less than the prescribed distance from the centre of that street, on the further application of Mr. W. Stewart on behalf of Mr. C. Croze.

Chelsea.—That consent be given to the erection of a building upon the site of No. 76, Queen's-road, to abut upon, and at less than the prescribed distance from the centre of, Paradise-walk, on the application of Messrs. Beeston & Burnmaster, on behalf of Mr. T. L. Greut.

Hammersmith.—That consent be given to the erection of an engine-house at the West Middlesex Waterworks premises in a public footpath leading out of Black Lion-lane, Chiswick-mall, at less than the prescribed distance from the centre of such footpath, on the application of Mr. M. W. Hervey, on behalf of the Company of Proprietors.

Hammersmith.—That consent be given to the erection of a projecting shop-front upon part of the flank of No. 93, King-street, at less than the prescribed distance from the centre of Bridge-avenue, on the application of Mr. D. Carmichael, on behalf of Mr. J. Broughton.

St. George, Hanover-square.—That consent be given to the erection of an open portico on the north-east side of No. 15, Grosvenor crescent at less than the prescribed distance from the centre of Grosvenor-crescent-mews, on the application of Messrs. Waller & Co.

Whitehall.—That consent be given to the erection of a building on the sites of Nos. 5, Victory-place, and a stable and yard adjoining, on the application of Mr. E. W. Parker on behalf of Messrs. Whitworth & Son.

Brixton.—That consent be not given to the rebuilding of the "Perseverance" public-house, No. 51, Vassall-road, North Brixton, with the flank of the new building to abut upon Chrysell-road, on the further application of Messrs. Eedle & Meyers on behalf of Mr. W. S. Penny.

Bermondsey.—That consent be not given to the rebuilding of "Samson's Castle" public-house, No. 210, Grange-road, to abut also upon Gregg's place, on the application of Mr. T. H. Smith on behalf of Mr. Alderman J. C. Bell.

Whitehall.—That consent be not given to the erection of buildings on the north and south sides of a passage-way leading from Sayer-street to Lion-street, on the application of Mr. J. W. Brooker on behalf of Mr. Rodgers.

Space at Rear of, and Projections from, Buildings.

Hackney, Central.—That consent be not given to the erection of three blocks of residential flats on the east side of Clapton-square, at the corner of Clapton-passage, with a five-story bay window at the north-west angle of the blocks, and that the Council, in the exercise of its powers under Section 41 (1) of the London Building Act, 1894, do not allow the erection of the said residential flats with an irregular open space at the rear, on the further application of Messrs. Crew & Hammond on behalf of the Metropolitan House Investment and Agency Company, Limited.

Open Space about Buildings.

Kensington.—That sanction be given to certain deviations from the plan certified by the District Surveyor under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the "White Hart" public-house, No. 185, Lower Kennington-lane, at the corner of Cleaver-street, on the application of Messrs. Waring & Nicholson on behalf of Mr. W. S. Wright.

Woolwich.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a two-story house to be known as No. 38, Tormount-road, Plumstead Common, with an irregular space at the rear, on the application of Mr. G. E. Arnold.

Hampstead.—That the Council in the exercise of

its powers under Section 41 of the London Building Act, 1894, do not allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of two blocks of residential flats on the east side of Holmdale-road, between Nos. 73 and 100, wood-road, with insufficient open spaces at the rear, on the application of Mr. J. Reynolds.

Line of Fronts and Width of Way.

Greenwich.—That consent be given to the erection of dwelling houses on the north side of Ashburnham-road, Greenwich-road, westward of Lambard-cottages, on the further application of Mr. W. Sawyer on behalf of the President and Governors of Queen Elizabeth's College, Greenwich.

Maylebone, East.—That consent be given to the erection of a new porch with lavatory over, in front of Siena House, No. 7, Lodge-place, St. John's Wood, on the application of Messrs. Read & Macdonald on behalf of Mr. E. R. Hughes.

Hammersmith.—That consent be not given to the erection of a drill-hall, with instructor's cottage, on the south side of Wood-lane, to abut also upon Bulwer-street, on the application of Mr. W. J. Shearburn.

Islington, West.—That consent be not given to the erection of a building at the rear of the "Victoria" beer-house, Chalfont-road, Liverpool-road, to abut upon Charles-street, on the application of Mr. A. Burr on behalf of the Highbury Brewery, Limited.

Rotherhithe.—That consent be not given to the rebuilding of Nos. 77 and 79, Jamaica-road (being the "Crown and Anchor" tavern and a house and shop adjoining), to abut also upon New Church-street, on the application of Mr. C. H. Flack on behalf of Mr. B. P. Lucas.

Formation of Streets.

Wandsworth.—That an order be sealed and issued to Mr. W. H. Iles, sanctioning the formation or laying-out of two streets, each 40 ft. wide, for carriage traffic, to lead from Blackshaw road into Alston-road, Tooting, on his application to the Council. That the names Berial-road and Worsdale-road be approved for the new streets.

Wandsworth.—That an order be sealed and issued to Mr. A. Wellings, sanctioning the formation or laying-out of two new streets, each 40 ft. wide, for carriage traffic, to lead out of Mitcham-lane into Levenson-street, on his further application to the Council. That the names Blegborough-road and Cornthorpe-road be approved for the new streets.

Hutton.—That an order be sealed and issued to the Vestry of Shoreditch refusing to sanction the formation or laying out for foot traffic only, of a street 11 ft. wide, to lead from the western end of Mount-pleasant, East-road, Shoreditch, into Provost-street, on the application of the Vestry.

Buildings for the Supply of Electricity.

Paddington, North.—That the Council do approve of the plan submitted with the application of Mr. A. H. Walton, on behalf of the Metropolitan Electric Supply Company, Limited, for the construction of a one-story addition on the east side of the engine and dynamo room at the Company's generating station and works in Amberley-road, to abut upon the Regent's Canal Basin.

Kensington, South.—That the Council do approve of the plans submitted with the application of Mr. G. F. Grover, on behalf of the House-to-House Electric Supply Company, Limited, for the construction of an addition to the boiler-house at the Company's generating station and works in Richmond-road.

Hampstead.—That the Council do approve of the plans submitted with the further application of Mr. J. Hudson on behalf of the Vestry of Hampstead, for the construction of a doorway in the north wall of the Vestry's generating station and works at Lithos-road, and for permission to project, beyond the outer wall and over the footpath adjoining the London and North-Western Railway Company's premises, a girder to carry a travelling crane.

Conversion of Buildings.

St. George, Hanover-square.—That the Council do not consent to the ground floor and basement of No. 41, Albemarle-street, Piccadilly, being used for trade purposes without being properly separated from the part used as a dwelling-house, on the application of Messrs. Routh, Stacey, & Castle, on behalf of Mr. Robinson.

Recommendations marked † are contrary to the views of the Local Authorities.

RESTORATION OF NAUNTON BEAUCHAMP PARISH CHURCH, WORCESTERSHIRE.—This church was reopened recently after the restoration of the nave and chancel. The church consisted, before the present restoration commenced, of a western tower, nave, chancel, and porch. The tower which is of a late Perpendicular character, has fallen into such a state of decay that it has been found necessary to remove the bells and shore up the walls, and in this state they at present remain. The funds collected being insufficient to fully effect the restoration of the tower. The restoration of the church was entrusted to the Diocesan Architect, Mr. William Jeffrey Hopkin and the contract was Mr. Job Stanley of Brom.

Books.

The Transactions of the Society of Engineers for 1896. Edited by G. A. Pryce Cusson, Secretary. London: E. & F. N. Spon, Limited, 1897.

THE members of the Society of Engineers should be very well contented with the present volume of their Transactions, since it contains several ably written papers on various subjects of general interest.

In his inaugural address, the President—Mr. Samuel H. Cox—confined his attention generally to gold mining, and although this subject is not studied professionally by a large number of engineers, yet indirectly there are many no doubt who are much interested in the subject and look forward with eagerness to the time when, by one improvement or another, their somewhat varying dividends may be more regular as well as augmented.

The Transactions contain an excellent paper by Mr. Percy Griffith on "The Water Supply of Small Towns and Rural Districts," which is rendered particularly acceptable because, while a large amount of information can be found relating to large water works, there is in reality very little published matter dealing with small works of this class.

A paper by Mr. W. G. Wales on "Discharging and Storing Grain" will also be found, and this was the means of producing a good discussion, one of the speakers being Mr. F. E. Duckham, the chief engineer of the Millwall Docks, who has had a very large experience with the appliances now employed for profitably and conveniently dealing with the grain imports to this country.

Other papers, such as the "Ultimate Purification of Sewage," by Mr. G. Thudichum, and "Railway Bridges for Branch Lines," by Mr. M. A. Pollard-Urquhart, are also worthy of mention, and help to make the Transactions quite up to the average of those previously published.

Hydraulic Cement: Its Properties, Testing, and Use. By F. P. SPALDING. New York: John Wiley & Sons. London: Chapman & Hall, Limited, 1897.

This book contains the result of a careful study of the nature and properties of hydraulic cement, and describes the various methods which have been proposed or are now employed for testing cement. The author discusses the many tests applied for determining the quality of cement and points out the limitations within which they may be accepted as reliable indications of value. A good deal will also be found in the book relating to the use of cement in mortar and concrete, and a number of sample specifications are also given; but these refer to the present practice of leading American and not English engineers.

The work, which is carefully prepared, contains many good diagrams, and much practical information will be found in its pages.

Motor Cars. By A. J. WALLIS-TAYLER, A.M.Inst.C.E. London: Crosby Lockwood & Son, 1897.

UNFORTUNATELY, it cannot be said that the present moment is very propitious for the publication of a book on motor cars. Recently it has been pretty clearly demonstrated by our contemporary the *Engineer* that, notwithstanding all that has been said regarding the construction of self-propelling carriages, the industry from which we had been led to expect so much does not in reality exist at all. We do not doubt for a moment that the time will arrive when horseless carriages will be almost universally employed—displacing altogether the present mode of locomotion in our streets, but at present the whole matter is in embryo, and has to be developed much in the same way that the bicycle has been developed. The present motor cars are but the forerunners of what we are to have, just as Stevenson's "Rocket" was the forerunner of the modern locomotive. What time will be necessary for their development cannot be foreseen, but in this, as in similar cases, past experience teaches us it will be a question of years and not months.

Mr. A. J. Wallis-Tayler, in his book on motor cars, gives us a very complete description of practically everything that has been

done in the construction of these vehicles since the matter first received any real attention. He points out that the recent removal of the restrictions against travelling by mechanical means over roads of this country which have existed for so long will permit engineers to turn their attention to the subject, and to develop and perfect the power-propelled road-carriage, and thus establish a great industry. In our opinion no better proof of Mr. Taylor's knowledge of his subject could be found than in the following extract from his book: "At the present moment it seems to the author that a satisfactory power-propelled carriage for common roads has yet to be designed."

For a concise account of the various systems of propulsion which have been adopted for the vehicles now commonly designated motor cars or horseless carriages, we thoroughly recommend his book, since it deals exhaustively with all that has been done in this direction up to the present day.

Elementary Machine Construction and Drawing. By HENRY ADAMS, M.Inst.C.E., M.I.M.E. London: Chapman & Hall, Limited. 1894.

This little book—which contains very excellent drawings of various parts of machines—will be found all the questions usually set in the Elementary Examination on the subject. The work has been well done, the drawings are good and are all of practical utility, and the book, for the purpose of teaching drawing and giving the student a sound knowledge of the details of machinery, leaves nothing to be desired.

Tables Showing Loss of Head due to Friction of Water in Pipes. By EDMUND B. WESTON, M.Inst.C.E. D. van Nostrand Company, New York. 1896.

The author of this little book, having been unable to find any formulae for calculating the loss of head due to friction of water flowing in pipes that could be universally applied, commenced to make special investigations upon the subject himself, the result of which he now publishes in the form of two tables.

The first table gives the loss of head due to the friction of water in pipes having a very smooth interior surface, similar to lead and brass pipes, under different conditions of velocity and discharge, or the inclination necessary to maintain the given velocity and discharge. Pipes from $\frac{1}{2}$ in. to 3 in. diameter are considered in this table.

In the second table the pipes are assumed to have an internal smoothness similar to the new cast-iron pipes, and to have diameters from 4 in. to 5 ft.

The formulae upon which all the figures in the tables are based are well explained, and the book will certainly be the means of saving a good deal of the time of those dealing with this department of hydraulic engineering.

TRADE CATALOGUES.

MESSRS. CHAPMAN & HALL (London) send us a useful catalogue of casts specially selected for schools of art, art classes, &c., illustrated by numerous small photographs, so that a selection can be made from it without actually looking over a collection of the actual casts.—Messrs. Crosby Lockwood & Son (London) send us their new catalogue of scientific and technical books.—Messrs. Boyd (London) send us an illustrated catalogue of their grates, combined with a statement of the information required by them in supplying grates for private and for public buildings. Among the grates figured are some of special character; some of the "independent" grates are very good (Nos. 1524, 1700, 2224, for instance); those supposed to be of "Gothic design" are bad, in fact none of those which profess to be in some special style are very attractive to us, while the plain ones which do not profess "style" really have that quality. The "Hob-grate" is a pleasing "revival"; and there are things in the catalogue to please a considerable variety of tastes.

DIPHTHERIA AND DRAINAGE.—The monthly report of the Sanitary Committee of the Cornwall County Council, after commenting on the prevalence of diphtheria in some of the rural districts, adds—"The disease at St. Mellion and Horsepool, in the St. Germans District, where there were five cases, is attributed to defective drainage. That is a matter that surely ought to command the immediate attention of the responsible authorities."

Correspondence.

To the Editor of THE BUILDER.

LISKEARD CHURCH TOWER.

SIR,—A competition drawing for a new tower, recently published in the *Builder*, serves to remind me to call your readers' attention to the fact that, in spite of the architect called in having reported that the old tower can be substantially repaired, and ought not to be destroyed, the rector and vestry seem determined to pull it down in order to secure a legacy which was left conditionally on a new tower being built.

The existing tower is considerably older than the body of the church, and is, in fact, the oldest monument in Liskeard, and it has suffered a good deal by carelessness in cutting away for alterations and for the bell-stage; but any competent architect will agree with Mr. Fellowes Prynne, who was consulted, that it can be so repaired as to last for centuries.

The Chancellor of the Diocese has (on the above grounds) refused a faculty for pulling down the tower, but the vestry, intent on the legacy of 1,000*l.*, and blind to "monumental interests," threaten to disregard this because no sufficient formal opposition was entered. But they denounce every opponent, not even sparing the Chancellor, as "actuated by interested motives." To such lengths will the fanatic Vandal go.

I have examined the tower myself, and I hope that architects will give the Chancellor's decision their moral support.

London, July 14, 1879.

J. D. CRACE.

GENERAL BUILDING NEWS.

GENERAL HOSPITAL, BIRMINGHAM.—Princess Christian, as the representative of the Queen, opened the new buildings of the Birmingham General Hospital on the 7th inst. The structure is of red brick and terra-cotta, and has been erected from the designs of Mr. William Henman at a cost of 210,000*l.* The building has been fully described in our issues for March 12 and 26, 1892, and illustrations have appeared on March 26, 1892, and November 18, 1893. It may now be stated that the central pile is in the later Victorian style, with projecting wings flanked by towers and connected by transverse corridors, with a number of semi-detached blocks or pavilions harmonising in style with the central group, and extending over an area of some 500 ft. in length by 420 ft. in depth. The combined frontages measure 1,470 ft. The site occupies the whole of one side of St. Mary's-square, in the rear of the new Victoria Law Courts. Messrs. Barnsley & Sons, of Birmingham, have been the contractors. The number of beds provided in the hospital is 346. The two hydraulic passenger and bed lifts and the whole of the hand lifts were constructed by Messrs. Clark Barnett & Co., Limited, London. The outpatients' waiting-hall has been specially treated by Mr. A. Whitehead, of Leeds; a rich brown majolica dado is carried round the room and round the columns, the upper part of the walls, columns, and arches being covered with "Eburite" faience specially prepared by the Campbell Tile Company (Stoke-upon-Trent), and used here for the first time. It is a dull-glazed or "egg-shell-glazed" material of a cream tint. The hospital is ventilated by mechanical propulsion on Key's system. The entering air passes through an outer warming coil, and then through the air-filtering, air-washing, and humidifying screen, which is self-cleansing by a continual trickle of fresh water. The air is afterwards further warmed by coming into contact with coils, clustered in batteries within the air-warming chamber, where also it can be instantly reduced in temperature by admitting filtered cold air through the bye-pass doors for the purpose. Secondary air warming coils are placed at the base of each flue, so that the air to each room may be warmed to any desired temperature while passing through them, and independently of the others. The pure air enters each room so as to be directed to the ceiling, the outgoing air passing off at the floor level, and being led to roof ventilators, where the outlet air-valves are so constructed as to place the whole air within the building under a slight pressure of about four ounces per square foot in excess of the outside atmospheric pressure at the time.

CHURCH, SHREWSBURY, NORFOLK.—A new church at Lower Sheringham has just been consecrated by Bishop Sheepshanks. The church has been built by Messrs. Barrell Brothers, of King's Lynn, from designs by and under the superintendence of Messrs. St. Aubyn & Wadling, architects, of London. The church consists of a nave 83 ft. 6 in. by 30 ft., with a chancel 42 ft. 6 in. by 30 ft. There are north and south aisles 71 ft. by 11 ft. 6 in., making a total width of 55 ft. There are also north and south chancel aisles 28 ft. by 11 ft. 6 in. At the west end of the aisles are porches 15 ft. by 10 ft.; there are also smaller porches at the east end of

the aisles. The choir and clergy vestries will be in the north side of the chancel, the basement of the choir vestry only being built at present, forming a chamber for the warming apparatus. The nave has an arcade of four arches on each side. The chancel has two arches on each side. A wooden bell-cot, covered with oak shingles, rises from the roof at the west end of nave to a height of 100 ft. from the ground to the weathercock. The church is in the Early English style, built of brick, faced externally with flint, with brick and stone dressings. The inside walls are plastered, the arcade and dressings being of brick. The roofs are boarded and arranged for future panning, and covered with slate. The altar is approached by seven steps. The floors of nave and aisles, also floor in chancel for future stalls, are laid with wood blocks. The porches are paved with mosaic. The chancel floor, at present laid with cement, is arranged for mosaic. The cost of the building up to the present has been 7,065*l.*

ADDITIONS TO SHEFFIELD CATHOLIC INDUSTRIAL SCHOOL.—The Lord Mayor of Sheffield (the Duke of Norfolk), accompanied by the Lady Mayoress visited on the 7th inst. St. Joseph's Home, in Howard-hill, Sheffield, for the purpose of opening recent additions to the building. At a cost of about 1,000*l.*, new baths and dormitories and another laundry have been provided. The design for the work was furnished by Messrs. W. H. Lancashire & Sons, architects, and the contracts were let out as follows:—Masonry and bricklaying, Messrs. D. O'Neill & Sons; carpentry and joinery, Mr. W. Lynn; plastering, Messrs. Hudson & Dore; plumbing, Messrs. Corrie & Sons; painting, Messrs. J. & J. Rodgers, and Mr. M. A. Topham; slating, Mr. W. Proctor.

RAGGED SCHOOL, BLACKBURN.—The foundation stone of the new Ragged School—to be erected in Bent-street, Blackburn—was laid recently by Earl Compton, M.P. The new structure is to be erected from plans drawn by Messrs. Briggs & Wolstenholme, architects, Blackburn. The cost is estimated at about 2,600*l.*

PROPOSED RESTORATION OF WITTON-LE-WEAR CHURCH, DURHAM.—It is proposed to restore and enlarge the parish church of Witton-le-Wear, from plans prepared by Mr. Hodgson Fowler. The total cost is estimated at 1,800*l.*

DRILL HALL, CHESTERFIELD.—A Victoria Drill Hall is to be built on the Allotments, Ashgate-road, Chesterfield, in commemoration of the Diamond Jubilee. The architect is Mr. Cecil Jackson, of Chesterfield. The estimated cost is 2,000*l.* The floor of the hall will be below the road level. The dimensions will be 150 ft. long by 55 ft. wide. At one end of the hall will be placed adjacent offices, sergeant's room, committee room, and armoury. At the end of the hall over the volunteers' entrance will be a band gallery. The building will be heated with hot-water.

PROPOSED RESTORATION OF TRIMLEY CHURCH, STROVOK.—Trimley St. Martin Church, one of the two edifices standing in the churchyard of the two parishes of Trimley St. Martin and St. Mary, has for some time needed restoration, and Mr. J. S. Corder, of Ipswich, has examined the structure, and will report on the subject.

WESLEYAN SCHOOLS, DONCASTER.—On the 8th inst. memorial stones were laid of new Sunday schools now being built behind the Priory-place Wesleyan Chapel at Doncaster. The cost of the new schools will be about 3,000*l.* The plans were prepared by Messrs. Athron and Beck, architects, and the contract for the work has been let to Mr. J. Athron, builder, whose contract amounts to 2,735*l.* There will be a large assembly hall on the ground floor, with seven class-rooms.

CHURCH, WINNINGTON, CHESHIRE.—The new Church of St. Luke's, Winnington, was consecrated and opened recently by the Bishop of Chester. The new church is from the designs of Mr. J. L. Pearson, R.A., and was erected by Messrs. Beckett & Co., of Hartford. The church is 100 ft. long and 27 ft. 6 in. wide, and will seat 320 people. Red pressed brick has been employed throughout the building. The nave is 60 ft. long, and the chancel 34 ft. 3 in., with one step leading from the former to the latter, and with four steps to the altar. The main entrance to the building is through an open porch on the north side. The interior roof is of moulded pitchpine, the principals being supported on stone corbels. The windows are Gothic, and are glazed with cathedral tinted lights. The east window consists of three separate windows, each measuring 7 ft., while the west window is 15 ft. high, with four lights set in tracery. The floor is of wood blocks, and the aisles are of Staffordshire tiles. There is a priest's and a choir vestry, and the organ is elevated above these on a platform. Above the organ chamber is an archway, the columns being 16 ft. from the base to the summit, with an arch of 6 ft. Below the church is a parish room 27 ft. long and 12 ft. high, capable of accommodating 200 persons, and on the same level and beneath the vestries is a heating chamber vaulted over with brick. A tower and spire have been designed for the north side, but their erection have not yet been undertaken. The church furniture is of oak.

CHURCH, BROCKO BANK, SHEFFIELD.—The corner stone of St. Augustine's Church, in Brocko Bank, Sheffield, was laid on the 8th inst. Mr. J. D. Webster, of Sheffield, is the architect, and his design

is for a building in the Early English style. The church, which, apart from furnishing, will cost 7,700l., will seat 650 persons. The nave will be 104 ft. long and 36 ft. wide, and the chancel 36 ft. by 28 ft. There will be an organ chamber and clergy and choir vestries. At the north-western angle of the nave there will be a tower, rising 95 ft. to the top of the parapet, and the entrance porch will be at the south-west corner of the nave. The roofs will be covered with Broseley tiles. The chancel floor will be laid in mosaic. The pulpit, the reading-desk, and the choir stalls are to be of oak. Mr. James Fidler, of Eckington, is carrying out the contract.

PRESBYTERIAN CHURCH, LIVERPOOL.—The dedication service in connexion with the new Presbyterian Church of St. Columba's, Smith-down-gate, Sefton Park, was performed on the 8th inst. The building, which has not yet been completed, is to accommodate 600 people on the ground floor and 40 in the gallery. The architects are Messrs. Woolfall & Eccles, Liverpool.

ALTERATIONS TO THE DRILL HALL, WIGAN.—Additions are being made to this building from the design of Mr. W. E. Vernon Crompton, architect, Wigan.

CONGREGATIONAL CHURCH, BEKHILL.—A new Congregational Church has just been opened in the Station-road, Bekhill. The building is warmed by Grundy's patent hot air system. It was designed to harmonise with the Victoria Hall, and has been carried out in red brick, with Elliott's patent stone on the roof. The roofs are covered with green slates. The work has been carried out by Mr. Peter Jenkins, under the superintendence and according to the plans of Mr. Henry Ward, architect, of Hastings, whose design was selected in a limited competition. At the south side of the Chapel a private entrance leads to the vestry, which is situated at the extreme western end, and from here direct access is obtained to the dais, upon which the pulpit is placed. The vestry is also connected with the platform of the Victoria Hall. There is a gallery at the eastern end. This likewise has a raised floor and is approached by staircases on either side of the main entrance, access being obtained from the exterior by separate doorways. The whole building will seat 550 persons.

RENOVATION OF WALTON BAPTIST CHAPEL, SUFFOLK.—This building is being restored under the direction of Mr. Alfred Conder, architect, of London.

WESLEYAN CHAPEL, NEW HIRST, NORTHUMBERLAND.—The foundation-stone of a new Wesleyan Chapel at New Hirst, has just been laid. Mr. J. W. Taylor, of Newcastle, is the architect, and Messrs. Cocks Brothers, of Blyth, are the contractors. Only the school-room and class-rooms will be proceeded with at present. This building will involve an outlay of 1,000l. The new buildings are of Gothic design, and will be built of local stone. The gable of the school, next the main road, is treated in half timber work.

BONDED WAREHOUSE, BELFAST.—A block of buildings which has been erected by Messrs. Wm. Cowan, Limited, for the purposes of a bonded warehouse, on a site adjoining Great Patrick-street and Academy-street, Belfast, was opened on the 8th inst. The architects were Messrs. Græme, Watt, & Tulloch. The building is lighted by electricity, this portion of the contract having been given to Mr. George Combe. The gas engine has been supplied by Messrs. Crossley & Co., Manchester. The premises are 98 ft. long by 68 ft. in width, and are five stories in height; the total floor space is about two-thirds of an acre. In addition to the usual offices and space for valuing purposes, there is accommodation for about 10,000 casks. There are two large vats, which have respectively a capacity of 5,000 and 3,000 gallons. The builder was Mr. R. Cory.

PUPIL TEACHER'S COLLEGE, LIVERPOOL.—A Pupil Teacher's College is being erected in Liverpool for the Liverpool School Board. The college is being erected from the designs and under the superintendence of Messrs. T. Mullard Reade & Son, of Liverpool. The exterior is of buff terracotta. In the basement are the tea-room, cloak-room and recreation hall. There are three entrances on the ground floor—one in Pleasant-street, a second in Clarence-street, and a third in Green-lane. On this floor there is class-room accommodation for 275. The several class-rooms are fitted with sliding partitions. Class-room accommodation for 204 is provided on the first floor, besides a library. The second floor is devoted to science and art classes. There is a chemical laboratory for forty-nine students, 60 ft. by 25 ft., lined with enamelled bricks. The science, lecture, and examination hall is 51 ft. by 25 ft., and divisible into two by a screen. The art class-room is 27 ft. by 25 ft., and will accommodate fifty students. In the plans of the college a certain provision for boarders is made.

SCHOOL INFIRMARY, WITHAM.—The memorial stone for the infirmary at the South Metropolitan School, Witham, was laid on the 10th inst. Mr. Frank Whitmore is the architect, and Mr. Ernest West is the builder.

MISSION HALL, HULME.—On the 10th inst. the memorial stones of a new hall in connexion with the York-street Mission, Hulme, were laid. Plans were prepared by Mr. S. Crowcroft, and the building contract was let to Mr. J. Toole, Hulme. Seating

accommodation will be provided for between 300 and 350 worshippers.

SCHOOLS, WEST MERSEA.—The West Mersea School Board have instructed Mr. J. W. Start, architect, of Colchester and Harwich, to prepare plans for a mixed school for 300 children, with central hall, and to utilise the present buildings, as far as possible, for cloak-rooms, heating chamber, &c.

BATHS, LAMBETH.—On the 9th inst. the Prince and Princess of Wales opened the new Lambeth Public Baths. The buildings, which are of red brick, are in the Kenington-road. The interior of the buildings is lined throughout with white glazed bricks, and they contain three swimming baths, a number of private baths, and a wash-house. The site comprises a superficial area amounting to 33,330 ft., the whole of which, with the exception of the yard to the boiler-house, is covered with buildings. The general accommodation is briefly as follows:—men's first-class swimming bath, 142 ft. 6 in. by 56 ft. 6 in.; clear size of pond, 132 ft. by 40 ft.; men's second-class swimming bath, 98 ft. by 42 ft.; clear size of pond, 90 ft. by 30 ft.; women's swimming bath, 60 ft. by 30 ft., 50 ft. by 25 ft. Nineteen men's first-class and 46 men's second-class private baths; 10 women's first-class and 20 women's second-class private baths, being a total of 95 private baths; and public wash-houses for 64 washers. The first-class swimming-bath has been arranged to adapt it for letting during the winter months for purposes of the Local Government. The hall, when arranged for entertainments of any kind, will be entirely shut off from every other portion of the establishment, and will afford seating accommodation on the ground floor for 1,222 persons, and on the gallery floor for another 300. Mr. A. Hessel Tiltman was the architect.

SANITARY AND ENGINEERING NEWS.

SEWAGE SCHEMES, &c., PLYMOUTH.—Major-General H. D. Crozier, R.E., held an inquiry at Plymouth Guildhall on the 6th inst. the Town Council having applied to the Local Government Board to borrow 100,000l. for works of sewerage, and 40,000l. for purposes of scavenging and the provision of a depot and refuse destructor on a portion of Prince Rock Estate. Mr. G. R. Strachan, partner with Mr. James Mansergh, civil engineer, described the plans, and said that in May, 1894, the sewerage system of Plymouth was thoroughly investigated by his partner and himself. Several of the outfalls were at present in very undesirable positions. The Laira sewerage was carried out on a rough system; the tanks were greatly complained of in the district, and it was admitted on all hands that the tanks were not suited for the purpose they were now used. They were insufficient in size, and altogether bad for the purpose of sewage disposal. The tanks were also in an undesirable position. The scheme now before the Local Government Board provided for a population up to 135,000. Much of the ground now used for sewerage purposes was sewage-logged. The gradients for the new sewerage scheme were ample for the outfalls. The storage tank would hold a million and a quarter gallons, and provision was made for another three-quarters of a million. At any state of the tide storm-water would be able to flow into the tanks; and, in fact, the scheme provided for storm-water being conveyed into the sea almost independent of the tide. The sewerage would be well out to sea before the time came for the tide to turn, and thus none of it, or very little, would be returned with the tide. The Inspector then proceeded to hear evidence with reference to the proposal to borrow 40,000l. for purposes of scavenging and for the provision of a depot and refuse destructor on a portion of the Prince Rock Estate. The Borough Surveyor (Mr. J. Paton) explained the plans. After some discussion, the Inspector intimated that he would visit the Prince Rock Estate, and in due course submit his report to the Local Government Board.

MANCHESTER SEWAGE.—At the monthly meeting of the Mersey and Irwell Joint Committee, held recently, a proposition was moved by Mr. R. W. Jones and seconded by Dr. Hewitt that, in addition to the reports of Sir Henry Roscoe and Mr. R. A. Tatton upon the question of artificial filtration being forwarded to the Local Government Board, a deputation be appointed to wait upon the Board with the view of showing the objections to a hard and fast rule being laid down with regard to land filtration. Alderman Joseph Thompson, Chairman of the Rivers Committee of the Manchester Corporation, said that Manchester was in a difficult position. It was the duty of the Committee to obtain as good a plan as possible for the tanks constructed under the supervision of Sir Henry Roscoe were steadily diminishing in capacity as time went on. Under these circumstances it would be so terribly expensive to carry out a scheme on these lines that no one with any regard for the ratepayers could contemplate it, and he could not

help thinking that the time was coming when the whole subject would have to be reviewed. So far as they could see at present it was simply impossible for the Corporation to keep up a continuous effluent good enough to meet the full requirements of the Committee. The motion was only adopted after a considerable amount of discussion, several members urging that it would be a mistake for the Committee to depart from the policy they had pursued in the past of refraining from recommending any particular system.

SEWAGE SCHEME, SALFORD.—At the monthly meeting of the Salford Town Council on the 7th inst. a report was submitted from the River Conservancy Committee dealing with the question of sewage disposal. It pointed out that an application had been made to the Local Government Board for sanction to borrow 50,000l. for the purpose of carrying out the Borough Engineer's scheme, and that the sanction had been refused. The reason given was that there was not an adequate area of land over which the effluent should be passed after the sewage had been treated chemically, it being stated that at least 100 acres should be provided for the purpose. To this and other objections, the Town Clerk replied that the Corporation brought the matter forward to satisfy the requirements of the Mersey and Irwell Joint Committee, which was charged with the duty of compelling the observance of the Rivers Pollution Prevention Act, 1876, and the Mersey and Irwell Joint Committee Act, 1892, and had obtained an order of the county court requiring the Corporation to cease polluting the river Irwell and the Ship Canal. The Corporation had for years past conducted practical experiments with almost every known system of sewage treatment, and acting on the experience thus gained, had adopted the scheme as the best artificial way of treating sewage under the existing conditions. The Borough Engineer had reported that the additional land which the Board proposed should be acquired, the preparation and the construction of the necessary culvert from the sewage works to the land, would cost 87,000l. in addition to the expenditure of 50,000l. already proposed, and that the extra cost of maintenance would amount to nearly 7,000l. annually. The Committee considered the provision already made ample for the object in view, and could not see their way to recommend the Council to undertake the large additional expenditure, which they believed to be totally unnecessary, and they respectfully requested the Board to reconsider the matter. The Local Government Board, however, replied that they must adhere to their requirements. The Committee recommended that the Council should borrow 50,000l. on the credit of the land, works, or other property of the Corporation used for the purposes of the disposal of sewage, and direct the requisite steps to be taken with that object; that the scheme of the Borough Engineer already adopted by the Council be proceeded with, and that the original application to the Local Government Board be withdrawn. On the suggestion of Alderman Walsley it was agreed to postpone the discussion of the matter.

FOREIGN.

FRANCE.—The Municipal Council of Paris has registered a formal opposition to the demolition of the church of St. Pierre at Montmartre. At their last sitting they invited the Prefect of the Seine to present, at an assembly, a report of the work necessary for the thorough repair of the church, and to request from Parliament the portion which the State should by rights contribute to the repair of a building classed among "Monuments Historiques."—At the Hôtel des Invalides the new historical museum of the Army, created under the auspices of the Government, and with the cooperation of M. Dettaille, has been inaugurated. The Place Victor Hugo is at present being laid out in view of the installation of the monument which M. Barrias has just completed, and which is to be erected in place of the fountain now in the centre of the square.—Some large canal works are to be undertaken to assist in carrying the sewage of Paris into the plain of Méry-St.-Oise and to Vriel, for the purpose of agricultural use, as already done at Gennevilliers and Achères.—The Institute of France has nominated the three curators of the domain of Chantilly for three years. They are Mr. Mézières, for the Académie Française; M. Gruyer, for the Académie des Beaux-Arts; and M. Léopold Delisle, for the three other departments of the Institute.—The department of Haute Vienne will shortly open a competition for a new Prefecture building for Limoges.—There are to be monuments erected to two Provençal poets, St. Rémi, to Antonius Arena, of which M. Demaille is the sculptor; the other at Château-neuf-des-Papes, to Anselme Mathieu, one of the founders of the literary society of the "Félibres." This is to be a fountain with decorative figures, modelled by M. Amy.—The buildings for the International Exhibition at Gueland have been carried out by a Parisian architect, M. Bezault.—The thirty-fourth edition of the "Société des Amis des Arts" of Nancy will open on October 17, and remain open till November 28.—At Algiers the construction of an inner basin to the port of Agha is to be taken in hand shortly, at an estimated cost of 5,600,000 francs.—The monument in commemoration of the

visit of the Russian Sovereigns to Paris is to be erected at the Ranelagh, at the angle of the Avenue Prudhon and the Chaussee de la Muette.—At its meeting of Wednesday, the 7th inst., the Municipal Council of Paris passed the vote for the metropolitan electric railway scheme with narrow gauge, the general intended features of which we have already described. It will include a circular line by the outer boulevards, and two cross lines, one from north to south and the other from east to west. The works will be commenced as soon as the vote has received the formal ratification of the proper authorities; but it will be impossible to carry it out in time for the 1900 exhibition.—The Chamber of Deputies has voted, by a very large majority, for an addition to the water supply of Paris from the sources of the Loing and the Lunain.—A competition has been opened at Verviers for a monument in honour of Vieuxtemps, the great violinist.

An iron bridge is shortly to be built over the Rhone at Lyons, between the Place Collier and the Rue de la Vitrolerie. The cost is estimated at about 2,200,000 francs.—The death is announced, at the age of forty-nine, of the painter Dantan, who, with his wife, was killed in a carriage accident at Villerville. Joseph Edouard Dantan was the son of Dantan the sculptor, and entered the atelier of Pils, at the Ecole des Beaux-Arts, in 1867. He first took up historic and religious painting, but soon abandoned this class of work to devote himself to *genre*, in which he acquired a great reputation both for interiors and "still life" subjects. Among his best works may be named "Le Coin d'Atelier," exhibited in 1880, "Le Repos du Modèle" (1881), "La Fête-Dieu" (1882), "L'Atelier du Moutage" (1884), "L'Entre-Acte à la Comédie Française" (1886), "Le Ténor et l'Amant" (1890), "Le Ténor et la Femme" (1890), &c. In the Salon of this year he exhibited a portrait of Paul Aubé the sculptor, an "Interieur d'Atelier," and two pastels. He had received medals in the Salons of 1874, 1880, and 1889, as well as the decoration of the Legion of Honour in the last-named year.

GERMANY.—The first premium for the design for a monument to the Emperor William, which is to be erected at Aachen, has been awarded to Professor Maiss, of Munich, and similar premiums of equal value (150l. each), have been given to Professor Schaper, of Berlin, and Herr Buscher, of Düsseldorf. The subject was an equestrian statue, and there was a committee of assessors, who are partly laymen, and partly artists.—The laws of Germany, which have been lately codified, and will come into operation in their new form on January 1, 1900, will influence the rights of building owners and builders to a considerable extent, and the legal aspect of the various alterations due to the codification is the subject of an interesting article in our contemporary, the *Deutsche Bauzeitung*.—The annual conference of the special delegates of the Amalgamated Societies of German Architects and Civil Engineers is now to take place at Rottenburg on September 10, and the subjects under discussion will be particularly interesting. One of the most important items on the agenda paper refers to the formation of a special journal, which is to echo the views of the amalgamated societies. The old journal of the Hanoverian and Saxon societies is to be re-adapted for this purpose. The Potsdam Bridge in Berlin, which is being rebuilt, is to be of considerable architectural pretensions, and a special committee has been elected by the Municipality to consider the best method of decoration, more particularly in respect of the sculpture. The City Architect, Baurath Ludwig Hoffmann, will be the architect adviser to the committee. In connection with this purpose, the Berlin Royal Technical College, reported in a former issue, it is interesting to observe that there has again been an increase in the number of its students, who now number 2,693. Of these 112 are Russians, and there are three Englishmen.—A competition, limited to architects practising in the Grand Duchy of Baden, has just been opened for the reconstruction of the facade of the old Town Hall at Carlsruhe.—The German Institution of Civil Engineers has celebrated the entry into its new home with considerable ceremony. The building, which is in Charlotte-street, is situated on a site which cost about 15,000l., whilst the building itself cost 12,000l. Messrs. Reimer & Koerte were the architects.—A large concert-room, with seating accommodation for 2,000, is to be erected at Goerlitz. The Municipality has given the site, and Count Hochberg will find the necessary funds for the building.—Professor Ende has been re-elected President of the Royal Prussian Academy.

SWITZERLAND.—The new Municipal Theatre, which has long been contemplated for Berne, is now to be taken in hand, and a competition has been opened for the design, limited to Swiss architects. There will be several assessors, among them Professor Bluntschli, of Zurich; M. Gos, the architect of the Geneva Municipal Theatre, and the engineering chief of the Munich Opera House.

ANNUAL DINNER.—The staff of Messrs. G. H. & A. Bywaters & Sons (builders, London) held their annual excursion on Saturday, the 10th inst., to Portsmouth, where they dined together. By special permission, the party were conducted round the Dockyard, and a trip to the Isle of Wight completed the programme.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Jas. Wright, architect and surveyor, of 23, St. John-street, Derby, has taken into partnership Mr. T. H. Tomlinson, and the business will be carried on in future under the style of "Wright & Tomlinson."—In consequence of Mr. R. G. Pinder's severe illness he has been obliged to retire from the partnership of Pinder & Fogarty, architects, Bournemouth, entered into on January 1 of this year. The business will in future be carried on by Mr. J. F. Fogarty at the same address—2, St. Peter's-terrace, Bournemouth.—Mr. T. S. Pufford, paint and colour manufacturer, has removed from 77, Cannon-street, to 14, Upper Thames-street, London, E.C.

PALMER'S PATENT TRAVELLING CRADLE.—This is a swinging cradle for men working on the fronts of buildings, the special feature of which is that it is slung from a wire rope stretched across the top of the building, and can readily be hauled backwards and forwards along this rope by the men in the cradle working the pulleys; it is therefore unnecessary to make the cradle of any great weight or extent, as by the combination of the side pulleys and the vertical tackle it can be moved all over the surface of the front by the men working in it. Two or three different ways of securing the wire rope are suggested; this part of the scheme, however, would not in most cases present any practical difficulty. This apparatus was successfully used in fixing and lighting in a very short time about 700 lamps in an illumination design on the eve of Jubilee day, when the contractors had failed to carry out the work and ladders were not permissible.

BECKETT'S STEEL FIRE-ESCAPE LADDER.—This is a ladder of stout steel rods and rungs, with a flat bar attached to one end by chains and pierced for rivets or screws for securing it inside the room. It will then fold into a comparatively small space, and can be thrown over from the window at a moment's notice. We do not accept the patentee's statement that "a child can throw it over"—he would be a pretty strong child; but any grown-up person can, and it requires no adjustment of any kind, when once attached to wall or floor below the window. As a combination of lightness and strength with incombustible character it is a very successful thing, provided that the sill of the window from which it is hung has sufficient projection to keep it well clear of the wall; unless this is the case its use for descent would be difficult and dangerous, a point which the patentees seem rather to have overlooked. Subject to this provision it can be recommended to notice.

THE SANITARY INSTITUTE.—At an examination in practical sanitary science, held at Bristol on July 2 and 3, five candidates presented themselves, to whom three certificates were granted, viz., H. J. Farmer, Bristol; E. J. Hale, Hornsey, N.; W. J. Masters, Birmingham. At an examination for Inspector of Nuisances, also held at Bristol on July 2 and 3, twenty-four candidates presented themselves. The following twelve candidates were certified as regards their sanitary knowledge competent to discharge the duties of Inspector of Nuisances:—P. N. Biggs, Bristol; J. Crocker, Blandford, Dorset; F. J. Downs, Bristol; H. C. Gould, Topham, Exeter; F. J. H. Hey, Ayr, Ayrshire, R.S.O.; Gloucester; C. Harris, Bristol; F. Kirley, Horfield, Bristol; H. B. Mapleton, Wonwell, Highweck, S. Devon; G. A. Millard, Chipping Sodbury; F. Padfield, Aberlilly; C. W. Pritchard, Sheffield; J. Williams, Tonypaol, near Porth.

STRAND AND OXFORD-STREET IMPROVEMENTS.—On the 16th inst. a Select Committee of the House of Lords, of which Lord, R.S.O., Gloucester, had under consideration the London County Council (Improvements) Bill. Mr. Freeman, Q.C., stated that the Bill was to empower the carrying out of three distinct improvements in various parts of London. The first, which was unopposed, was the construction of a suitable approach to the north side of Tower Bridge, similar to that which had been sanctioned, and was now being constructed, on the south side of the bridge. The next was the widening of Tottenham-court-road at the Oxford-street end by sweeping away the block of houses forming the east side of Bozier's-court, the effect of which would be that, after the carrying out of the work, the western side of Bozier's-court would become the western side of Tottenham-court-road. This improvement, counsel explained, was designed to relieve the constant block in the traffic that occurred at this locality. The chief opposition to this part of the scheme came from the Oxford Music-hall authorities, who objected to the hall being included in the area over which the betterment charge—for the betterment principle was incorporated in the Bill—was proposed to be spread. The remaining improvement was the widening of the Strand by the removal of the block of buildings between the two churches of St. Mary-le-Strand and St. Clement Danes, forming the south side of Holywell-street. Evidence was then taken for and against the proposals, the opposition chiefly coming from the Oxford Music-hall. Eventually the Committee found the preamble proved, and directed that the Oxford Music-hall must be included in the betterment area.

"THE MUNICIPAL YEAR-BOOK FOR 1897."—This work, by Mr. R. Donald, Editor of *London*, consists of an account of the constructive work carried out

by municipalities, rather than the purely administrative. A chapter is devoted to Municipal Government in London, the work of the central metropolitan authorities is described, and a list of the local authorities given. An account follows of the English municipal code as an introduction to a description of the government of English towns, which are divided into three categories—great towns, county boroughs, and other incorporated towns. The short general sketches under the heading of the towns, which are admirable, little summaries of the work of the different towns, are intended to bring out the main features of the municipal work in each case. Following on the English and Welsh cities and towns is a note on Municipal Government in Scotland and notices of the chief Scottish municipalities; and the same system has been adopted in the case of Ireland. Information as to the water supply, gas, electric lighting, and tramways of towns follows. The work is a model of conciseness, and will prove very useful as a book of reference.

MURRAY'S "CYCLISTS' ROAD-BOOK."—This is a small book that can be carried in the pocket, bound in the familiar red of "Murray's Guide-Books," and intended as a companion for a cycling tour from London through Guildford, Chichester and Portsmouth to the New Forest, and back by way of Romsey, Winchester and Dorchester, giving information as to the things of interest in the various localities on the route, so that the cyclist may be encouraged to combine profit with exercise. Probably, if the guide-book for this route finds a good sale, others will be issued for other routes.

THE DICTIONARY OF ARCHITECTURE.—A complete copy of this work, bound in eleven volumes, was sold on Monday last at Sotheby's for 91. 5s.

BUILDING BY-LAWS, HALIFAX.—At the meeting of the Halifax Rural District Council recently the question of "wooden spouts versus iron spouts" was discussed. The Council is proposing to adopt new by-laws, under which they will govern the erection of buildings in their district, and a short time ago a deputation waited upon the Local Government Board to discuss the framing of these by-laws. Eventually they became practically agreed on every point but one, and that was as to the sort of spouting to be put on buildings. The Council were in favour of wooden spouts, but the Local Government Board insisted that spouts should be made of iron. At the meeting above referred to Mr. G. J. Armaght (Clifton) proposed that a letter be written to the Local Government Board, pointing out that the use of wooden spouts was the general custom in the district, and that the Council thought them better than iron ones. Mr. Whittaker (Norland) said the wooden spouts would last longer than iron ones, which soon began to rust away. If an iron one got broken, they had to put an entirely new length in; they could not repair it. The difference of the cost of the two was very little. The chairman (Mr. Carter, Norwood Green) said all this was pointed out to the Local Government Board, but without avail. He did not think they would give way, and therefore proposed that the by-laws be adopted. Eventually, three voted for the adoption of the by-laws, and three against. The chairman gave his casting vote in favour of the adoption.

PROPOSED SUBWAY FROM GREENWICH TO MILLWALL.—The Bill promoted by the London County Council for powers to construct a subway under the river Thames from Greenwich to Millwall came up on the 13th inst. as an unopposed Bill before Lord Morley's Committee of the House of Lords. The preamble having been formally proved, the Committee passed the Bill as already sanctioned by the House of Commons. The subway will be constructed for foot-passengers only, and will commence near Brewhouse-lane, Greenwich, and will terminate near the western bountry of the Island Gardens, Poplar.

THE CITY COMMISSION OF SEWERS.—On the 13th inst., at the Guildhall the Commissioners of Sewers held their usual fortnightly meeting. A report was submitted by the Streets Committee proposing that the large freehold of Hornchurch Marshes, near Barking, with the Romford Canal, should be purchased for the purpose of dealing with the street refuse of the City on the system adopted by Glasgow.

MEMORIAL WINDOW, DERBY.—On the 10th inst., a stained glass window, erected in St. Andrew's Church, Derby, as a memorial of the late Robert Hey, for sixteen years vicar of the parish, was unveiled and dedicated. The window consists of two central lights, which are 25 ft. long, and 3 ft. 3 in. wide. The four side-lights are 20 ft. 6 in. long, and 2 ft. 1 in. wide. The window was designed and carried out by Messrs. F. Holt & Co., Warwick, the engraving on the brass plate being executed by Mr. A. W. Lowe, of Derby.

CAPITAL AND LABOUR.

PRESTON BRICKLAYERS' STRIKE.—The bricklayers of Preston, who came out on strike several weeks ago, have returned to work, a settlement of the differences between the employers and the men having been arrived at. One point in dispute was that the men should be conceded an advance of 1d. per hour, and on this point an amicable arrangement was arrived at some time ago, but there still remained a serious difficulty with reference to the

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
------------------------------	-------------------	-------------------------------------	--------------------------------

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
*Wood Pavement	St. George (Hanoor)	The S. & V., Poulton-	
Pier Works " " "	Rochester " " "	Arch't. J. Spring	July 19
" " " " "	Moorhouse Pier and Pavilion Co. Ltd..	Arch't. A. W. James Manchester	do.
"Renovating Wall and Building Flight of Stairs....."	Commission of Sewers ..	Gashalsh, E.C.	July 20
Electric Lighting Station, Brayford Side....."	Lincolia Corporation ..	City Sur., Lincoln	do.
Paving Works, Portstreet	Annan (N.B.) Burgh Council ..	M. Little Town Clerk, Annan ..	do.
Cuttings, Merriam Station, near Swansea	G. W. R. Co.	J. H. Mills, Secretary, Paddington Station, W.	do.
" " " " " "	" " " " " "	Putneybridge J. B. Morley, Arch't. Hob'	do.
House, Flint Hill, Newcastle-upon- Tyne	" " " " " "	Sons Colliery, Newcastle upon Tyne ..	do.
*Road Making, &c., Faversham ..	Willenden D.C.	Dyke road, Kiln Rd. W. Banks, U.S.C. City Survey,	July 21
Grants, &c. Road Metal	Boltonker Corp'n.	Kesteven rse. F. Harlock, Boro' Sur.	do.
Street Works, Marine-avenue ..	Southend Corp.	" " " " " " Graft & Bentley, Arch't.	do.
Additions to Schools, Barcroft-street	Cleethorpe School Bd ..	Arch't. G. E. Jones J. A. Clarke, Arch't. Wal-	do.
Additions to Schools, Cotton, Suffolk	M. B. M. Turner	ter .. Freeman & Co. Arch't.	do.
Workshops, &c. St. Andrew's Dock, Colchester	Humber Shipwright Co. Ltd.	Carlens, Hull ..	do.
Bix Cottages, Usworth	W. B. O. Chas.	W. Bell, Arch't. Central	do.

Seventy Houses, Praydaren Park Methyrs Traid	F. Blackburn	M. Warton, Archt. Methyrs T. A. Buttery, Archt. C. W. B. Borthwick, Archt. T. S. Ullathorne, Archt.	July 26
Five Houses, East Ardley, Yorks.	Trustees	City Surv. Town Hall, The Surv. Council Office Law Office, Town Hall,	July 26
Chapel, Crambleford, Yorks.	Manchester Corp. Bromley U.D.C.	Johns, Castle Hill, H. E. Stalpole, C. E. Town H. A. J. Adams, Town Hall, Stratford, E. Surv. Office, Stratford, E.	July 27
Sixty Houses, Lodgestree, & Mile Halling	West Ham Borough of Langlandsburg Sel. Bd.	do. do. do. do. do. do.	July 27
*Sawing, Leveling, Paving, &c.	Dover Corp.	do. do. do. do. do. do.	July 27
*Drains, &c.	West Ham	do. do. do. do. do. do.	July 27
Additional to Schools, Bankfofsden, Cam. Wilkes	Lawladan Bd. of Wks. do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
Pipe Sewers, London-road, &c. H. A. Wilkes	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
*Keelings, Tapping, &c. Williford road, Lafford	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
do. do. Vinsell-road, Pinner	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
do. do. Wargrave road, Pinner	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
do. do. Methwold-road, Lafford	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
*Hacks, & Ground Surveys	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
*Grante Spalls and Broken Granite &c.	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
*Brewery Buildings	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
*Painting and Decorating	do. do. do. do. do. do.	do. do. do. do. do. do.	July 28
Houses, Llanwelly Wells, Brecon	R. Davies	do. do. do. do. do. do.	July 29
Warehouses, Felton lane, Halifax	do. do. do. do. do. do.	do. do. do. do. do. do.	July 29
*Brick Sewer	S. George-on-the-Road Vestry	do. do. do. do. do. do.	July 29
*Swimming Bath	Newington Vestry	do. do. do. do. do. do.	July 29
*Pipe Sewers, &c.	Bexley U.D.C.	do. do. do. do. do. do.	July 30
*Quakeries, &c. Bueheli's Hospital, Cousagh, Preston	Light Coltd Gas Supply Co.	do. do. do. do. do. do.	July 31
*Quakeries, &c. Bueheli's Hospital, Cousagh, Preston	Ardara U.D.C.	do. do. do. do. do. do.	Aug. 2
Reservoir, Nan-Melva	Admiralty	do. do. do. do. do. do.	Aug. 2
*Six Dwelling-houses	do. do. do. do. do. do.	do. do. do. do. do. do.	Aug. 3
*Road Materials	Maldenstone U.D.C.	do. do. do. do. do. do.	Aug. 4
*Erecting Laundry Works	Saunbury Laundry Co. Hawfield	do. do. do. do. do. do.	Aug. 4
*Schools	Tottenham Sch. Bd.	do. do. do. do. do. do.	Aug. 4
Stores	Kirkby - In - Ashfield Co-op. Soc. Ltd.	do. do. do. do. do. do.	Aug. 4
School, Munster Carr	London School Board	do. do. do. do. do. do.	Aug. 4
Eight Houses, Kilmarnock	do. do. do. do. do. do.	do. do. do. do. do. do.	Aug. 4
*Workhouse	Doncaster Union	do. do. do. do. do. do.	Aug. 4

Nature of Appointment.	By whom Advertised.	Salary.	Applica- tions to be in.
*Building Inspector	Hlford U.D.C.	120 <i>l</i> . per annum	July 20
*Surveyor's Assistant	Handsworth U.D.C.	120 <i>l</i> . rising to 150 <i>l</i> . per ann.	July 20

apprentices. There has existed in the trade for, perhaps, thirty years a kind of monopoly, by which the masters insist that apprentices should be drawn from sons of bricklayers only, and that they should not be bound. The masters sought to have this monopoly terminated and the apprentices bound. A committee of three employers was appointed to meet in conference with a similar number from the ranks of the workmen, and they have now effected a settlement by which the strike has been ended, and the men have returned to work.—*Preston Herald.*

IPSWICH BUILDING TRADE DISPUTE.—According to the terms of the settlement, the majority of the men out on strike in the Ipswich building trade have returned to work. Several of the masters are short-handed on account of so many men having left the town, but the vacancies have to some extent been filled by strangers who arrived shortly after the commencement of the strike, and the majority of whom were engaged on the understanding that they should have permanent employment.

STRIKE OF PLASTERERS, DEWSBURY.—A number of plasterers in Dewsbury, Batley, Heckmondwike, Cleckheaton, and Morley, have come out on strike. On May 15 a large number of plasterers was held at the office of Messrs. Heckmondwike and Co., who passed demanding an advance of 3d. per hour, to take effect from the first Saturday in July. There is another grievance, however, concerning extra pay when working from home. In case the men are called out to do extra work, they are asked for 1s. 6d. per hour. The men say that they should be paid 3s. per week and lodgings, and for Sundays, travelling expenses to be arranged. The masters object to this, which, it is said, is the real cause of the strike. The masters are considering the matter, but forming an association. Some of the masters, having contracts on hand, are paying the advance asked for.

PLUMBERS' STRIKE, FLEETWOOD, LANCASHIRE.—A number of members of the Plumbers' Society, Fleetwood and district, have come out on strike. The men, so we are informed, have on various occasions approached the masters with a view to having a

general meeting, at which several matters of interest might be discussed. No such meeting could, however, be got together. On the 12th inst. the society by-laws were submitted to the employers to be signed, but all, with one exception, it is said, refused to do so, although one gentleman gave his word of honour to work by them. An application was also made for an increase of wages, and we understand there was a general feeling in favour of granting an increase of 3d. The crux of the situation appears to be the by-laws. If the masters would sign the by-laws there is reason to believe that the men would accept the proffered 3d. increase.—*Preston Herald.*

THE STAFFORDSHIRE BUILDING TRADES.—The building trades in the Potteries keep very busy, particularly on cottage property. Bricklayers are so busy that all operatives are fully employed. Carpenters and joiners throughout the district are fully employed, and in many instances overtime is resorted to. Plumbers and painters are very busy. Bricklayers' labourers are well employed. At Leck all branches in the building trade are very busy, and the fire at Cheddleton Asylum has given further impetus to the trade. At Crewe trade is good, there being no operatives out of work. At Stahord trade keeps very good, particularly with the stonemasons.—*Staffordshire Sentinel.*

IMPORTANT POINT UNDER THE PRIVATE STREETS WORKS ACT, 1892. CASE IN THE COURT OF APPEAL.

THE case of Heston and Isleworth Urban District Council v. Grout came before the Court of Appeal, composed of Lords Justices Lindley, Lopes, and Rigby, on the 9th inst., it being the defendant's appeal from a decision of Mr. Justice North in the Chancery Division. It appeared that on October 30, 1891, the Heston and Isleworth Local Board, the predecessors of the plaintiffs, served notices under

Section 150 of the Public Health Act, 1875, on the frontagers of Prince Regent-road, Hounslow, to sewer and make up the road, in accordance with deposited plans and sections, within three months. The frontagers not having done the work within the prescribed time, the Local Authority became empowered to do the work themselves, and to charge the frontagers with the expenses in proportion to their frontage, and for this purpose they desired to do the work by means of a loan, and applied to the Local Government Board for authority to raise a loan; the Local Government Board, however, refused to sanction the proposed scheme, on the certificate of some of the frontagers, that the sewerage works in the district. Application was made from time to time to the Local Government Board, but it was not until November 12, 1894, that the authority, who were then the District Council, obtained the necessary sanction. They then issued tenders for the work, and on January 30, 1895, the work was completed. A sum of £1,000 for the work was apportioned as the share of the defendant in respect of frontage to property in the road owned by him. In the meantime—viz., on June 12, 1894—the Local Authority had passed a resolution adopting the Private Streets Works Act, 1892, and imposing a rate to pay on the ground that the effect of the adoption of the Private Streets Works Act, 1892, was to render abortive the notice given by the Authority to sewer and make up the road. The plaintiffs then took out a summons for a declaration that the apportioned sum was a charge on the defendant's premises, and for an order directing the defendant to pay the sum. The defendant pleaded that the Private Streets Works Act contains provisions as to the making of the streets, and gives a power to apportion expenses by less rigid rules than those of the Act of 1875, and it also gives the frontagers different rights of contesting their liability from those previously in force. Section 24 provides that the frontagers are to be liable in addition to other powers; and Section 25 provides that Sections 150, 151, and 152 of the Public Health Act

1875 (the sections under which the Local Authority were acting), shall not apply to any district in which the Act of 1892 is in force. It was contended on the part of the plaintiffs that Section 38 of the Interpretation Act, 1889, kept alive the right of the District Authority to proceed under their notice, notwithstanding their adoption of the Act of 1892. The material part of this section is as follows:—“(2) Where this Act or any Act passed after the commencement of this Act repeals any other enactment, then, unless the contrary intention appears, the repeal shall not (b) affect the previous operation of any enactment so repealed, or anything duly done or suffered under any enactment so repealed; or (c) affect any right, privilege, obligation, or liability accrued, or incurred under any enactment so repealed.”

Mr. Justice North adopted the view of the Act contended for by the plaintiffs, and gave judgment for them accordingly.

The defendant now appealed.

Their lordships at the conclusion of the arguments of counsel held that Mr. Justice North had arrived at a right conclusion, and dismissed the appeal.

Mr. Macmorran, Q.C., and Mr. Rixton were counsel for the appellant; and Mr. Warrington, Q.C., Mr. Swinfern Eady, Q.C., and Mr. Morten Smith for the respondents.

MEETINGS.

SATURDAY, JULY 17.

British Institute of Certified Carpenters.—Visit to Hampton Court Palace at 3 p.m.

MONDAY, JULY 19.

British Institute of Certified Carpenters.—Special Meeting at Carpenters' Hall at 6 p.m.

TUESDAY, JULY 20.

Society of Engineers.—Visit to Messrs. Easton, Anderson & Golden's Works at Kith. Leave Westminster Pier at 1.30 p.m.

WEDNESDAY, JULY 21.

Builders' Foremen and Clerks of Works' Institution.—Half-yearly meeting of the members. 8 p.m.

THURSDAY, JULY 22.

Builders' Debenest Institution.—Annual meeting of subscribers and donors. 3 p.m.

SATURDAY, JULY 24.

Architectural Association.—Summer visit to Oxford. Leave Paddington station at 9.50 a.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

17,178. HINGES AND STAPLES FOR DOORS AND GATES. *J. W. Rud.*—This invention consists in making the crook and backplate of a hinge to be hinged in one piece, which may be fixed on door-jamb. The bands or hinges are made to turn on the crooks. When applied as a staple, the eye and backplate are made in one piece, and may be fixed in such position on door-jamb to receive the hasp or slotted strap for fastening.

17,527.—ROOF AND WALL TILES: *J. Padbury*.—Tiles are provided with ribs and holes, so that they may be nailed on to a frame. Ribs stand up above top of tile 1½ in., and are 1½ in. wide. They stand 3½ in. apart to allow tile nails above passing down clear. Nail-holes are placed 4½ in. down from top of tile, and 2½ in. from each edge. Both outside corners are cut off.

21,244.—WATER WASTE PREVENTERS FOR FLUSHING: *J. Walters*.—Inventor makes use of a double-chambered cistern, one chamber above the other. Upper (storage) chamber is fitted with buoy pipe, and lead syphon pipe is fixed over bottom of this chamber, its inlet protected by a strainer-box. This syphon is connected with a union-pipe, which passes into lower chamber. To end of union-pipe is fixed a regulating apparatus which discharges the water into a tilting-bucket fixed in lower chamber. The regulating apparatus is a bell-mouthed metal tube provided with a disc, piston, &c. When the tilting-bucket is filled with the required quantity of water, it tilts over, rapidly discharges, and recovers its position on padded rests.

24,078.—FIXING BRICKS FOR BUILDING: *W. Nicholson*.—Invention consists in bricks provided with one or more holes, in any desired position, and about 3 in. deep in one or both faces, or the end. These holes are to receive wood plugs or dowels, which can be driven in after brick has been built into wall, and to which girders, skirtings, architraves and other architectural woodwork can be nailed.

9,123.—ATTACHMENT OF WOODWORK TO WALLS, &c.: *A. Thinks*.—In order to enable grooves, skirtings, wainscot, and other wood members to be readily affixed to walls, inventor provides metal plates, containing a wooden block. Such plates are nailed to wall, and the woodwork in turn is secured to block.

9,127.—COMBINED LATCH AND BOLT FOR DOORS, WINDOWS, &c.: *J. B. Seward*.—The bolt has an extended arm pivoted near to bottom. Part of this below the pivot is acted upon when door, &c., is quite closed by ordinary 6½ in. latch, fixed in the jamb to operate the screw, and having a recess arranged by the thumb-nut. Various other similar combinations are described.

9,662.—FISHING APPARATUS: *M. Vliegen*.—Invention consists in an apparatus for the distribution of water from a reservoir by means of a syphon, and the provision of an air valve actuated in any suitable manner by hand to break the syphon when desired; also in such a reservoir the provision of a pump pipe, governing the syphon, and having its bottom portion formed into a piston working in a cylindrical part of the reservoir bottom, the whole being actuated by a suitable lever.

NEW APPLICATIONS FOR LETTERS PATENT.

JUNE 28.—15,734, D. Sullivan, Weightless Window Lifts.—15,405, A. Boul, Artificial Blocks, Sheets, Mouldings, &c.

JUNE 29.—15,434, C. Plant, Flushing Cistern.—15,448, J. Adams, Window Fasteners.—15,450, T. Thomas, Window Fasteners.—15,458, J. Thomas, Window Sash Fasteners.—15,460, A. Smith, Fasteners for Sashes.—15,462, J. Veitch, Sash Fasteners.—15,463, F. Dosogne, Automatic Door-Closing Apparatus.—15,466, W. Wise, Windows.

JUNE 30.—15,559, Major Dawson, Securing Window Sashes.—15,560, M. Mercier, Electrical Bell Pushes.—15,570, W. Jones and W. Edwards, Window Sash Fastener.—15,575, A. Wise, Carriage for Lifting and Lowering Timber, &c.—15,589, A. Martyn and F. Goodhall, Composite Sheet Material for Roofing Lights, &c.—15,588, E. Fielder, Window Sash Fastener.—15,598, A. Brown, Sash Fastener.—15,601, G. and J. Cooke, Stained Glass Windows.—15,628, S. Wathan, Window Sash Fasteners.—15,629, G. Cockings, Window Sash Fastener.—15,633, J. Marlingale, Window Sash Fasteners.—15,634, S. Secombe, Window Sash Fasteners.

JULY 1.—15,638, E. Fogg, Sash Fastener.—15,647, G. Pollard, Sash Fastener.—15,649, T. Rees, Sash Fastener and Tightener Combined.—15,675, I. Hill, Window Sash Fastener.—15,676, A. Todd, Sash Fasteners.—15,678, R. Matthews, White Lead.—15,679, W. Fletcher, Sash Fasteners.—15,680, D. Hughes, Sash Fasteners.—15,691, G. Thomas, Sash Fasteners.—15,692, M. Hughes, Sash Fasteners.—15,684, H. Fidler, Apparatus for Suspending in a Sloping Position Blocks of Concrete, Stone, Masonry, Brickwork, &c.—15,686, W. Chitty, Window Sash Fasteners.—15,694, J. Aust, Sash Fastener.—15,701, W. Llewellyn, Sash Fasteners.—15,706, F. Janies, Sash Fasteners.

JULY 2.—15,731, R. Waugh, Sash Fastener.—15,734, H. Griffiths, Window Sash Fasteners.—15,758, J. Shanks, Syphons for Flushing Purposes.—15,769, F. Gracian, Sash Fasteners.—15,765, H. Warner, Window Fasteners.—15,767, G. Rayner, Fastenings for Windows.—15,768, J. Burn, Securing Cupboard Doors.—15,783, A. Haenichen, Sash Holders.—15,814, S. Heller, Workmen's Time Checks.

JULY 3.—15,842, R. Miles, sen., Water-closes, &c.—15,874, J. and R. Kawlings, Automatic Flushing Apparatus.—15,887, H. Cooper, Sash Fasteners.—15,888, R. Jakubowski, Window Sash Fasteners.—15,889, E. Jenkins, Fastening for Windows.—15,903, J. Hanna and T. Shillington, Stables and their Fittings.

PROVISIONAL SPECIFICATIONS ACCEPTED.

17,396, G. Bitten & H. Bowles, Sash Fasteners.—17,534, M. Fishman, Window Sash Fastening Device.—15,750, W. Maguire, Decorating Tiles, &c.—15,493, F. Gracian, Water Waste Preventers for Flushing Cisterns.—15,508, A. Pardy, Sash Fasteners.—15,680, D. Rees, Sash Fasteners.—14,011, L. Lee, Fastenings for Windows.—14,012, B. Donnell, Sash Fasteners.—14,013, G. Dunlop, Fastening for Sashes.—14,179, W. Thomas, Fastenings for Windows.—14,246, G. Vesey, Flushing Apparatus.—14,295, A. Patrick, Portland or Similar Cement.—14,378, E. Box, Securing Pipes in Sockets.—14,419, R. Cotton & Gater, Sliding Window Sashes.—14,431, E. Herne, Sash Fasteners.—14,494, F. Dowsy, Sash Fasteners.—14,600, H. Richardson, Ventilators.—14,615, E. Giler, Water-pipes for Buildings.—14,617, W. Needle, Window Fasteners.—14,619, E. Meredith, Window Fasteners.—14,626, D. Morgan, Fastening for Windows.—14,632, S. Leech, Pressing Bricks, Tiles, &c.—14,705, J. Jones & J. Llewellyn, Sash Fastener.—14,745, E. Thomas, Window Sash Fastener.—14,759, R. Buckland, and A. Woodward, Fastenings for knobs for doors, handles, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

15,893, M. Albrecht and E. Nöbel, Water-closes.—16,888, J. Dobbie, Tools for Dressing Stone, Marble, &c.—16,889, J. Dobbie, Stone Dressing Tool.—16,894, T. Jones, Process for Hardening Stone.—16,897, J. Keine, Fireproof Ceilings and Floors.—16,923, J. Duke, Inlet Ventilator.—16,932, F. and A. Woodward, Fastenings for Sliding Windows.—16,945, J. Taylor, Ventilators.—16,954, T. and W. Thomas, Water-water Pipes of Domestic Sinks, Baths, &c.—16,965, S. Bastow, Windows.—25,765, F. Müller, Roofs, Ceilings, &c., and Building Blocks for same.—17,118, R. Kips, Fireproof Floors.—10,283, J. Sisk, Bricks.—17,076, W. MacHarg, Windows.—13,026, W. Chrometzka, Fireproof Ceilings.—13,080, J. Marsh, Flushing Syphon Cisterns.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JUNE 15.—By DURHAM, GOTT, & SAMUEL (at Towerstreet).
Bradden, Northants.—A freehold residence and 98 a. 2 r. 24 p. f. £3,150
" Brook Furlong Meadow" and two cottages, 24 a. 2 r. 24 p. f. 660
Slapton, Northants.—A freehold farm and 87 a. 0 r. 39 p. 1,400
Various enclosures and two cottages, 55 a. 0 r. 33 p. 2,065
A water and steam mill, house, and 3 a. 2 r. 32 p. f. 500
Athorpe, Northants.—A farmhouse and 10 a. 2 r. 19 p. f. 620
Silverstone, Northants.—"Wild Wood," 10 a. 2 r. 6 p. f. 740

JUNE 28.—By WYATT & SON (at Chichester).
Chidhams, Sussex.—House, grounds and moat gardens, 13 a. 1 r. 34 p. f. 1,225
"Hambrook Farm," 92 a. 0 r. 6 p. f. 1,300
Five cottages and two enclosures, 2 a. 3 r. 13 p. f. 320
By M. DEXTER & SON (at Shap).
Shap, Westmoreland.—"Rigg Hall Farm," 11 a. 0 r. 36 p. f. 580
Enclosures of land, 26 a. 3 r. 23 p. f. 576
Mortland, Westmoreland.—"The Cottage," 1 a. 0 r. 10 p. f. 102
By G. F. ATTREE (at Brighton).
Ditchling, Sussex.—Enclosures of land, 47 a. 0 r. 39 p. f. 1,220
Various enclosures, 10 a. 2 r. 10 p. f. and 1 a. 0 r. 39 p. f. 470
By G. SIDDONS (at Thrapston).
Tichmarsh, Northants.—"The Cottage," b. h. f. 700
Enclosures of land, 17 a. 0 r. 39 p. f. 800
Thrapston, Northants.—"The Hollies" and 2 a. 3 r. 25 p. f. 1,200
Midland-rd., two freehold tenements 480

By G. H. PETTY (at Lancaster).
Halton, Lancs.—"Halton Green Farm," 83 a. 0 r. 21 p. f. 2,890
A house and enclosure, 6 a. 3 r. 36 p. f. 1,060
By MORRIS, SON, & FEARD (at Langport).
Aller, Somerset.—Various enclosures of land, 118 a. 1 r. 16 p. f. 6,258
"Hellyers" and 8 a. 3 r. 31 p. f. 550
Curry Rivell, Somerset.—Enclosures of land, 25 a. 1 r. 1 p. f. 1,230
Drayton, Somerset.—Enclosures of land, 20 a. 1 r. 25 p. f. 298
By ALDER & CO.
Streatham.—137, Hopton-rd., E. 651. 850
By C. W. DAVIES.
Islington.—61 and 63, Culford-rd., 21 2/3 yrs. 370
61, r. 641. 370
202, New North-rd., ut. 201 yrs. g. r. 75. 6d. 205
341. 205
Rhodes-st., ut. 61 yrs. for 74½. 1,410
By FLEURET, SONS, & ADAMS.
Barnsbury.—125, Offord-rd., r. 601. 1,410
By ORGILL, MARKS, & ORGILL (at Masons' Hall Tavern).
Sutton.—High-st., "The Station Hotel," ut. 66 yrs. r. 351, with goodwill 34,100
By DAVID ROBERTS (at Swansea).
Landore, Glamorgan.—The Millbrook Iron and Steel Works, 9½ a. f. with goodwill, machinery, plant, &c. 73,000
By HUMBERT, SON, & FLINT (at Watford).
Leavesden, Watford.—Six cophold cottages 315
Three freehold cottages (at Market Harborough). 180
By BIDWELL & SONS (at Market Harborough).
Weston-by-Welland, Northants.—A freehold farm, comprising 146 a. 1 r. 38 p. f. 4,000
By GEORGE BROWN (at Rugeley).
Colton, Staffs.—"The Newland Farm," 170 a. f. 3,210
Five enclosures of land, 24 a. 2 r. 5 p. f. 890
June 20.—By A. DOWELL (at Edinburgh).
Drummelzier, Peebleshire.—"The Estate of Dawick," 3,561 a. 27,500
Airth, &c., Shropshire.—Six farms on the estate of Dunmore, 65 acres 15,760
Johnstone, Dumfriesshire.—The lands of Upper Minnygap, 742 a. 3,520
By J. WETHELLE (at Northallerton).
Romanby, Yorks.—"Broomfield House Farm," 158 a. 0 r. 9 p. c. r. 187½. 2,175
By BIDDLE & BLENCOWE (at Bury St. Edmunds).
Whetsted, &c., Suffolk.—"The Tuffields Hall Estate," 100 a. 2 r. 23 p. f. 970
By E. STOOKE (at Hereford).
Sollershope, Hereford.—"Hurstons Farm," 88 a. 2 r. 30 p. f. 1,350

Communications used in these lists.—P. p. for freehold ground-rent; L. g. r. for leasehold ground-rent; i. g. r. for improved ground-rent; r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e. r. for estimated rental; u. l. for unexpired term; p. a. for annum; y. r. for years; s. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.
Greenheart, B.G. 10/0
Teak, F.I. 10/0
Sesquial, U.S. f.c. 1/0
Birch, do. 2/0
Elm, do. 4/0
Fir, Baltic, &c. 1/0
Oak, do. 1/0
Pine, Canada, &c. 5/0
Do. Yellow 5/0
Do. Danish, &c. 5/0
St. Petersburg 5/0
Waincoat, Riga, &c. 1/0
Do. log 1/0
Odesa, crown, &c. 1/0
Do. Finland 1/0
Do. 4th and 5th 1/0
Do. 6th 1/0
Do. 7th 1/0
Do. 8th 1/0
Do. 9th 1/0
Do. 10th 1/0
Do. 11th 1/0
Do. 12th 1/0
Do. 13th 1/0
Do. 14th 1/0
Do. 15th 1/0
Do. 16th 1/0
Do. 17th 1/0
Do. 18th 1/0
Do. 19th 1/0
Do. 20th 1/0
Do. 21st 1/0
Do. 22nd 1/0
Do. 23rd 1/0
Do. 24th 1/0
Do. 25th 1/0
Do. 26th 1/0
Do. 27th 1/0
Do. 28th 1/0
Do. 29th 1/0
Do. 30th 1/0
Do. 31st 1/0
Do. 32nd 1/0
Do. 33rd 1/0
Do. 34th 1/0
Do. 35th 1/0
Do. 36th 1/0
Do. 37th 1/0
Do. 38th 1/0
Do. 39th 1/0
Do. 40th 1/0
Do. 41st 1/0
Do. 42nd 1/0
Do. 43rd 1/0
Do. 44th 1/0
Do. 45th 1/0
Do. 46th 1/0
Do. 47th 1/0
Do. 48th 1/0
Do. 49th 1/0
Do. 50th 1/0
Do. 51st 1/0
Do. 52nd 1/0
Do. 53rd 1/0
Do. 54th 1/0
Do. 55th 1/0
Do. 56th 1/0
Do. 57th 1/0
Do. 58th 1/0
Do. 59th 1/0
Do. 60th 1/0
Do. 61st 1/0
Do. 62nd 1/0
Do. 63rd 1/0
Do. 64th 1/0
Do. 65th 1/0
Do. 66th 1/0
Do. 67th 1/0
Do. 68th 1/0
Do. 69th 1/0
Do. 70th 1/0
Do. 71st 1/0
Do. 72nd 1/0
Do. 73rd 1/0
Do. 74th 1/0
Do. 75th 1/0
Do. 76th 1/0
Do. 77th 1/0
Do. 78th 1/0
Do. 79th 1/0
Do. 80th 1/0
Do. 81st 1/0
Do. 82nd 1/0
Do. 83rd 1/0
Do. 84th 1/0
Do. 85th 1/0
Do. 86th 1/0
Do. 87th 1/0
Do. 88th 1/0
Do. 89th 1/0
Do. 90th 1/0
Do. 91st 1/0
Do. 92nd 1/0
Do. 93rd 1/0
Do. 94th 1/0
Do. 95th 1/0
Do. 96th 1/0
Do. 97th 1/0
Do. 98th 1/0
Do. 99th 1/0
Do. 100th 1/0
Do. 101st 1/0
Do. 102nd 1/0
Do. 103rd 1/0
Do. 104th 1/0
Do. 105th 1/0
Do. 106th 1/0
Do. 107th 1/0
Do. 108th 1/0
Do. 109th 1/0
Do. 110th 1/0
Do. 111th 1/0
Do. 112th 1/0
Do. 113th 1/0
Do. 114th 1/0
Do. 115th 1/0
Do. 116th 1/0
Do. 117th 1/0
Do. 118th 1/0
Do. 119th 1/0
Do. 120th 1/0
Do. 121st 1/0
Do. 122nd 1/0
Do. 123rd 1/0
Do. 124th 1/0
Do. 125th 1/0
Do. 126th 1/0
Do. 127th 1/0
Do. 128th 1/0
Do. 129th 1/0
Do. 130th 1/0
Do. 131st 1/0
Do. 132nd 1/0
Do. 133rd 1/0
Do. 134th 1/0
Do. 135th 1/0
Do. 136th 1/0
Do. 137th 1/0
Do. 138th 1/0
Do. 139th 1/0
Do. 140th 1/0
Do. 141st 1/0
Do. 142nd 1/0
Do. 143rd 1/0
Do. 144th 1/0
Do. 145th 1/0
Do. 146th 1/0
Do. 147th 1/0
Do. 148th 1/0
Do. 149th 1/0
Do. 150th 1/0
Do. 151st 1/0
Do. 152nd 1/0
Do. 153rd 1/0
Do. 154th 1/0
Do. 155th 1/0
Do. 156th 1/0
Do. 157th 1/0
Do. 158th 1/0
Do. 159th 1/0
Do. 160th 1/0
Do. 161st 1/0
Do. 162nd 1/0
Do. 163rd 1/0
Do. 164th 1/0
Do. 165th 1/0
Do. 166th 1/0
Do. 167th 1/0
Do. 168th 1/0
Do. 169th 1/0
Do. 170th 1/0
Do. 171st 1/0
Do. 172nd 1/0
Do. 173rd 1/0
Do. 174th 1/0
Do. 175th 1/0
Do. 176th 1/0
Do. 177th 1/0
Do. 178th 1/0
Do. 179th 1/0
Do. 180th 1/0
Do. 181st 1/0
Do. 182nd 1/0
Do. 183rd 1/0
Do. 184th 1/0
Do. 185th 1/0
Do. 186th 1/0
Do. 187th 1/0
Do. 188th 1/0
Do. 189th 1/0
Do. 190th 1/0
Do. 191st 1/0
Do. 192nd 1/0
Do. 193rd 1/0
Do. 194th 1/0
Do. 195th 1/0
Do. 196th 1/0
Do. 197th 1/0
Do. 198th 1/0
Do. 199th 1/0
Do. 200th 1/0
Do. 201st 1/0
Do. 202nd 1/0
Do. 203rd 1/0
Do. 204th 1/0
Do. 205th 1/0
Do. 206th 1/0
Do. 207th 1/0
Do. 208th 1/0
Do. 209th 1/0
Do. 210th 1/0
Do. 211st 1/0
Do. 212nd 1/0
Do. 213rd 1/0
Do. 214th 1/0
Do. 215th 1/0
Do. 216th 1/0
Do. 217th 1/0
Do. 218th 1/0
Do. 219th 1/0
Do. 220th 1/0
Do. 221st 1/0
Do. 222nd 1/0
Do. 223rd 1/0
Do. 224th 1/0
Do. 225th 1/0
Do. 226th 1/0
Do. 227th 1/0
Do. 228th 1/0
Do. 229th 1/0
Do. 230th 1/0
Do. 231st 1/0
Do. 232nd 1/0
Do. 233rd 1/0
Do. 234th 1/0
Do. 235th 1/0
Do. 236th 1/0
Do. 237th 1/0
Do. 238th 1/0
Do. 239th 1/0
Do. 240th 1/0
Do. 241st 1/0
Do. 242nd 1/0
Do. 243rd 1/0
Do. 244th 1/0
Do. 245th 1/0
Do. 246th 1/0
Do. 247th 1/0
Do. 248th 1/0
Do. 249th 1/0
Do. 250th 1/0
Do. 251st 1/0
Do. 252nd 1/0
Do. 253rd 1/0
Do. 254th 1/0
Do. 255th 1/0
Do. 256th 1/0
Do. 257th 1/0
Do. 258th 1/0
Do. 259th 1/0
Do. 260th 1/0
Do. 261st 1/0
Do. 262nd 1/0
Do. 263rd 1/0
Do. 264th 1/0
Do. 265th 1/0
Do. 266th 1/0
Do. 267th 1/0
Do. 268th 1/0
Do. 269th 1/0
Do. 270th 1/0
Do. 271st 1/0
Do. 272nd 1/0
Do. 273rd 1/0
Do. 274th 1/0
Do. 275th 1/0
Do. 276th 1/0
Do. 277th 1/0
Do. 278th 1/0
Do. 279th 1/0
Do. 280th 1/0
Do. 281st 1/0
Do. 282nd 1/0
Do. 283rd 1/0
Do. 284th 1/0
Do. 285th 1/0
Do. 286th 1/0
Do. 287th 1/0
Do. 288th 1/0
Do. 289th 1/0
Do. 290th 1/0
Do. 291st 1/0
Do. 292nd 1/0
Do. 293rd 1/0
Do. 294th 1/0
Do. 295th 1/0
Do. 296th 1/0
Do. 297th 1/0
Do. 298th 1/0
Do. 299th 1/0
Do. 300th 1/0
Do. 301st 1/0
Do. 302nd 1/0
Do. 303rd 1/0
Do. 304th 1/0
Do. 305th 1/0
Do. 306th 1/0
Do. 307th 1/0
Do. 308th 1/0
Do. 309th 1/0
Do. 310th 1/0
Do. 311st 1/0
Do. 312nd 1/0
Do. 313rd 1/0
Do. 314th 1/0
Do. 315th 1/0
Do. 316th 1/0
Do. 317th 1/0
Do. 318th 1/0
Do. 319th 1/0
Do. 320th 1/0
Do. 321st 1/0
Do. 322nd 1/0
Do. 323rd 1/0
Do. 324th 1/0
Do. 325th 1/0
Do. 326th 1/0
Do. 327th 1/0
Do. 328th 1/0
Do. 329th 1/0
Do. 330th 1/0
Do. 331st 1/0
Do. 332nd 1/0
Do. 333rd 1/0
Do. 334th 1/0
Do. 335th 1/0
Do. 336th 1/0
Do. 337th 1/0
Do. 338th 1/0
Do. 339th 1/0
Do. 340th 1/0
Do. 341st 1/0
Do. 342nd 1/0
Do. 343rd 1/0
Do. 344th 1/0
Do. 345th 1/0
Do. 346th 1/0
Do. 347th 1/0
Do. 348th 1/0
Do. 349th 1/0
Do. 350th 1/0
Do. 351st 1/0
Do. 352nd 1/0
Do. 353rd 1/0
Do. 354th 1/0
Do. 355th 1/0
Do. 356th 1/0
Do. 357th 1/0
Do. 358th 1/0
Do. 359th 1/0
Do. 360th 1/0
Do. 361st 1/0
Do. 362nd 1/0
Do. 363rd 1/0
Do. 364th 1/0
Do. 365th 1/0
Do. 366th 1/0
Do. 367th 1/0
Do. 368th 1/0
Do. 369th 1/0
Do. 370th 1/0
Do. 371st 1/0
Do. 372nd 1/0
Do. 373rd 1/0
Do. 374th 1/0
Do. 375th 1/0
Do. 376th 1/0
Do. 377th 1/0
Do. 378th 1/0
Do. 379th 1/0
Do. 380th 1/0
Do. 381st 1/0
Do. 382nd 1/0
Do. 383rd 1/0
Do. 384th 1/0
Do. 385th 1/0
Do. 386th 1/0
Do. 387th 1/0
Do. 388th 1/0
Do. 389th 1/0
Do. 390th 1/0
Do. 391st 1/0
Do. 392nd 1/0
Do. 393rd 1/

ASHFORD.—For the making up of a portion of Christchurch-road, Ashford, Kent, for the Urban District Council. Mr. William Tennil Surveyor and Waterworks Engineer. Quantities by the Surveyor:—
 J. E. Hughes £593 0 0
 W. J. Logan 149 0 0
 C. F. Davis 223 0 0
 G. F. Joy £529 15 0
 W. J. Coker, Halling, Rochester 223 0 0
 * Accepted.

BRIDLINGTON.—For the erection of six houses and shop, Quay-road, for Mr. G. V. Mainprize. Mr. S. Dyer, architect. Bridlington Quay:—
 T. Wood £5,873 5 0
 S. Wilson 5 0
 J. Renard 1,950 0 0
 J. Sawdon 1,834 12 0
 W. William Barnes, Trans-street, Brid. £1,668 0 0
 * Accepted.

ENNISKILLEN.—Accepted for the erection of Town Hall, for the Commissioners. Messrs. A. Scott & Son, architects, Drogheda:—
 James Harvey, Enniskillen £8,590

FARINGDON.—For the erection of a Post Office at Faringdon, Berks. Messrs. Wm. Drew & Sons, architects, Swindon. Quantities by the architects:—
 Cadell Bros. £1,183 0 0
 Frewelling & Hickson 1,042 0 0
 Thos. Colborne & Sons 98 17
 Joseph Williams, Swin. £960 0 0
 Don * Accepted.

LIANGOLEN.—For the erection of the County school, for the Governors. Mr. H. Feather, architect, Andrew's-buildings, Queen-street, Cardiff. Quantities by the architect:—
 J. T. Jones £5,015 0 0
 J. Higgins 3,443 0 0
 John Gethin 3,039 0 0
 Henry Smith 3,089 0 0
 Wm. Rogers 9,845 12 0
 W. E. Samuel 859 0 0
 W. H. Thomas, Owensby* £5,923 22 2
 Jones & Evans 2,795 20 0
 T. A. Jones 2,790 10 0
 Bradney & Lloyd 2,589 0 0
 * Accepted.

LONDON.—For painting, &c., at the Infirmary, Fulham-road, for the Guardians of the Poor of St. George's, Hanover-square, W. Mr. C. Evans Vaughan, architect:—
 J. E. Davis £1,468
 G. T. Chinchin 1,100
 C. Proctor 95
 J. Chessum & Sons 984
 M. MacCarthy £560
 G. McArthur & Co. 975
 Vigor & Co. 835
 Laid & Lilly 817

LONDON.—For the erection of shop and dwelling-house at Sale-street, Bethnal Green, E., for Mrs. Finney. Mr. J. Williams Dunford, architect, 100, Queen Victoria-street, E.C. Quantities by the architect:—
 W. E. F. Street £503
 Knight & Sons, Bethnal Lawrence £560
 Green (accepted) £548

LONDON.—Accepted for extensions at workhouse, Homerton, for the Hackney Union Guardians. Mr. W. A. Finch, architect, 75, Fitzroy-pavement:—
 J. Chessum & Sons, 15, Star-street, Haggerston £1,220
 No competition.

LONDON.—For the erection of a billiard room at the "Eagle Hotel," Tottenham, for Mr. Joseph Harris. Messrs. Perry & Reed, architects, 9, John-street, Artelphi, W.C.:—
 G. Hart £1,072
 H. Knight & Son, Tottenham 985
 Ham (accepted) £973

LONDON.—Accepted for building thirteen houses on the Steel's Estate, Tottenham, for Mr. T. E. Baker:—
 H. Knight & Son, Tottenham £8,995
 No competition.

LONDON.—For alterations and re-decoration of the Downs Chapel, Lower Clapton. Messrs. W. Bradbeer & Co., architects and surveyors, Canonbury Station, N.:—
 Higgs & Hill £264
 Colls & Son £248
 Bradford 873
 Britton (accepted) £665

LONDON.—For the erection of two houses on Chatham-road, Wandsworth-common, for Messrs. Batterfield Bros. Mr. John Job Wood, architect and surveyor, 47, Canabhar-road, Battersea:—
 Bruckland £532
 Colles £535
 Biham 58 10
 [Surveyor's estimate, £58.]

LONDON.—For taking down and rebuilding No. 1, Bow-lane, Chesapeake. Mr. C. Innes, architect, 27, Queen-street, City, C.C.:—
 G. Lawrence & Sons £1,795
 Mansfield & Son £1,654
 Freytag & Co. 1,737
 Dove Bros. 1,693
 Colls & Sons 1,720
 Falkner & Sons 1,573
 Galsam Bros. 1,700
 Spencer & Co. 1,644

C.B.N. SNEWIN
 MAHOGANY, WAINSCOT, WALNUT,
 TEAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
 HATTON GARDEN, and 29, RAY STREET,
 FAREINGDON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
 Telephone, 63, 274 Holborn. Tele. Address, "SNEWIN, LONDON."

MANSFIELD.—For the erection of two houses, St. John-street, for Mr. Wharmby. Mr. Wm. Dodsley, architect, Mansfield:—
 Fisher Bros. £1,419
 A. H. Sharley £1,252
 W. A. Vallance 1,393
 J. Poyson (accepted) 1,480
 W. Balas 1,387
 J. Tate, Annesley Wood-house (accepted) 1,179
 C. G. Percival 1,375
 W. S. Cuddy 1,375

NEWTOWN (Montgomery).—For the erection of an intermediate school buildings, for the Governors. Mr. H. 1041, architect, Queen-street, Cardiff. Quantities by the architect:—
 E. Morgan £2,934
 E. H. Williams 3,065
 Bradney & Lloyd 2,885
 T. W. Swain 3,350
 J. W. Thomas, Owensby* 2,865
 E. Davies & Son * Accepted.

NEW SWINDON (Wilt).—For additions to house and shop, 14, Fleet-street, for Mr. Farnham Budgett. Messrs. W. Drew & Sons, architects, 22, Victoria-street, Swindon. Quantities by the architects:—
 Frewelling & Hickson £440
 Thos. Colborne & Sons, Swindon (accepted) £573

PENRITH.—For the erection of a cement concrete wall, near Pooley Bridge, for the Rural District Council:—
 per per
 lineal yd. cubic yd.
 Qmerson & Son £63 10 0 for 550 yds. or 25 0 ... 37 6
 W. Giessewater 25 0 ... 23 0
 J. Rule 68 6 8 ... 12 0 ... 32 0
 J. Jackson, Penrith 39 0 ... 12 0 ... 22 0
 Accepted on limited tender.

ST. ALBANS (Herts).—For the erection of villa residences, 60, Meads, Oxford Smith, Ltd. Mr. G. P. Simondy, architect, 110, St. Martin's-lane, Charing Cross, W.C. Quantities by Mr. W. Lockwood, 120, St. Martin's-lane, W.C.:—
 E. Dunham £7,920
 Heinemann & Brown £7,315
 H. Plummer 7,790
 Miskin & Son* 7,394
 Outhwaite & Son 7,395
 * Accepted.

TO CORRESPONDENTS.
 NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.
 We cannot undertake to return rejected communications.
 Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.
 We are compelled to decline pointing out books and giving addresses.
 Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
 All communications regarding literary and artistic matters should be addressed to THE EDITOR, those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,
 121, BUNHILL ROW, LONDON, E.C.
 Telephone No. 270.

HIGH-CLASS JOINERY,
LASCELLES' CONCRETE
 Architects' Designs are carried out with the greatest care.
CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.
 ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.
 "THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS (by prepaying at the Publishing Office, 19s. per annum or 4s. 9d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.
 BATH,
 FOR ALL THE PROVED KINDS OF
BATH STONE.
 FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
 The Ham Hill and Doulting Stone Co.
 (Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Doulting Stone Co.)
 Chief Office:—Norton, Stoke-under-Ham, Somerset.
 London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

THE TEST OF TIME
 has proved that
SZERELMEY STONE LIQUID
 Absolutely waterproofs and preserves Bricks, Stone, Cement, Stucco, Plaster, &c.
SZERELMEY & Co., Rotherhithe New-road, S.E.
Asphalte.—The Scyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.,
LITHOGRAPHERS,
 Employ a large and efficient Staff especially for.
 Bills of Quantities, &c.
 4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]
QUANTITIES, &c., LITHOGRAPHED
 accurately and with despatch.
METCHIM & SON, 20, Parliament-st. S.W.
 "QUANTITY SURVEYORS' TABLES,"
 For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

PILKINGTON & CO
 (ESTABLISHED 1838),
 MONUMENT CHAMBERS,
 KING WILLIAM STREET, LONDON, E.C.
 Registered Trade Mark.
Polonceau Asphalte.
PATENT ASPHALTE and FELT ROOFING.
 ACID-RESISTING ASPHALTE.
 WHITE SILICA PAVING,
SEYSSSEL ASPHALTE.

EREST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
 PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES OF EVERY DESCRIPTION.
SLATE SLABWORK OF EVERY DESCRIPTION, PLAIN AND ENAMELLED

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,
 Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
 Head Office and only City Address, 61, ST. MARY AXE, E.C.
 SEND FOR ILLUSTRATED PRICE LIST.

The Builder.

VOL. LXXIII. NO. 2842.

JULY 24, 1897.

ILLUSTRATIONS.

Church of St. Michael, Southfields, Wandsworth.—Mr. E. W. Mountford, F.R.I.B.A., Architect	Double-Page Ink-Photo.
Design for a Church in Exeter.—By Mr. H. C. Corlette, A.R.I.B.A.	Single-Page Ink-Photo.
St. Peter's, East Grinstead.—Mr. F. A. Walters, F.S.A., Architect	Single-Page Ink-Photo.
Police Offices, Courts, &c., Rotherham.—Mr. R. J. Lovell, Architect	Single-Page Photo-Litho.
Banking Premises, Doncaster.—Messrs. Demaine & Brierley, Architects	Single-Page Photo-Litho.
Sketches in Worcestershire and Warwickshire.—By Mr. Frederick Taylor	Double-Page Photo-Litho.

Blocks in Text.

Derivation of Egyptian Column from Reeds bound together	Page 65	Structure of Reeds	Page 65
Building of Primitive Egyptian House	" 65	Design for Church at Exeter	" 72
Bank Premises, Doncaster	Page 71		

CONTENTS.

Electric Traction	65	St. Peter's, East Grinstead	72	Foreign	76
The Influence of Material on Architecture	64	New Police Offices, Courts, &c., Rotherham	72	Miscellaneous	77
Notes	67	New Bank Premises at Doncaster	73	Capital and Labour	77
The British School at Athens	68	Sketches in Worcestershire and Warwickshire	73	Legal	77
Magazines and Reviews	69	Archæological Societies	73	Meetings	78
The London County Council	69	Engineering Societies	74	Recent Patents	78
Applications under the 1894 London Building Act	71	Peterborough Cathedral	74	Some Recent Sales of Property	78
Competitions	71	Student's Column: Quantities and Quantity Taking.—I.	74	Prices Current	79
St. Michael's Church, Southfields Wandsworth	72	General Building News	75	Competitions, Contracts, and Public Appointments	80
Design for Church in Exeter	72	Sanitary and Engineering News	75	Tenders	80

Electric Traction.



HERE is no branch of modern engineering that has come more to the front within the last few years than electric traction. Of the importance of this method

of locomotion as a means of rapidly conveying the workers in a town to their suburban residences there is now no question. In America it has practically superseded all other methods of traction, and in Europe it is making rapid progress. It is even in use on steam railroads, and there are good grounds for believing that advance in this direction will be very rapid in the near future. It is not therefore surprising that the system should have been made the subject of a large book like that of Mr. Dawson*; indeed the surprise is rather that the appearance of any important technical work on the subject should have been so long delayed.

Although the book is mainly concerned with American practice, yet due stress is laid on the importance of such first-class engineering works as the Liverpool Overhead Railway and the City and South London Railway. The problems of electric traction in this country are not so simple as some people seem to think; the best system for one town may be quite unsuitable for another. The relative advantages of various alternative systems have to be considered in each case, and they can only be properly stated by an expert engineer. In America the problems are, not so difficult, for practically a scheme that will suit one town will suit a thousand, as the towns nearly all look as if they had been mapped out on squared paper before being built.

The American overhead trolley is suitable for connecting small towns, and might be advantageously used in the suburbs of some large towns. It has a future before it in this country, and Glasgow, for example, is following, in this particular at least, in the footsteps of towns in Siam and Argentina. We should be sorry, however, to see it in the

crowded thoroughfares of large towns. No one appreciates more than we do the many advantages of well-lighted, well-ventilated, and fast-moving electric cars; but there is no room in main streets for a 500 volt trolley wire and the still more disfiguring guard wires, ears, frogs, and the hundred and one other accessories. It has often been stated that a trolley wire can be made absolutely safe, but it is difficult to reconcile this with the fact that fifty people were killed by shocks from it in America in 1896. This, perhaps, is a small fraction when shown as the ratio to tram miles run, but still it conclusively proves that the trolley wire has to be caged in like a wild beast. It is very common at the present time to hear engineers say that the overhead trolley system is the only practicable one; that all others are far more expensive and cost far more to keep in repair. That their first cost is greater, we admit; but in main streets there are many drawbacks to an overhead system. It is no argument to say that its unsightly appearance has been greatly exaggerated; it may have been, but we know that this side of the question has not been fairly considered by many engineers.

In the pioneer days of electric traction, Dr. Werner Von Siemens proposed that light elevated electric railways should be carried on wrought-iron posts 15 ft. high, placed ten yards apart, on each side of the main streets of Berlin. Small cars that could just hold fifteen people were to run every two minutes along a narrow-gauge railway supported by these posts. The words in which he introduced his scheme are worth recalling* :—

"Berlin, the birthplace of the dynamo and the electric railway, should anticipate the rest of the world by a system of elevated electric railways which, in the near future I see, will be a necessity. The railway itself can be made so light and elegant that there can hardly be any question of the disfigurement of the streets by it."

In comparison to Siemens's system, the overhead trolley can claim to be a great advance; but we venture to think that ten years after this, in large towns, the overhead trolley will have had its day, and we believe that within a year or two some surface or self-contained system will rival it in popularity.

Mr. Dawson's description of the West

End-street Railway Company of Boston, the largest electric railway system in the world, is very interesting. The rapidity with which the cars follow one another is shown from the fact that opposite Park-street Church 4,735 cars pass per day. During a snow storm, as they have some 270 miles of streets to keep open, more than a hundred electric snow ploughs; eighty horse snow ploughs, and 400 sleighs for conveying away the snow are in operation.

The following paragraph is instructive :—

"In America the ticket system used here is not adopted. Automatic registers are put in the cars and as each passenger pays his fare a bell is rung and the passenger is recorded. Uniform fares are nearly always charged, 5 cents. (2½d.) being the rule. On many roads transfer tickets are given over connecting lines of the same system. . . . Such a system requires a very elaborate system of checking, and even then frauds are possible."

We should have liked further particulars about surface contact systems, for there is no doubt that one or other of these will soon make its appearance in London. An excellent description of the Claret-Vuilleumier system in Paris is given. This line starts at the Place de la République, goes through the Avenue de la République and the Avenue Gambetta to Romainville, one of the suburbs of Paris. It has been running for nearly a year now, and we shall soon be able to form a definite conclusion on the value of this system.

Mr. Dawson criticises a little too severely the Westinghouse closed conduit system. We fail to see how one of the magnets could go wrong and keep the contact knob alive after the car had passed. Soft iron could not suddenly acquire the properties of hardened steel, and gravity we can always depend on. Again, if there is any considerable leakage in wet weather between the rails and the knobs, the Westinghouse Company can probably devise some simple method of preventing it. Greasy mud could be got rid of by having special brushes on the cars, but we should be surprised if three chloride cells failed to work through a little greasy mud.

Mr. Dawson's remarks on the relative merits of cable and electric tramway systems are worth quoting :—

"For great and constant passenger traffic at stated speeds in broad and straight thoroughfares, and where the conditions are such as to induce the investment of large capital upon ordinary commercial

* Electric Railways and Tramways. By Philip Dawson, C.E. London: 35, Bedford-street, W.C. 1897.

* Address to the Electrotechnische-Verein, January 27, 1880.

terms, the cable system has no equal, and the same is true where long and steep gradients are encountered. In Chicago, New York, and San Francisco, the cable system is at its best. . . . In the great centres of population, cable and electricity work harmoniously together as component parts of the same system, each fulfilling that portion of the service to which it is best adapted."

Full particulars are given about the welding methods of making the rails continuous, but on this point it is too early yet to give a trustworthy opinion. The theory given by Mr. McCulloch is fairly satisfactory, and explains why the apparently enormous stresses due to climatic differences of temperature do not strain the rail to its breaking limit. A very great point in favour of this way of making joints is that the total resistance of the return circuit is greatly lowered, and it is this resistance which causes electrolytic troubles in connexion with gas and water pipes. We must make special mention of the description given of the Series Parallel "K" controller. The excellent diagrams enable an electrician to understand its action at a glance. A very full account is given of the 96-ton electric locomotives which pull the trains through the Belt Line Tunnel of the Baltimore and Ohio Railway. These powerful locomotives have a starting drawbar pull of 60,000 lbs. weight and a drawbar pull of over 40,000 lbs. weight at a speed of twelve miles an hour. As these locomotives have been running for nearly two years and take all the passenger and luggage trains through the tunnel, it will be seen that heavy electric locomotives have in this case proved a success.

The chapters on motors and gearing give good accounts of the best modern practice. It seems that in America single reduction gear between the armature and the axle of the wheels of the car is almost universally employed. To have no gearing at all, but simply to have the armature directly on the axle, as in the City and South London Railway, puts too great a stress on the armature in ordinary street slow-speed work. Even where there is a smooth track and fairly high speeds are possible, direct connected armatures need continual repair. In the early days of electric traction work open double reduction gear was employed, but then the life of a pinion averaged only three months, and the life of a spur wheel about seven months. Now, with protected single reduction gear running in oil, the lives of both pinions and spur wheels have been more than doubled.

One important question that is at present receiving a great deal of attention is the question of brakes. The weight of street cars on both cable and electric systems has been greatly increased, often the empty car weighs 12,000 lbs., and when full it may weigh ten tons. In suburban districts these cars often run at fifteen or twenty miles an hour, so that very powerful brakes are an absolute necessity. In electric cars very effective electric brakes can be employed, but in addition some form of street car fender is almost universally in use.

There are one or two theoretical points on which we differ from Mr. Dawson. He says, for example, that for street railways there is no great advantage in using alternating currents, the reason being the difficulty in efficiently regulating the speed, and that "two overhead conductors," at least, would be necessary. Probably he was thinking of

a three-phase system when he wrote this. The improvements in monophasic motors made during the last year will make the alternating current a formidable rival to the direct current, and the ease with which the potential can be kept constant all along the line, by stationary boosting transformers, is an advantage of this system which is not to be lightly overlooked.

Complete American specifications are given for electric tramways, and that contractors actually accept those specifications shows either that the manufacture of railway plant has reached almost perfection, or that the contractors know that the consulting engineers will not be too strict in their interpretation of the specifications. There are one or two points in them that indicate the latter as being the true explanation. For example, when specifying for a motor it is stated that it must be supplied with carbon brushes which shall not spark at any load. A little lower down it says that the motors must run without dangerous sparking. The uninitiated might well imagine that a motor sparks at other places besides the brushes. Again, in specifying for a railway dynamo, it is said that its efficiency at full load shall not be less than 94½ per cent. It is rather ridiculous to mention fractions of a per cent. in this connexion without saying how long the dynamo has been running before the readings are taken, and whether the test is made in summer or winter. Another point that makes it look as if this were a mere paper specification is this:—

"Insulation of armature conductors, field magnet conductors, and commutator shall be of such quality and workmanship as to withstand 5,000 volts alternating for half an hour."

Now they might easily withstand 5,000 volts alternating for a month, providing that the pressure was gradually switched on. If, on the other hand, it is switched on direct, the chances are all in favour of the insulation being broken down. It ought to be stated that the volts are to be gradually applied. In the same specification it is stated that the magnet coils are to be insulated with asbestos so as to be water and fire-proof. This is surely vague, as every one knows that asbestos is very far from being waterproof. In fact excellent filter papers are made out of it. If vulcabeston, *i.e.*, vulcanised india-rubber and asbestos fibre, is meant, it should surely have been stated. In the specification for a testing-room, a battery of 150 Leclanché cells is to be supplied for some purpose or other and is to be carefully and thoroughly insulated from all its surroundings. These cells seem quite unnecessary and the trouble of insulating them must be very great. It is also stated that the Kelvin reflecting galvanometer is to be differentially wound. As no one uses a differential galvanometer now, this also seems a superfluous refinement.

We were very much struck with the specification for a "closed motor-car body." A very good idea can be obtained from it of the care taken in the construction and finish of American street cars. The insides are richly ornamented, upholstered, and excellently lighted, and the care taken for the comfort of passengers is only equalled by the care taken in the drawing-room cars of our great railway companies. This is one of the points on which we in this country have a great deal to learn. Another point is, that no outside advertisements are permitted.

That electric traction in England is only in its initial stage there can now be not the slightest doubt. The Light Railway Commission is at the present moment busily employed considering schemes of electric traction from all parts of England. It is curious what an impulse to electric traction enterprise in this country has been given by the Light Railways Act of 1896. Of the numerous light railways proposed, nearly all the English lines are going to use electricity for their motive power. The proposed light railways in Scotland are nearly all worked by steam. Whether it is that caution is more developed North of the Tweed, or whether the lengths of the lines there work out in favour of steam is not quite evident. If it is for the former reason they are making a mistake, for electric roads can be designed with as much ease and with as sure a result now as horse tramways could have been designed ten years ago.

In conclusion, we would recommend Mr. Dawson's book to the attention of all municipal authorities who are considering whether to adopt electric traction or not. They will find here full particulars, both financial and mechanical, of all the various systems, and the accounts can be thoroughly relied on. The theory of electric traction is only incidentally considered, and no mathematical formulæ or discussions, such as what length of line can be worked profitably from one central station supplying at 500 volts, are given. In our opinion this distinctly adds to the value of the book, as it is a relief to come across a work where facts, and conclusions deduced from doubtful premisses, are not mixed up.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.*

BY BANISTER F. FLETCHER, A.R.I.B.A.

Architecture is an affair of material, the true use or needs of which mould the style, which is created out of the qualities of the materials that have to be employed.

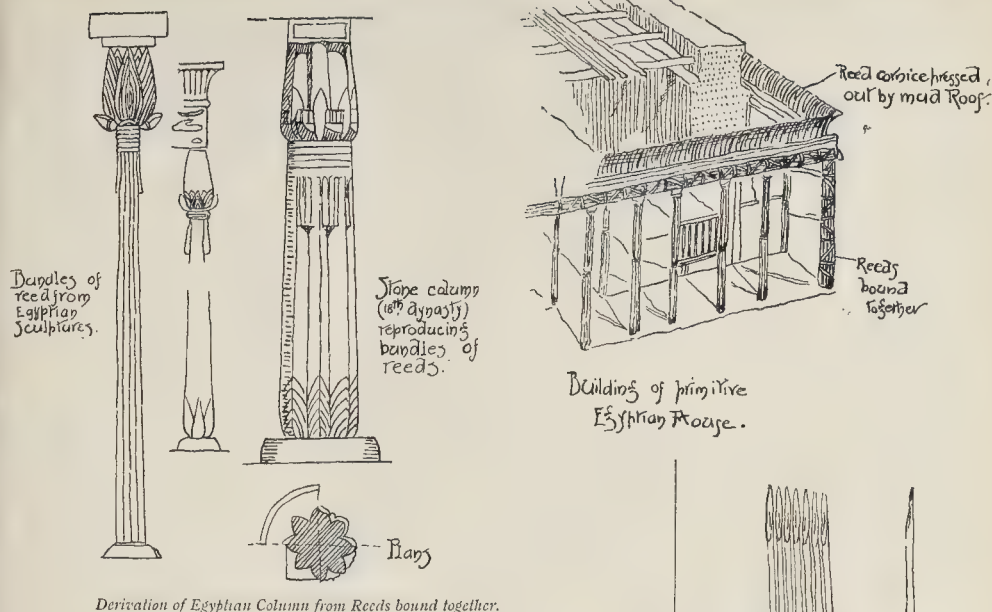
INTRODUCTION.

MATERIALS are the media in which architecture is expressed; they are at once the rulers and the slaves of the most abstract of the arts.

Architectural idealism has to be embodied in the shapes created from inanimate Nature around us. Thus it is that, at one time, materials by their solid reality oppress the imagination, as amid the close-set columns of an Egyptian hall; while at another the successful expression of the abstract triumphs beneath the magic circle of some Byzantine dome—hanging as by a chain from Heaven, or—within some airy Gothic structure where matter seems spiritualised to a film of gossamer.

Thus the influence of materials on architecture is undoubted; for even when style is paramount we have but a proof of the vitality of the principle. Style is created by the discoveries of experience or genius out of the qualities of the materials employed. Successive periods have had their distinctive materials, of which they seem to have exhausted the possibilities, and their resulting methods of treatment are the basis of what is afterwards classified as "style." Changes of style are

* Mr. Fletcher's essay was originally written for, and obtained, the Institute of Architects' Essay Prize in 1896. We are now publishing it in full, with the illustrations, as a good résumé of an important aspect of architectural study.



Derivation of Egyptian Column from Reeds bound together.

forced on by the use of new materials, to which at first the old forms are applied. After a period the old forces of tradition and prejudice are laid aside, and the new forces of utility, reason, and cost draw attention to the innate qualities of the newer materials, which, finding expression, develop to a greater or less degree of perfection a new style.

The philosophy of the argument stated is that architecture is an affair of material, the true use or needs of which mould the style, and that style is created out of the qualities of the material that has to be employed. In following up this axiom, the Egyptian style will be traced, changing from a mud architecture to one of stone and granite; West Asiatic architecture, starting from mud types, developed through brickwork; the Grecian, from an archaic or early wooden type, changing in the best periods to marble; and the true architecture of Rome seen to be brickwork and concrete, a development which was continued in the Byzantine style.

The Romanesque period is one of destruction, of the re-use of Classic materials emerging after a troublous period into the Gothic style—essentially one of stone.

The Renaissance period, again, is a period of relapse—one where materials no longer forming the style, the same design is found executed in very varied materials.

In the modern period the stream of architectural development has, as it were, flowed beneath the surface in the artistically unrecognised use of iron and steel with their compounds. In tracing the influence of these great materials, it must be observed that during this period the building art has been divided by the purely constructive side disengaging itself, under the name of engineering, and thus robbing architecture of one of her most powerful incentives towards progress.

Architecture proceeds from structure, and the first condition at which it should aim is to make the outward form accord with that

structure. Many constructive features offer to us a manifestation of the tendency, always existing, which consisted in transforming into a decorative feature that which previously was only a practical need. In all styles certain combinations went gradually from the domain of the art of building, to pass into that of decoration, and thus the spirit of architecture was modified insensibly.

Within the limits of an essay it is impossible to do more than trace the main stream of the great historical styles, and it is equally necessary to exclude the rival moulding forces that may be classed together in the term civilisation, not because their influence is unrecognised, but in order that the influence under consideration—the influence of material—may be fairly brought out.

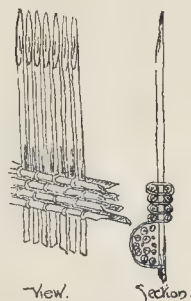
Dealing with details, it will be seen that the use of plaster, glass, and mosaic has had some influence, but, perhaps, scarcely sufficient to form styles of themselves, although it would be difficult to discuss the Byzantine or Gothic periods without detailed reference to mosaic or glass respectively.

CHAPTER I.

Egypt: Mud and Reeds to Granite.

In the valley of the Nile, the land which is the gift of a great river, and the seat of the most ancient civilisation, a primitive architecture of mud or puddled clay and bundles of reeds is discovered, changing in later times to a style of stone and granite.

The primitive structure was composed of bundles of reeds bound together and placed at intervals vertically in the ground, the angle bundles being strengthened. On these reeds, and joining them at the top, were laid horizontally other bundles, which bound the heads of the uprights together. The origin of the characteristic cornice is held to be due to the pressure of the clay (of which the primitive roofs were constructed) on the upright reeds, which formed the framework of the walls. These reeds were held in position by being bound to the horizontal



Structure of Reeds.

roll resting on the top of the columns. This formed the slightly projecting cornice, the reeds keeping the rammed clay in a projecting position and allowing the curve to be terminated by a flat fillet which gave the level of the terrace. The jambs and lintels of the doors and windows were made of reeds in the humbler dwellings and of palm trunks in those of more pretension.

Here, then, is seen a fair and likely prototype of the construction of an Egyptian wall, the forms of which are more suitable to a structure of rushes overlaid with mud or puddled clay than to one consisting of large stones. Still, an important point remains—the batter or slope which is invariably given to the walls. Viollet-le-Duc's theories as to the origin of this batter scarcely point to the influence of material, and this feature is alleged by him to have been introduced at a later stage, having been promulgated by a royal decree. He infers the custom to have been derived from the pyramids, which were found to remain undisturbed during earthquakes, while straight-sided houses were upset, owing to the centre of gravity being placed outside the wall. It seems, however, more reasonable to attribute it to a mud origin, for nothing would be more natural, in order to strengthen such buildings, than to slightly tilt the bundles of reeds towards the interior, forming as it were an arch, a treatment which in any other material scarcely seems to be feasible.

Proceeding to the internal architectural features of the style, a very distinct recollection of the primitive reeds tied together at

intervals, and crowned with the lotus bud, is found in the later granite column and capital. During the Theban kingdom especially (B.C. 5000—B.C. 2300) examples in stone of capitals and columns derived from timber and reed originals are frequent. At Beni-Hassan the pillars represent a bundle of four reeds or lotus stalks bound together near the top and bulging above the ligature, in imitation of a lotus bud, so as to form a capital. Such a pier must evidently have been originally employed in wooden architecture only, and the roof which it supports, in this instance, represents a light wooden construction having the slight slope necessary in the dry Egyptian climate.

This type of column was largely used in later Egyptian times in a more substantial lithic form, and in conjunction with the hollow-formed capital of the bell type of which the earliest example appeared in the eighteenth dynasty.

In fact, throughout, although materials changed, the forms of the early reed and clay construction were adhered to; and the endeavour of the conservative Egyptian was to reproduce in stone and granite superimposed in layers, the appearance assumed in the early reed and mud type.

The surface decoration executed on the later granite buildings apparently came from the "sgraffito" work on the earlier mud walls. The surfaces of such walls could not be modelled or carved with projections of high relief, but their flat surfaces, when plastered, provided an admirable field for decoration and for instruction through the use of hieroglyphics. The Egyptian system of decoration consisted in not contravening the form adopted, but clothing it with a kind of drapery more or less rich, which never presented a projecting outline, but contented itself with enveloping the geometric form as would an embroidered stuff, or a diapered covering.

Remarkable then as are the arts of Egypt, it is clear, that in so far as material is concerned, the spirit of criticism and logical method is wanting; and that traditional forms, hallowed by long use, were clung to and reproduced when the method of building which suggested them had been replaced by other systems. Egyptian art proceeds on an uninterrupted line or course of tradition, and when necessity dictates a change in the methods of construction, or in the materials, the immutable form is not thereby affected, but is perpetuated in spite of novel conditions. With the Egyptians the influence of materials, though evident and important, has not the radical and progressive force that has characterised the development of architecture with the more vigorous races of the west.

CHAPTER II.

Assyria: Mud to Brick or Wood to Stone.

The banks of the Tigris and Euphrates present only alluvial plains, where wood suitable for building is rare. The country, however, possesses an abundance of clay, which, being thrown into flat square moulds, beaten and compressed, and dried in the sun, gives a material which lends itself readily to a treatment consistent with its qualities. Of such a material were formed the huge platforms upon which temples and palaces were built. These immense platforms were faced with sun-dried bricks, and subsequently with kiln-burnt bricks, or in the later Assyrian period with stone slabs from the mountains

that separate Assyria from Media. Here will be perceived how the salient characteristics of the architecture may be explained by the nature of the materials at hand, for the walls being of brick, each unit, in general, is a repetition of its neighbour, and rarely of special shapes. The buildings composed of them could only be decorated by attached ornament, similar in principle to the mats and hangings we spread over the floors and walls we wish to hide.

The arch now first appears on the architectural horizon as applied to openings. In some cases it is not a true arch, but one formed by corbelling or projecting horizontal courses; but, finally, the true arch was practised, being probably accidentally hit upon by the use of small units of materials, which must have had a direct influence, for the Chaldeans were unable to support the upper part of their walls, ceilings or roofs, upon beams of stone or timber, owing to the lack of these in suitable forms, and they had to devise some other means of arriving at the desired results. It is a general law, which study and comparison will confirm, that the arch was soonest discovered and most invariably employed by those builders who found themselves condemned by the geological formation of their country to the employment of the smallest units.

These arches, in the absence of piers, rested on thick and solid walls; and whether in the piercing of immense mounds by vaulted drains, or as prominently placed in the most careful and elaborate façades, the arch, forming an imposing entrance and accentuated by a brilliantly coloured soffit, held a place of extreme importance.

In Chaldaea, isolated supports, such as are found in the hypostyle halls of Egypt and Persia, or in the naves of Greek temples and Latin basilicas, were untenable; the want of suitable stone put any such arrangement out of the question. The Chaldeans and Assyrians never used stone constructively except as the envelope for a brick wall. The pillars, roofs, and constructive features of their buildings were of wood, however; but in the Persian period after the conquest of Egypt by Cambyzes in about 530 B.C., Asiatic nations for the first time employed stone for pillars. The Persians especially used the material (stone) which was found in abundance in the neighbourhood of their capitals; in the rocky country of Persia, at Susa and Persepolis, only the bones of their buildings remain, the enclosing walls of brick having disappeared. It is to be remarked how these Persepolitan halls show the influence of the Assyrian wooden style in having closely spaced columns, which, although necessary in the halls of the Assyrian prototype, were not so when the columns were executed in stone and supported a light wooden roof.

The bracket and scroll capitals of the columns at Persepolis and Susa retain much of the form of their wooden prototype, and demonstrate very clearly that a form which, applied to wood, is natural and inoffensive, becomes clumsy and inappropriate when applied to stone.

In regard to architectural character, Texier's description of the great mosque at Ispahan (1587-1629) might, it is believed, be applied with general accuracy to the principal buildings of ancient Babylon, if the power of a Merlin could bring them back to our view: "Every part of

the building, without exception, is covered with enamelled bricks. Their ground is blue, upon which elegant flowers and sentences taken from the Koran are traced in white. The cupola is blue decorated with shields and arabesques. One can hardly imagine the effect produced by such a building on an European accustomed to the dull uniformity of our colourless buildings." The principal difference between this and those of ancient Babylon would be that arising out of the prohibitions of the Koran, for we find that in the latter period the Assyrians either cased their walls with limestone and alabaster (an expensive and laborious system), especially in Chaldaea, where stone was too costly (in consequence of the distance it had to be carried), or faced them with a skin of glazed and coloured brickwork of many colours.

Sculpture was confined to the lower part of the walls, and placed on limestone or alabaster slabs; in the upper part the problem was solved in a similar fashion by the extensive use of enamelled brick and painted stucco, and the elaboration of a rich, elegant, and withal original system of polychromy.

At Nineveh stucco appears to have been formed by the mixing of burnt chalk with plaster, which gave a sort of white gum that adhered tightly to the clay wall. At Khorsabad an ornamentation of portions of cylinders, in juxtaposition like trunks of trees placed vertically together, was employed externally. This style of decoration is a last reminiscence, as it were, of the timber stockading which had originally served to keep up and preserve the tempered earth before the regular use of sun-dried bricks.

Before leaving Asia, it will be well to glance for a moment at the district known as Asia Minor, and note how many of the buildings present stone forms borrowed from a timber type. The influence of tradition there is manifest, and the Tombs of Lycia present this feature more strongly perhaps than any remains in Western Asia. In one example from the British Museum, above a double podium, probably even originally of stone, is placed a rectangular chest, or sarcophagus, certainly copied from a wooden form, all the mortices and framing, even to the pins that held them together, being literally rendered in the stone-work. Above is a curvilinear roof of pointed form, which also is a copy of an original in wood. In Lycia other rock-cut tombs present flat and sloping roofs, in which unheven timbers are literally copied; and the last stage shows us an Ionic façade developed from these carpentry forms.

Copying of timber forms in stone can also be traced in Egypt; in Central Asia by the Persians; in India, where it was introduced by the Bactrian Greeks, between the second and third century B.C., and in Greece somewhat earlier than in Lycia, say in the 7th century B.C. Thus it will be seen that style created by one material does not long survive its disuse. It was only in the infancy of stone architecture that men adhered to wooden forms; as soon as habit gave them familiarity with the new material, they abandoned the incongruities of the wooden style, and all trace of the original form passed away.

CATHOLIC CHURCH, WEST KIRBY. — A new Catholic Church has just been erected at West Kirby from plans prepared by Mr. E. Kirby. The building was opened on the 18th inst.

NOTES.

The Government Water Bill.
THIS Bill passed through Committee of the House of Commons on Tuesday last without any substantial alteration. It is not likely to be affected in the House of Lords. Attempts were made by several members to give the water consumer greater opportunities of what may be called attacking the water companies, as, for example, by enabling the Railway Commissioners to reduce the water rates if the companies had failed to give a full supply; but none of these amendments were accepted by the Government. The result, therefore, of the agitation and discussion in the public press and of the promises of the Government is that we have had a superficial piece of legislation which can be of no practical advantage. It is general in its principles, and yet only applies to London, and is a mere sop to the London householder, so that he may not go on agitating for a better water supply. There never was a more wretched breakdown of policy than that of the present Government on the question of the water supply of London. It was in its power to settle on a broad and satisfactory basis the great question of the water supply of London, but it leaves it more difficult of solution.

Egypt Exploration Fund.
We may draw attention to the fact that the Egypt Exploration Fund is establishing a separate branch with a separate subscription, under the name of the "Græco-Roman branch," to enable the Fund to deal more effectually with the remains of the period of the Greek and Roman occupation in Egypt. To architects this period is perhaps of even more interest, in some respects, than that of ancient Egypt; and it is hoped, with systematic research, to make some valuable discoveries.

Proposed Bridge at New York.
THE bridge which is about to be built over the Hudson to join Jersey City to New York is to be a really remarkable structure. The construction of a bridge having a clear span of about half a mile, and capable of carrying six lines of railway, to not mention a roadway and side walks, is an undertaking that will tax the ability of even American engineers to the utmost. Naturally, for a structure of this size only the suspension principle could be adopted, and consequently it will be somewhat similar in appearance to the Brooklyn Bridge, only the towers supporting the suspension chains or ropes will need to be about half as high again as St. Paul's Cathedral, and if, in order to realise the magnitude of the structure, we suppose for a moment one of the towers placed in St. Paul's Churchyard, then the other tower would have to be placed at the Law Courts to give the required span. We should think the cost of the bridge was under-estimated at three and a half million sterling; and although bridge building is very rapidly executed in America, yet the five years which it is said will be sufficient to complete this structure seem to us too little. The great depth to which the piers have to be taken to insure a good foundation practically prohibits the use of compressed air, and therefore it has been proposed to sink ordinary cylinders open at the top. Altogether the work promises to be of a most interesting

character, and we shall watch its progress very attentively.

The Theory of the Röntgen Rays.
SINCE Professor Clerk Maxwell well propounded the electromagnetic theory of light no more daring speculation in physical theory has been made than that of his successor, Professor J. J. Thomson, that the chemical atom is divisible. If this theory is correct then the transmutation of metals is a physical possibility. Professor Elihu Thomson has recently adopted this hypothesis, and has explained not only many puzzling phenomena connected with Röntgen rays by means of it, but also the dark spots on the sun's photosphere and their influence on terrestrial phenomena. The highest temperatures we can obtain in a laboratory are, comparatively speaking, low, seeing that we can assign no upper limit to temperature. Since the spectrum of even the simplest gases is complex, it seems allowable to suppose that at temperatures above those readily obtainable the chemical atom may split up into still simpler forms. All the wave motion emitted by these finer atoms, vibrating necessarily at a much higher frequency than violet light, would be invisible to the eye, and could only become visible by a phenomenon similar to fluorescence. In a Crookes's tube the velocity of the molecules of gas projected from the cathode must be very great, as they have to convey a considerable amount of energy in a short time and their mass is small. Hence the layer of gas in front of the anode must be at an extremely high temperature, and Professor E. Thomson supposes that the molecules of the gas split up, and that the vibrations of the ether set up by these simpler forms are the Röntgen rays. We hope that this theory, like Clerk Maxwell's, will survive crucial experimental tests.

Fire Protection in London.
WE have again had an effective review of the London firemen on Saturday last, but in a modern fire department other things have to be considered besides the smartness of the personnel. Referring to a few of the anomalies which have been recently associated with our fire service, we may call attention to the fact that there has again been a small fire at Buckingham Palace, and yet it would appear that our firemen are neither well informed as to the plan of that building, nor as to its facilities of water supply. There also does not seem to be any direct telegraphic intercommunication between the Palace and the M.F.B. headquarters. Further, we notice that the Woolwich Arsenal authorities have lately again determined that the Council Fire Brigade has no right to attend an outbreak on their premises unless by special permission. This complicated state of affairs we can only consider dangerous. On the other hand, we last week heard that the M.F.B. are withdrawing their firemen stationed at the various Government Offices, and though, no doubt, it is an advantage to a force so under-manned as the Brigade to reduce its number of "fixed duties," and thus have more men at their disposal for general work, it seems very injudicious that public property and historical documents should be risked through a makeshift of this description. It is not our purpose to here speak of the under-manning

of the Brigade, of defects in its general organisation, or the fact that it is not considered the duty of the force to attend to a question of fire prevention, or to the extinguishing of fires with the minimum of water damage. We only wish to urge that where there is so much cause for complaint and so much mismanagement (owing partly to conflicting interests), it is high time to have a businesslike inquiry on the fire-protection of the Metropolis generally.

German Municipal Exhibits for the Paris Exhibition.
THE example set by Germany in respect to the exhibits of its more important municipalities at the Paris Exhibition of 1900 deserves our serious attention. On the initiative of the Local Authorities at Stuttgart, thirty-four German towns have been invited to prepare collections representative of municipal management, and their delegates are to meet at the Hygienic Congress, which is to be held at Karlsruhe in September. No less than twenty-four cities immediately consented to participate in the collection, including Berlin, Hamburg, Hanover, Dresden, Breslau, and all the localities best known for their public works. There is no doubt that if the municipal exhibits are arranged on these lines, they will prove highly instructive, and it is desirable that there should be some similar combination among our Local Authorities. As a rule it is difficult to find the various minor exhibits of this description scattered about in various galleries of a large exhibition. London might be kept distinct; but our many County Councils could well form one group, whilst the larger cities again could be classed separately from the boroughs. The sections into which the German municipal exhibits will probably be divided include groups for Public Buildings and Public Works, Parks, Gardening, and Decoration, besides Sanitation, Lighting, Transport, &c.

American Slates in England.
Two or three days ago Messrs. Luke, of Edinburgh, received the first consignment of American slates which has been landed at Leith. The importance of the incident lies in the fact that it is said to be a direct result of the strike at the Penrhyn slate quarries; a point which the Welsh slate quarrymen would do well to consider. The slates imported are what are called the "Arfon" blue slates, from Virginia. They have been used in England, chiefly in the Liverpool district (where of course there is the most direct communication with American markets), for some time, but have not before been imported into Scotland. They are said to have a good standing in America, and to have lasted well for about forty years on the buildings of the Smithsonian Institution, the Army and Navy buildings, and the Treasury, at Washington; the United States Assay Office at San Francisco, &c.

Monuments of El Kab, Egypt.
On Tuesday, Wednesday, and Thursday a series of illustrations of the wall drawings in tombs at El Kab, Upper Egypt, have been on view at the rooms of the Society of Antiquaries; also measured drawings of the temple of Amenhetep III. (circa 1,400 B.C.) by Mr. Somers Clarke. These latter are the most interesting to architects of the drawings exhibited; they show a small oblong

temple divided into three aisles by four columns, two on each side, of the sixteen-sided type with abacus; but the face of each column towards the centre aisle is accentuated by a projecting carved fillet and an ornamental design, a kind of bas-relief capital, with a scroll on each side curled inwards, and remarkably resembling the inward-curling volute of a European transitional capital. A monochrome perspective drawing by Mr. J. J. Tylor, worked upon an enlarged photograph, gives a good idea of the appearance of a portion of the columns and of the usual roof-beam, in this case carved with an alternating ornament. Mr. Clarke gives also a measured plan (unfinished) of the Tombs. The sculptures in these, which are all in intaglio of the well-known Egyptian type, have been very carefully drawn and fill a number of large sheets. There were also some very interesting pictorial sketches in oil of El Kab and its environs by Sir W. B. Richmond.

WE read that "Farming 'New Bield,' Woods," near Brigstock, a seat of the Lords Lyveden, has just been sold.* The house, originally a forest lodge, was enlarged in 1777, by John Earl of Upper Ossory, and latterly by the first Lord Lyveden. It stands amidst the woods which represent the ancient Rockingham Forest. In a perambulation of 14th Edward I. the forest is described as stretching, for about thirty miles, from Stamford to Northampton, with an average breadth of nearly nine miles between the rivers Nene, Maidwell, and Welland. That area includes Apethorpe, Kirby, Holdenby, Kingscliffe, Weldon, Rushton, Rothwell, Geddington, and Twywell, and is closely associated with the story of the Treshams (originally of Twywell), who owned Lyveden manor in the middle of the fifteenth century. On the property we mention stands the later manor house, commonly known as the New Bield, or Building, begun, but not completed, by Sir Thomas Tresham, of Rushton, *obit* September 11, 1605. The design is attributed, and it seems, rightly, to John Thorpe (see his drawings in the Soane Museum). The plan is that of a Greek cross, supposed to symbolise the Passion, with a five-sided bay at the end of each arm of the cross. The basement and two floors, rising to 34 ft., are of Weldon free-stone. Its demolition was attempted by Major Butler, of the Parliamentary forces, when quartered at Oundle, who took timber from it for a house in that town. The earlier manor-house, or Old Bield, was rebuilt, and, some say, also by Thorpe, in the lifetime of Sir Thomas Tresham, and finished by his second son, Lewis; between the two are the terraces and fishponds. In 1st James I, Lord Burghley was appointed master-forester of Rockingham Forest, comprising the three bailiwicks of Cliffe, Brigstock, and Rockingham. Farming Woods in Brigstock bailiwick was made separate in 4th Charles I., and the Earl of Upper Ossory was subsequently nominated master-forester thereof. On July 21, 1883, we published views with plans and details of the New Bield, the Triangular Lodge at Rushton, and Rothwell Market-house, reduced from Mr. J. A. Gotch's work upon Tresham's Buildings

* Robert Vernon (*prins* Smith), P.C., and M.P. for Northampton, 1831-59, was elevated Lord Lyveden in 1859.

in Northamptonshire, 1575-1605. The last-named has since been converted for a Free Library and the District Council Office, after the designs of Messrs. Gotch & Saunders, of Kettering.

WE regret to hear that this fine and well-known Mediaeval church tower is in a state that will necessitate extensive repairs before long. The usual results of imbedding untreated iron in the form of cramps and dowels in the masonry have begun to show themselves, and in a worse form than usual owing to the fact that a good deal of the facing, on the south side especially, has been placed on the cant instead of on its quarry bed, and has been gradually peeling and splitting off. All but three or four of the finials to the pinnacles are much decayed, some of them so much so that it has been found necessary to point them up to secure them and prevent danger. It is to be hoped that every care will be taken to keep in repair this fine tower, without interfering with its ancient character.

MESSRS. HAYWARD have had on view lately some mural decorative materials of new design. The principal material is thick jute, which is made in various textures of coarseness. It is tacked to the walls and the junctions effected by means of wood strips, placed vertically. The jute is hand-coloured and treated with conventional patterns, and is comparatively cheap. We should hardly regard it as a sanitary covering for walls, however, as it must form an easy receptacle for dust. Some new designs in hand-coloured floes, and in blocks or hand-printed papers, were on view, and in these the prevailing fashionable colours of blue and green have been incorporated by the designers, Mr. Beresford Pite, Mr. Gwatkin, and other well-known artists.

THE "National Sculpture Society" of the United States offers two premiums for the best and second best designs for a sundial, to be competed for under its direction, the competition designs to be exhibited in the Society's exhibition next year, and the awards made at the same time. The designs are to be in the form of plaster models, uncoloured, to a scale of one-fourth the intended size, and for a dial to be placed in the middle of a lawn, and unconnected with any building. The premiums offered are 500 and 250 dollars, or 100*l.* and 50*l.*, which sums are offered by Mr. T. Kelly of New York, whose property the two premiated designs will become, but he engages (very rightly) not to have either of them carried out save by the sculptor who designed the model. The circular announcing the competition does not state whether it is open to all sculptors, or only to Americans, but no mention being made of any restriction we presume there is none. This ought to be a very interesting competition, a sundial is so very suggestive a subject for sculptural treatment; and we may expect to see some new and picturesque suggestions evolved. The award will be made by a committee appointed by the National Sculpture Society, of which Mr. Barr Ferree, of New York, is the secretary.

CONSERVATIVE CLUB, BARROW.—A new Conservative Club is to be built in Abbey-road, Barrow, from plans prepared by Mr. J. Y. McIntosh.

THE BRITISH SCHOOL AT ATHENS.

THE annual meeting of the British School at Athens was held on Thursday last week at 22, Albemarle-street; Sir E. J. Poynter in the chair. The Report of the Managing Committee stated that in spite of recent political disturbances the School had had a very satisfactory session; the number of students had been above the average, and good work had been done both at home and in the field. The following extracts from the Report serve to record the principal work that has been done:—

"In the winter and spring the excavations begun last season on the supposed site of the gymnasium of Kynosarges, in Athens, were carried to completion, with results which the Director will describe. The cost of this undertaking, it will be remembered, has been met by funds kindly placed at the disposal of the Director by private friends. After various difficulties and delays, work was resumed in Melos, on the site of Phylakopi, early in May, and carried on energetically for four or five weeks. There is now no doubt that the remains of an important prehistoric city have been discovered, the complete excavation of which, in a subsequent session, may lead to results of first-rate interest. Particulars of the discoveries made in the past session will be given by the Director.

The School being now in a position to plan its work in the summer, the Committee have been considering several schemes for further excavation. It would be premature to make any definite announcement at present, but the Committee would wish subscribers to understand that in their judgment this is one of the most, if not the most important branch of the school's operations. Not only is the actual work of surpassing value, but it is to those who take part in it, but the material thus collected affords abundant opportunity for subsequent research. Thus already the discoveries made in excavating the site of Kynosarges and in Melos have yielded enough to occupy students of pottery, of sculpture, and of inscriptions, for some time to come, while the site of Phylakopi offers in itself a fascinating problem for the student of prehistoric civilisation in the Levant.

This subject leads naturally to that of the 'School Annual.' Last year's issue, which was admittedly tentative, contained, besides the usual reports and accounts, only a few papers on travel and research of a slighter character than would be admitted into the 'Journal of Hellenic Studies.' The number recently issued, however, contains also certain papers which may be regarded as permanent contributions to archaeology or to history. Two of these were contributed by well-known scholars who became Associates of the School, and were good enough to make this acknowledgment of the privilege. Others were first-fruits of the abundant material supplied by the recent excavations in Melos. The fuller results of these and other excavations will be published, as opportunity offers, in the 'Journal of Hellenic Studies.' . . .

The special leave of absence granted by the Trustees of the British Museum to Mr. Cecil Smith, of the School, of the School for two sessions, has now unhappily expired, to the regret of all friends of the School. It has therefore been necessary to look for a new Director. The Committee have been fortunate enough to secure, for three years at any rate, the services of Mr. D. G. Hogarth, Fellow of Magdalen College, Oxford, a former student of the School, and well-known as an explorer in Asia Minor and Egypt. On his retirement from the post which he has filled with so much energy and success, the Committee desire to tender their best thanks to Mr. Smith for his devoted service. . . .

Mr. George Macmillan, who has acted as Honorary Secretary of the School since it was first opened in 1886, has found himself reluctantly obliged, by increasing engagements, to resign the office at the end of the current session, though still willing to serve upon the Committee. Mr. William Loring, one of the most distinguished students of the School, and also a member of the Committee since 1895, has consented to take up the work, and to-day was nominated for election as Hon. Secretary for the ensuing session.

Turning to the financial position, the Committee has first to announce that the Government grant of 500*l.* a year for five years was duly ratified by the House of Commons before the end of last session, and the first instalment having been received the finances may now be regarded as on their normal basis. The Hellenic Society have renewed for a further period of three years their annual grant of 100*l.* a year. The total result of the year has been an addition to the funds of nearly 220*l.*; but this surplus is more apparent than real. The subscriptions to the Building Fund reached the sum of 1,074*l.* 18*s.* 6*d.* This, though less than what was asked for, was sufficient to justify the Committee in proceeding with the building, and has been already spent, within a few pounds, in payments on account of the contract. The final amount due on this head cannot yet be ascertained, but it is anticipated that, with the inevitable 'extras,' the surplus of 220*l.* will be fully swallowed up, so that this addition to

the funds is merely temporary. . . . The main difficulty is still on the financial side. So long as the School has no permanent endowment it cannot enjoy entire freedom of action; the question of ways and means must continually interfere with its operations. For three years, at any rate, it can hold its own, though even during that period it could make good use of another two or three hundred pounds a year. But it must not be forgotten that the outlook beyond that period is uncertain, and that there is still an opening for the generous benefactor or benefactors who might, by a substantial gift, place the managers of an institution which has far more than justified its existence beyond any fear of financial anxiety."

The Chairman moved the adoption of the report, which was seconded by Mr. Percy Gardner, who spoke strongly in appreciation of the value of Mr. G. A. Macmillan's services as Hon. Secretary.

The retiring director, Mr. Cecil Smith, then gave a long and interesting account of the work of the school during the past year, and a number of photographs were handed round of some of the remains of structures and some of the objects discovered at Patras, which included a statuette of Athene of the third century B.C., with a portion of the shield left and ornamented with small bas-relief figures; also a very curious archaic bronze statuette of very early date, and perhaps the earliest known example in which some attempt had been made to produce a pose by the position and action of the hands. Mr. Smith referred with regret to the difficulties put in the way of further work by the new law in regard to excavations, according to which the ground must be purchased outright before any investigations could be made on it to discover whether or not it probably contained antiquities; and after this whatever was found became the property of the Greek Government. It seems evident that such a regulation must be a serious check to excavating, unless where the excavators can risk money freely.

Dr. Waldstein moved the re-election of the officers and Committee, which was seconded by Mr. Slatham, who took the opportunity of expressing the hope that the investigation of architectural detail would not be neglected amid the more fascinating pursuit of ancient sculpture and vase-paintings. Thanks were also voted to the Chairman and to the Director. The meeting was largely attended, and great interest was manifested in the proceedings.

MAGAZINES AND REVIEWS.

The *Quarterly Review* contains an article on "Asia Minor Re-discovered," treating of recent discoveries and future possibilities. Referring to Wood's discovery of the Temple at Ephesus, the *Quarterly Review* observes that "every Englishman must blush to see the present state of the site; huge blocks lie everywhere in confusion, as Wood left them, and since then a rank vegetation has asserted its sway." It is indeed something like a national disgrace, after the commencement of the work was made, with such splendid results as far as it went, by the resolute perseverance and determination of one Englishman, that it should be left half done. Can the Government of this country not spare sufficient funds to complete such a work?

The *Edinburgh Review* contains an article which may interest our astronomical readers, on "Two Recent Astronomers," Airy and Adams—two very strangely contrasted reputations. The article serves to renew the regret which all who are jealous of England's scientific honour must feel, that owing to Adams's almost sublime self-abnegation and the indifference of other persons, England's prior place in the discovery of the planet Neptune was never properly established, as it might have been.

The issues for July of the *Revue Générale* and *The Artist* did not reach us till after the publication of our usual review of the magazines of the month, which we regret the more in the case of the *Revue*, since it contains an article (by M. Ernest Périer) on "Art en Belgique," dealing mainly with architecture, and accompanied by eight illustrations, a new feature in this excellent French monthly. We can only now briefly draw attention to the article. *The Artist* for July is a "Special Nature Number," dealing with the treatment of animals, birds, and flowers in painting, with a number of illustrations of drawings by various artists, including some by Mr. Ruskin.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. W. J. Collins, Chairman, presiding.

Chairman's Annual Address.—The Chairman delivered the annual review of the Council's work for the year ended March 31 last, from which we take the following passages:—

"The report of the Bridges Committee is chiefly concerned with the successful completion of the Blackwall Tunnel. Mr. Bull and his colleagues are to be congratulated upon the manner in which their labours have triumphed over difficulties incident to so novel and vast an undertaking. The contractors, Messrs. Pearson, are justly proud of their achievement, while the Council cannot fail to admire the engineering audacity which conceived the construction of so large a tunnel in so treacherous a bed, and rejoice with Sir Alexander Binnie and his staff at the success which has crowned their work. The experience gained at Blackwall led the Committee to recommend and the Council to approve another tunnel beneath the Thames between Greenwich and Millwall for pedestrian traffic only, with an external diameter of 12 ft. 9 in. at an estimated cost of 70,000l. The returns from Woolwich Ferry which, during the years 1890 to 1893, indicated some reduction in the number of passengers, again show an increase, nearly 4½ million persons having used the free ferry in 1896, while the vehicular traffic shows a progressive increase from the first. Another year's experience of the consolidated Building Act of 1894, which repealed eight previous Acts and portions of seven others, has convinced the Building Act Committee that a vast improvement has been effected, while it is not surprising that a statute consisting of 218 clauses and four schedules should have been found imperfect in some particulars. Four thousand and thirty-two dangerous structures were dealt with last year; in 742 cases summonses were issued, of these 445 were withdrawn on the necessary work being executed by the owners, 295 resulted in magistrates' orders, and in only two instances were the summonses dismissed. One hundred and sixty-five factories were inspected under the Factory and Workshop Act, 1891, with a view to ascertain whether adequate provision existed for escape in case of fire, and in sixty-five cases requirements were served upon owners to carry out the necessary alterations. The number of sky-signs is rapidly diminishing under the operation of the Act of 1891; of the 120 which remain licensed for a third extension period of two years, the majority must be removed before the close of this year. . . . The Housing Committee reports good progress with the erection of new dwellings and central laundry and laying out of a garden at Boundary-street, Bethnal Green, on the insanitary area cleared by the Council under Part I. of the Housing Act of 1890. Among other schemes dealt with, it is satisfactory to note that Bills concerning provisional orders for clearances at Clare-market, Strand, and Church-way, St. Pancras, have at length been passed. The working-class dwellings erected by the Council in connection with the Blackwall Tunnel scheme are fully occupied. The annual statement of accounts in reference to the Council's model lodging-house at Parker-street, Drury Lane, shows a considerable profit has been realised at a charge of 6d. per bed per night. The Improvements Committee, under the chairmanship of Colonel Probyn, has an unusually full report. Although the Committee withdrew their proposal for a new street from Holborn to the Strand, they succeeded in carrying through the Council eight improvement schemes, for which the Council seeks parliamentary powers, at an estimated net cost of more than a million and a quarter, together with some forty local improvements, to which the Council will contribute another quarter of a million. Perhaps it was this plethora of improvements, which led the Council to instruct the Committee in future to bring up an annual budget of proposed improvements, together with some comparative regulation over its capital and annual expenditure in this regard. It remains yet to be seen how far the standing order of the House of Lords in reference to the area over which an improvement charge is leviable, made since the betterment clauses in regard to the southern approach to the Tower-bridge became law, will affect the cost of street improvements. Before another year or so is past Londoners may expect to find the excrescences of Holywell-street and Boziers-court conspicuous by their absence. . . . The figures reported by the Main Drainage Committee, of which Mr. Cornwall was chairman, indicate the vastness of the operations over which they preside. Last year 77,185 million gallons of sewage were dealt with at Barking and Crossness, yielding, after precipitation, 2,184,625 tons of sludge, which were taken to sea in six vessels, making 2,000 trips, and discharged at Barrow deep. It is reassuring to learn that dredgings made at this spot showed no indication of sewage pollution. The Committee give reasons for thinking that physical means of dealing with sewage may be of even greater importance than chemical methods to which have been ascribed results so influential in improving the quality of the Thames water at Barking by render-

ing the effluent innocuous. The Committee are pursuing their investigations into the filtration of sewage, and the remarkable effects of this process in reducing oxidisable organic matter, as well as into the more difficult question as to how far chemical means may be abandoned in favour of improved methods of settlement and decantation. The Parks Committee now exercises the Council's control over seventy-nine open spaces, with an acreage of 3,685, as against forty such spaces, with an acreage of 2,656, inherited from our predecessors. It has, under Mr. Torrance's chairmanship, continued its most beneficent survey of London with a view to further acquisitions as opportunity arises to satisfy existing or prospective needs. The Council has during the past year assisted in the acquisition of recreation grounds in poor and crowded districts at Bermondsey, Walworth, Hoxton, and Islington. In the out-lying and more favoured districts of Hampstead and Sydenham open spaces which were threatened have been preserved, in view of the approach of bricks and mortar, and no doubt wisely. One could wish that the natural boundary of our county should be a belt of green spaces, providing ample ramparts of fresh air. Misapprehension of the Committee's intentions in regard to works at Hampstead Heath, has, I trust, been allayed. Not a ruthless vandalism but an æsthetic solicitude has prompted the Committee to plant for the future so as to preserve the picturesque of the present; while it has tended the gorse with a reverence worthy of Linneus. . . . The report of the Parliamentary Committee, under the continuing and very capable chairmanship of Mr. McKinnon Wood, deals mostly with Water Bills. It records the fate of the Government Metropolitan Water Board Bill, which passed the Lords, but was not proceeded with in the Commons. The Bills of the water companies which were before Parliament last session contained proposals for raising an aggregate 4,300,000l. additional capital. They were petitioned against by the Council, and referred to a Parliamentary Committee. Ultimately the capital powers granted by Parliament amounted to 1,930,000l. The Select Committee to which the companies' Bills were referred, put on record the following important opinion, from which few would be found to dissent. They stated that 'the present position of the London water supply is not in accordance with the public interest,' since 'under the conditions of issuing new capital, now invariably approved by Parliament for the London water companies, the public is steadily acquiring an interest which tends to weaken the enterprise of the companies as private concerns, whilst, on the other hand, the consumer is left without that care of his interests which is ensured by placing the supply under a representative body in whose election he is personally interested.' One mode of escape from this anomalous and unsatisfactory dilemma was offered by the Water Purchase Bills promoted by the Council; these Bills, however, were opposed on second reading in the House of Commons by the President of the Local Government Board on behalf of the Government, and rejected by 258 votes to 123. The alternative procedure indicated on that occasion by the Government was the appointment of a small Royal Commission, and the introduction of a Bill intended to give some further powers of complaint to aggrieved water consumers. . . . The Council cannot be accused of undue precipitation in applying to Parliament for the necessary powers to carry out the scheme of the chief engineer, endorsed by the Water Committee, for bringing from the hills of Wales an uncontaminated and ample supply of soft water to augment the future needs of London. Now that Sir Benjamin Baker and Mr. Deacon have practically confirmed the conclusions of our engineer, progress will doubtless be accelerated in view of the admission on all sides that further delay may be perilous to the health and interest of the metropolis. A wide diversity of reports of analysts on the amount of suspended matter in water supplied by the various companies led the Committee to instruct the chemist to continue his investigations by micro-filtration. While it is difficult to assess the relative merits of chemical and bacteriological analyses as determining the potability of any water, presumption in favour of one from an uncontaminated source, as against one initially polluted, and subsequently more or less purified, may perhaps be justified on stronger grounds than sentimental prejudice. Owing doubtless to recent events, I have not as yet received the report for 1896-7 of the Works Committee. As the department has recently been the subject of inquiry by a special committee and of considerable discussion in the Council there is less need for detailed notice. Fictitious entries in the books of the department were last autumn discovered by the comptroller in the ordinary course of his audit. The officers concerned were punished by immediate dismissal. Mr. Waterhouse states that 'these entries had no reference to any misappropriation of moneys, nor did they conceal any action whereby any employee of the department was pecuniarily advantaged.' The Technical Education Board continues under the tactful guidance of Mr. Sidney Webb, and now meets at its new offices at St. Martin's-place. Last year the Board spent 115,532l., the bulk of which sum was devoted to grants to about 100 institutions giving approved technical instruction and subject to inspec-

tion by the science and art advisers of the Board. A central school of arts and crafts was opened last November in Regent-street. It is the first attempt made by the Board to supply technical instruction directly under its own management. Besides technical drawing and design, classes are here held in stained glass work, lead work, enamelling, book-binding, colour-printing and heraldic drawing. A sum of £1,405*l.* was last year absorbed by scholarships. In addition to the usual junior, intermediate, and senior county scholarships the Board has instituted a scholarship in sanitary science tenable at the Council's laboratory at Claybury, and has initiated scholarships in horticulture. . . . Last December a conference was held with the representatives of various bodies interested in the preservation of buildings of historic and architectural interest, of which London has so many, but of whose existence we sometimes hear only at the moment at which their destruction is threatened. If by preparing a register of such buildings or otherwise the Council can assist in checking such needless vandalism, it will be acting in a worthy and civic spirit. I have now briefly reviewed some of the work which has occupied your attention during the past year. If I have not alluded more particularly to the Council's work, I feel that words are poor things in which to record the ungrudging zeal of which you and I are daily the witnesses. London is worthily served by men who are worthy of her service. In concluding, I would take this opportunity of thanking honourable councillors for the invaluable courtesy and kindness of which I have been the recipient since I became a member of this honourable chair. The Council's work is so vast and varied, its influence has been felt so deeply that it seems almost incredible that our body is but eight years old. In that time much has been accomplished, some progress has been made. Of course there have been failures, for the Council has the defects of its office as well as its powers. The long-delayed and overdue municipalisation of London generated an impetuosity which perhaps attempted more than could be immediately achieved, but the ideals aimed at have been lofty ones. Those ideals were justly recognised and formulated in the gracious reply to the first address on the Throne in these words:—"Ever to strive to further advance the welfare of the vast population of the metropolis, and do all that lies in our power to keep London worthy of its place as the capital of the Empire."

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Battersea Vestry £1,280*l.* for the erection of gas engine and machinery at their workshops; the St. George's (Hanover-square) Vestry £12,000*l.* for wood-paving; the Lambeth Vestry £22,000*l.* for wood-paving work in Acre-lane, Atlantic, Hercules, Lambeth, and Norwood roads; the Hammersmith Vestry £20,170*l.* for street and bridge improvements and wood-paving works; the Deptford Baths Commissioners £7,105*l.* towards the cost of erecting baths and wash-houses; the Shoreditch Vestry £10,000*l.* for erecting baths and wash-houses; and the Woolwich Local Board £3,350*l.* towards the cost of constructing an underground convenience, and for carrying out certain paving works.

The Works Department.—The General Purposes Committee submitted a report containing a number of standing orders, rendered necessary by the "inferential" abolition of the Works Committee. The Committee reported as follows:—

The Works Committee having by the resolution of the Council of June 28 been inferentially abolished, we recommend—

(a) That the resolution of the Council of March 9 last appointing the Works Committee be rescinded. (b) That the resolution of the Council of March 9 last—"that the orders of reference to the various committees do stand as at present" be rescinded, so far as it affects the order of reference to the Works Committee. (c) That in place of the order of reference to the Works Committee, and of the standing orders thereunder Nos. 322, 324, 325, 326, 327, 350, the following be substituted, and that standing orders 318, 319, 320, 323 be revoked.—1. All works ordered by the Council to be carried out without the intervention of a contractor shall, unless in any case otherwise ordered, in future be carried out by the manager of the Works Department, who shall be responsible to the executive committee in the same way as a contractor would be. The Finance Committee shall have control of the finances of the department. Any Committee contemplating the execution of any work shall, before coming to a decision as to how the work shall be carried out, obtain an estimate from the proper officer. When the estimate is received, if the Committee should then decide to recommend the Council to have the work carried out without the intervention of a contractor, they shall, before reporting to the Council, refer such estimate, together with full plans and specifications, to the manager of the Works Department for his examination and report. 2. The manager shall, subject to supervision by the Establishment Committee as regards officials

appointed by the Council, have the control of the staff exclusively employed in connexion with the works of construction, repair, and maintenance undertaken by the Works Department. 3. The manager shall, unless in any case otherwise ordered, carry out jobbing works and repairs, including the work of the erection of buildings, fans, and shoring. 4. All works referred to the manager to carry out, for which bills of quantities and, where necessary, complete specifications and drawings are not supplied, shall be considered as jobbing works. No committee, however, shall order a work to be carried out as a jobbing work unless it is satisfied that there is sufficient reason for not treating the work in question as an estimated work, and except as regards dangerous structure work and works undertaken on emergency, in every instance the Committee shall have laid before it by the engineer, architect, or other certifying officer, as the case may be, a rough estimate of the cost. A schedule of prices agreed upon between the manager of the Works Department and the architect and engineer, upon which in respect of jobbing works the estimates, measurements, and certificates of the architect, engineer, or other certifying officer shall be based, shall be revised periodically. 5. The officer under whose supervision the work has been carried out by the manager of the Works Department, shall certify, as in the case of the contractor, as to the satisfactory completion of the work and the amount of his final estimate, or the value on the schedule of prices, as the case may be. . . . 9. The head of the Works Department is to be called "manager of works," and is to be responsible, unless in any case it is otherwise ordered, for the execution of all works executed on behalf of the Council without the intervention of a contractor; he is also to be responsible under the Finance Committee for advising as to the purchase of plant and material, the employment and supervision of all officers and workmen in his department or employed on works, and the care, regulation, and execution of all workshops and depots connected with the Works Department including the central works; and is also to be responsible to the Finance Committee for the custody, issue, and use of all plant, materials, and stores purchased in connexion with works executed, and, in addition to the other conditions on which he holds his appointment, he is to give his whole time to the duties of his office, and is not to take any private business; and any fees received by him either as a witness or in any other capacity, and any discount or allowance on materials purchased are to be paid to the Council; and, further, on retirement, he shall not be entitled to any pension, gratuity, or other retiring allowance under the Superannuations Act, 1896, and he shall be subject to the Council's regulations in respect of a superannuation and provident fund. 10. The accounts of the cost of all works executed by the Works Department shall be kept by a Works accountant, whose office shall be at the Works Department, Belvedere-road, but who shall report direct and be responsible to the Finance Committee for the accounts and for his staff. 11. When the Council shall have resolved to execute any works without the intervention of a contractor, or shall have resolved, on the recommendation of the Finance Committee, to purchase any machinery, plant, or materials for stock, and shall have passed the necessary estimate of the cost of such works or such purchase, the Finance Committee shall have power to contract, on behalf of the Council, for the supply of machinery, plant, and material. 12. The manager shall report to the Finance Committee with regard to the purchase of materials, stores, plant, timber, machinery, horses, and other things required by him for the execution of any work, or to be kept in stock at the Central yard. 13. All questions arising between the manager and the Works accountant as to charges to be made in respect to transfers of materials, use of plant, handling, establishment expenses, stores, &c., &c., shall be decided by the Finance Committee. 14. It shall be the duty of the manager to draw the attention of the executive committee to any case in which, during the execution of any work, it appears that the cost of the work will exceed the amount authorised, and to obtain such authority as may be necessary from the Council. 15. It shall be the duty of the comptroller to advise the Finance Committee as to the regulations for the accounts of the Works Department and from time to time to make test audits of such accounts, reporting thereon to the Finance Committee. 16. The Works accountant shall be required to furnish the manager with any statement or information he may desire as to the accounts generally of the works carried out by the Department. 17. The regulations of the Finance Committee shall provide for separate accounts being kept of the cost of each work executed. 18. The actual cost and final estimate of a work shall be ascertained as soon as possible after completion of the work, and shall be forthwith laid before the executive committee and the Finance Committee. 19. Statements showing the estimated and actual cost of the works executed up to September 30 and March 31, and reported to the executive committees concerned, shall be presented by the Finance Committee to the Council within three months of the date of the statement, and report which an executive committee may desire to make to the Council shall be brought up

to the Council at the same time as the statement submitted by the Finance Committee, and the Finance Committee shall, at the same time, if necessary, make such observations as to the general finances of the Works Department as may appear desirable. 20. When there has been an original estimate of cost, such statements shall show (a) the amount of the estimate, (b) the amount of the final estimate if the original estimate has been amended by reason of certified additions or deductions, and (c) the amount of the certified actual cost of each work executed. 21. In the case of jobbing works, which for this purpose are defined to be works in respect of which bills of quantities, complete specifications, and drawings have not been supplied, the accounts shall show (a) the schedule value ascertained in accordance with the schedule of prices, and (b) the certified actual cost, and shall be presented to the executive committee concerned from time to time as the works are completed, the totals being subsequently reported to the Council at the same time as the half-yearly statements referred to in paragraph 19. 22. A separate statement, showing as regards all works executed by the Works Department since its creation, the totals of the actual cost, and of the final estimates, or the amount of the schedule value of such works, as the case may be, shall be presented by the Finance Committee to the Council with each half-yearly statement referred to in paragraph 19. 23. In the case of any work the actual cost of which has exceeded the original estimate, or the final estimate, as the case may be, the executive committee shall obtain the approval of the Council to the amount of the excess.

In view of the Finance Committee having in future the control of the finances of the Works Department, an addition to the order of reference of that Committee will be necessary. We recommend—"(d) That the following addition be made to the order of reference to the Finance Committee:—The financial control of the Works Department, and the supervision of the purchase of materials, plant, horses, &c., required for works carried out by the Works Department and of the accounts connected with such works, and the making of the necessary regulations with regard thereto, and reporting the same to the Council."

Under standing order No. 189, the list of the rates of wages and the hours of labour to be paid and observed by the Council in works which are in the nature of construction or manufacture, and which the Council may resolve to carry out without the intervention of a contractor, is to be settled by the Council on the recommendation of the Works Committee. We recommend—"That the word 'Finance' be substituted for the word 'Works' in the second paragraph of standing order No. 189."

In the course of a discussion on the report, Mr. Henry Clarke said there were reasons why the London County Council could never succeed in employing labour in the building trade; but, granting that it were not so, the proposition placed before the Council by the General Purposes Committee was the best, and he hoped that members would give the new experiment a fair chance.

Upon the first recommendation a long discussion as to details ensued. None of these questions involved matters of public policy, and the recommendations were agreed to, the Chairman of the Committee, Mr. Beachcroft, remarking that the arrangement was of a temporary character.

Proposed Tramway along the Embankment.—The report of the Highways Committee contained the following recommendations, which were, after discussion, agreed to:—

"(a) That the standing order No. 289, as to the period at which schemes requiring Parliamentary sanction shall be submitted to the Council, be suspended in order that the following recommendations (b) and (c) may be considered:—(b) That the Council do seek power in the next session of Parliament for the construction of a tramway from the existing termini of the London and South London Tramways Companies at Westminster Bridge-road, along the centre of Westminster Bridge, and the whole of the Victoria Embankment to Blackfriars Bridge. (c) That the Parliamentary Committee be instructed to take the necessary measures for giving effect to this resolution."

The Water Question.—The discussion was resumed on the report of the Water Committee, proposing a series of resolutions, which they asked the Council to adopt as a guide to the Council's witnesses before the Royal Commission on the London Water Supply.

The first resolution was: "That in the opinion of the Council the water supply of the metropolis should not continue in the hands of private companies."

Dr. Longstaff moved an amendment, discussion on which was begun last week, to make the recommendation read: "That, in the opinion of the Council, the water supply of the metropolis should not continue wholly in the hands of private companies, but should be under effective public control."

Dr. White seconded the amendment.

Mr. McDougall desired to make a personal explanation regarding a statement he had made last week as to an alleged contamination of water in the Thames near Goring. The water at this spot had since been examined by the chemist to the Thames Conservancy, and had been found to contain no sewage or mineral contamination. The discolouration which was present was due to certain water plants, and would disappear before the water reached the intakes of the London water companies.

Upon a division being called, the Moderates declined to appoint tellers, and the amendment dropped, the Committee's recommendation being then adopted.

The next resolution submitted by the Committee was:—"That in the opinion of the Council the undertakings of the Metropolitan water companies should forthwith be purchased at the fair and reasonable value of the same, regard being had to the rights, special circumstances, and obligations of the companies."

Mr. Porter moved, and Mr. E. White seconded, a further amendment, proposing that, since the purchase of the water companies' undertakings would probably increase the cost of water to the public, the Council should not pronounce an opinion in favour of such purchase pending inquiry by the Royal Commission.

Mr. Lawson opposed the amendment. At seven o'clock the debate was adjourned until next week.

Charing Cross Bridge.—Replying to Mr. Westcott, Mr. Payne, Chairman of the Building Act Committee, said, with reference to Charing Cross Bridge, that a portion of ironwork had fallen on the public way, causing much alarm. In an ordinary case it would have been sufficient to communicate with the railway company, but this was not an ordinary case, and a notice had therefore been posted.

The Council adjourned soon after seven o'clock.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions:—

Lines of Frontage.

Brixton.—That consent be given to the erection of a new building on the site of a house with yard at rear on the west side of Carlton-grove, Brixton Rise, to abut upon Brighton-terrace, on the application of Messrs. Wylson & Long on behalf of Mr. Burney.

St. George-in-the-East.—That consent be given to the erection of three open iron foot-bridges across Backchurch-lane, to connect warehouses on the east and west sides of that street, on the application of Mr. E. A. B. Crockett on behalf of Brown & Eagle, Limited.

Greenwich.—That consent be given to the rebuilding of the "White Horse" public-house, No. 704, Woolwich-lower-road, Charlton, at the corner of Thomas-street, on the application of Messrs. Watney & Co.

Westminster.—That consent be given to the erection of a wood and glass pent-roof in front of offices at the rear of No. 81, Page-street, on the application of Mr. J. S. Brown.

Hampstead.—That consent be not given to the erection of a projecting wooden shop-cornice, balcony, and balustrade to a detached house with shop on the west side of Southend-road, to abut upon Heathurst-road, on the application of Mr. F. J. Potter on behalf of Mr. W. Rumbold.

City of London.—That consent be not given to the erection of four three-story oriel windows in front of a proposed new building on the site of Nos. 76, 77, 78, and 79, St. Paul's Churchyard, on the application of Mr. B. Fletcher on behalf of Messrs. J. Spence & Co.

Dulwich.—That consent be not given to the erection of four one-story shops on the south-east side of Half-moon-lane, Herne Hill, adjoining the Half-moon Hotel, on the application of Mr. G. W. Riley.

Hackney, North.—That consent be not given to the erection of a one-story surgery at the rear of No. 183, Evering-road, Stoke Newington, to abut upon Brooke-road, on the application of Mr. G. E. Withers on behalf of Dr. G. A. Raverty and the trustees of Mr. E. Withers (deceased).

Paddington, South.—That consent be not given to a wood and glass verandah erected upon the porch at No. 27, Inverness-terrace, on the application of Messrs. Maple & Co. on behalf of Mr. Alderman Halse.

Strand.—That consent be not given to the erection of a glass and iron shelter at the entrance to Nos. 51 and 52, Haymarket, St. James's, on the application of Mr. W. A. Burr on behalf of Mr. E. Kirk.

Strand.—That consent be not given to the erection of a glass and iron shelter at the principal entrance to Nos. 36, 37, 38, and 39, Savile-row, St. James's, on the application of Messrs. Henry Poole & Co.

Width of Way.

City of London.—That consent be given to the erection of a building on the site of Nos. 43 and 43A, Fetter-lane, to abut also upon Dean-street, on the further application of Mr. J. F. Bell.

Lincoln.—That consent be given to the erection of a building on the west side of New Gravel-lane, upon part of the site of Brewers-court, on the application of Mr. S. Witherington on behalf of the New Phoenix Brewery, Limited.

Norwood.—That consent be given to the erection of a one-story addition to stables at the rear of No. 219, Gipsy-road, Lower Norwood, at less than the prescribed distance from the centre of a way leading out of Hamilton-road, on the application of Messrs. Marshall & Nelson on behalf of Dr. J. S. Sharnam.

Waltham.—That consent be not given to the widening of a portion of the passageway between Nos. 144 and 146, Trafalgar-street, and leading from that street into Wooler- (formerly Webb) street, on the application of Mr. R. Dickinson on behalf of Lord Liangatook.

Lincoln.—That consent be not given to the erection of a pumping-station on the north side of Narrow-street, on the application of Mr. J. W. Barry on behalf of the North Metropolitan Railway and Canal Company.

Line of Fronts and Width of Way.

Kensington, South.—That consent be given to the erection of a block of residential flats on the site of Nos. 41, 43, and 45, Drayton Gardens and Vine Cottage, Thistle-grove-lane, on the application of Mr. J. Norton on behalf of Mr. T. Boyce.

St. Pancras, East.—That consent be given to the erection of a three-story bay window in front of No. 318, Camden-road, and the erection of two-story stables at the rear of that house to abut upon Camden-mews, on the application of Messrs. Meakin & Son on behalf of Mr. H. Sams.

Wandsworth.—That consent be given to the frontage of a two-story addition in course of erection at a laundry building on the south side of Putney Bridge-road, and at less than the prescribed distance from the centre of Oxford-road, on the application, further considered, of Mr. R. Avis.

Brixton.—That consent be not given to the erection of an addition to No. 16, Coldharbour-lane, on the application of Mr. J. T. Holmes on behalf of Mr. H. Wood.

Peckham.—That consent be not given to the erection of a one-story addition in front of the "Eton Arms" beer-house, No. 27, Lower Park-road, Camberwell, on the application of Mr. T. W. Moss on behalf of the Winchester Brewery Company, Limited.

Peckham.—That consent be not given to the rebuilding of the "Nutmeg" tavern, Nunhead-green, at its junction with Seville-road, on the application of Mr. G. E. Neild on behalf of Mr. W. Lable.

St. George, Hanover-square.—That consent be not given to the erection of a one-story addition to stables at No. 197, Eaton-place, to abut upon Eaton-terrace Mews, on the application of Mr. B. Slade on behalf of Mrs. Grant Watson.

Line of Fronts and Temporary Building.

Brixton.—That consent be given to the erection of a temporary wooden bar on part of the forecourt of the "Hope" beer-shop, No. 46, Church-road, on the application of Mr. J. C. Jackson.

Width of Way and Temporary Building.

Westminster.—That consent be not given to the construction and erection of temporary wood and iron stores, offices and a workshop, on the east side of Morrell-terrace at its junction with Francis-street, on the application of Mr. G. Baines on behalf of Mr. G. Martin.

Open Space about Buildings.

Lambeth, North.—That the Council do, in the exercise of its powers under section 41 (1) (vi) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a block of residential flats, with shops on the ground floor, on the west side of Kennington-road adjoining No. 4, with an irregular space at the rear of the new block as shown upon the plan submitted with the application of Mr. J. E. Lamerton.

Stepney.—That the Council do, in the exercise of its powers under section 41 (1) (vi) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a house with shop on the ground-floor on the north side of Pelham-street at the corner of Hunt-street, Mile End New Town, with an irregular space at the rear, as shown upon the plan submitted with the application of Messrs. Davis Bros.

Width of Way and Space at Rear.

Finsbury, Central.—That the Council do, in the exercise of its powers under sections 13 and 41 of the London Building Act, 1894, consent to and permit of the erection of shops with rooms over on lots 37C, 39, 40, 41, 42, and 43 of the Council's land in Rosebery-avenue, Clerkenwell, with portions of the buildings at less than the prescribed distance from the centre of Jelley's-yard and Garnault-mews, and with irregular open spaces at the rear of the new buildings, as shown upon the amended plans submitted with the further application of Mr. F. Smith on behalf of Mr. H. Roffey.

Formation of Streets.

Lewisham.—That an order be sealed and issued to Mr. W. W. Scott, sanctioning the formation or laying out for carriage traffic of an extension, 40 ft. wide, of Lansdowne-road, Lee, and the widening to 40 ft. of the remaining portion of that road.

Height of Buildings.

City of London.—That consent be given to the erection of an addition to the Guildhall School of Music, Tallis-street, Whitechapel, fronting upon John Carpenter-street, and to exceed in height the width of that street, on the application of Mr. A. Murray on behalf of the Corporation of the City of London.

Conversion of Buildings.

Dulwich.—That the Council do, in the exercise of its powers under section 211 of the London Building Act, 1894, allow the conversion into a dwelling-house of an office building on the west side of Wren-road, Camberwell, such office building not having an open space at the rear, as shown upon the plan submitted with the application of Mr. E. J. Stevens on behalf of Andrews' Star Omnibus Company, Limited.

Building for the Supply of Electricity, &c.

Lambeth, North.—That the Council do approve of the plans, dated July 7, 1897, submitted with the application of Mr. W. B. Pinney on behalf of the Charing Cross and Strand Electricity Supply Corporation, Limited; for the construction of coal bunkers and an extension of the boiler-house at the generating station and works, No. 85, Commercial-road.

Dwelling-Houses on Low-lying Land—Part XI.

Woolwich.—That the solicitor do prepare a licence under section 122 of the London Building Act, 1894, to Messrs. J. & C. E. Pearson for the erection of fifty-eight dwelling-houses on low-lying land situated in Abbey-grove, Abbey Wood, in accordance with the plan submitted with the application made on behalf of Messrs. Pearson by Mr. T. J. Young.

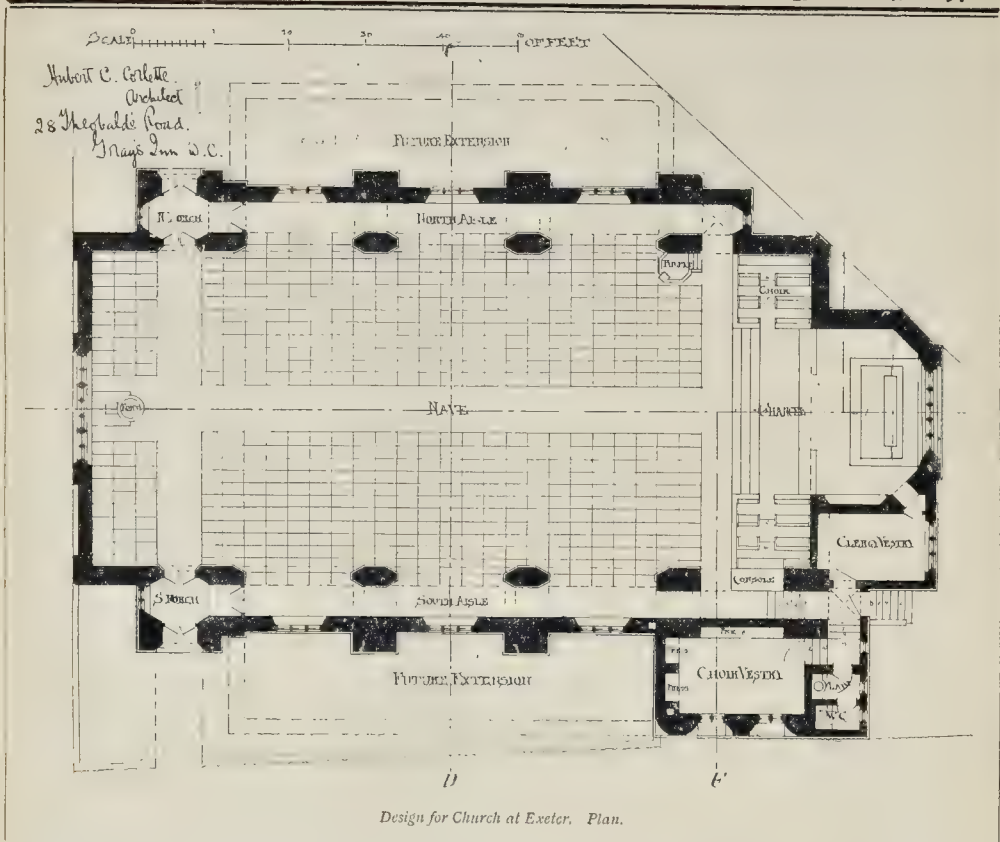
Poplar.—That the solicitor do prepare a licence, under section 122 of the London Building Act, 1894, to Mr. W. Legg, for the erection of two dwelling-houses, one with a shop, on low-lying land situated at Manilla-street and Alpha-road, Millwall, in accordance with the plan submitted with the application made on his behalf by Messrs. J. & S. F. Clarkson.

Recommendations marked † are contrary to the views of the Local Authorities.

COMPETITIONS.

TECHNICAL INSTITUTE, &C., TONBRIDGE.—In the competition for New Technical Institute and Free Library, Tonbridge, the first premiated design was sent in by Mr. John H. Phillips, St. John's Chambers, Cardiff. The second premiated design was by Mr. John Johnson, 9, Queen Victoria-street, E.C., and the third by Mr. Henry A. Cheers, Twickenham.

HOTEL, METROPOLIS, MORECAMBE.—The award of Messrs. Harrison, Hall, & Moore, the adjudicators in this competition, is as follows: First premiated design, "Experience"; second, "1807"; third, "Pro Bono Publico"; fourth, "Dividend"; and first of the unpremiated designs, "Merlin". The authors of these designs are:—"Experience," Messrs. Mangnall & Littlewoods, 42, Spring Gardens, Manchester; "1807," Messrs. Essex, Nicol, & Goodman, Newhall Chambers, Newhall-street, Birmingham; "Pro Bono Publico," Messrs. H. & E. Marten, 5 and 7, Charles-street, Bradford; "Dividend," Messrs. Chorley, Connon, & Chorley, 15, Park Row, Leeds; "Merlin," by Messrs. Butterworth, Duncan, & Marshall, of Rochdale and Morecambe. The conditions issued to competitors requested accommodation for a first-class hotel containing 150 bedrooms and an arcade of shops, to cost 30,000. The site of the hotel is situated at the extremity of the West End Promenade, and surrounded by four frontages, viz.: The Marine Drive, the Promenade, Heysham-road, Sefton-road. The two principal facades of the first premiated design face the Marine Drive and the Promenade with an entrance from each, the other two frontages to Heysham and Sefton



roads being appropriated by the arcade and shops. The two corners to Heysham-road are utilised for restaurants and refreshment rooms connected with the hotel, but so arranged as to be practically separated. The hotel is to be four stories high, exclusive of basement, and the material used will be buff brick, terra-cotta, and stone.

SCHOOL, UPPERTHORPE, SHEFFIELD.—At a recent meeting of the Sheffield School Board the design of Messrs. Hensoll & Paterson, for the school to be erected at Upperthorpe, was the one chosen by the Buildings Committee, and the premium of 10*l.* offered for the plan considered third in order of merit was awarded to Mr. Mitchell-Withers. Messrs. Holmes & Watson were also competitors, and the committee recommended that they be instructed to prepare plans on similar lines for a school at Pomona-street, to accommodate 450 children, the rooms to be so arranged that a portion of the building may at first be used for infants, and the rest of the space for boys and girls, the plan to be such as to be capable of enlargement at either end. This recommendation was in lieu of the premium offered for the design considered second in the order of merit in the competition for Upperthorpe School.

Illustrations.

ST. MICHAEL'S CHURCH, SOUTH-FIELDS, WANDSWORTH.

THIS church consists of a nave 90 ft. long and a chancel 42 ft. long, the width being 28 ft. 10 in. from outside to outside of the walls. The roof is continuous, and there is no chancel arch.

In the same manner the north and south aisles, which are 14 ft. 6 in. wide in the clear, run right through and form aisles for the chancel, the organ standing in the north chancel aisle. The clearstory is carried by arches nearly 20 ft. in the clear of the piers, which are octagonal and 2 ft. 8 in. in diameter.

There is a choir vestry 25 ft. by 17 ft., and a clergy vestry 12 ft. square, opening out of the north chancel aisle, under which is the heating chamber.

The church seats 1,738 persons, allowing 20 in. to each sitting, and 3 ft. from back to back of seats. It is faced externally with red brick and Monk's Park Bath stone. The nave roof is to be covered with red Broseley tiles, and the aisle roofs with Westmoreland green slates.

The contractors are Messrs. W. Johnson & Co., of Wandsworth Common, and Messrs. Wenham & Waters, of Croydon, are doing the heating. The clerk of works is Mr. T. Sheldermine.

Mr. E. W. Mountford is the architect. The drawing is exhibited at the Royal Academy.

DESIGN FOR CHURCH AT EXETER.

THIS church was designed by Mr. Hubert C. Corlette (Nicholson & Corlette) to provide seats for 600 in the nave, which is 44 ft. wide from centre to centre of the arcade piers. These are more strictly portions of walling having arches between them, so that the weight of the superstructure should be concentrated on a broad foundation rather than on small points. This seemed advisable from the nature of the ground on which the church was to be built. North and south porches communicate directly with the nave and aisles, with a double screen of doors. The font is at the west end, and it was suggested that a screen should be placed across between the north and south entrances, immediately at the back of the last row of seats in the nave proper. By this means a narthex was formed, in which seats are provided, some of which would be available for late arrivals, who could wait there till the conclusion of certain parts of the service, and so avoid interruption.

A wide open space is obtained in front of the sanctuary, providing room for the easy and quiet movement of communicants, who would come up by the centre and return by the sides

into the aisles. The choir has been so placed that it shall be no obstruction, and also arranged with a wall on two sides to throw the voices out into the body of the church, which is 108 ft. long east to west. The organ is in the tower on the south side of the choir. The steps from the vestries into the church became necessary, as the heating chamber, which is below the choir vestry, had to be above ground. It was estimated that the building would cost 6,000*l.*

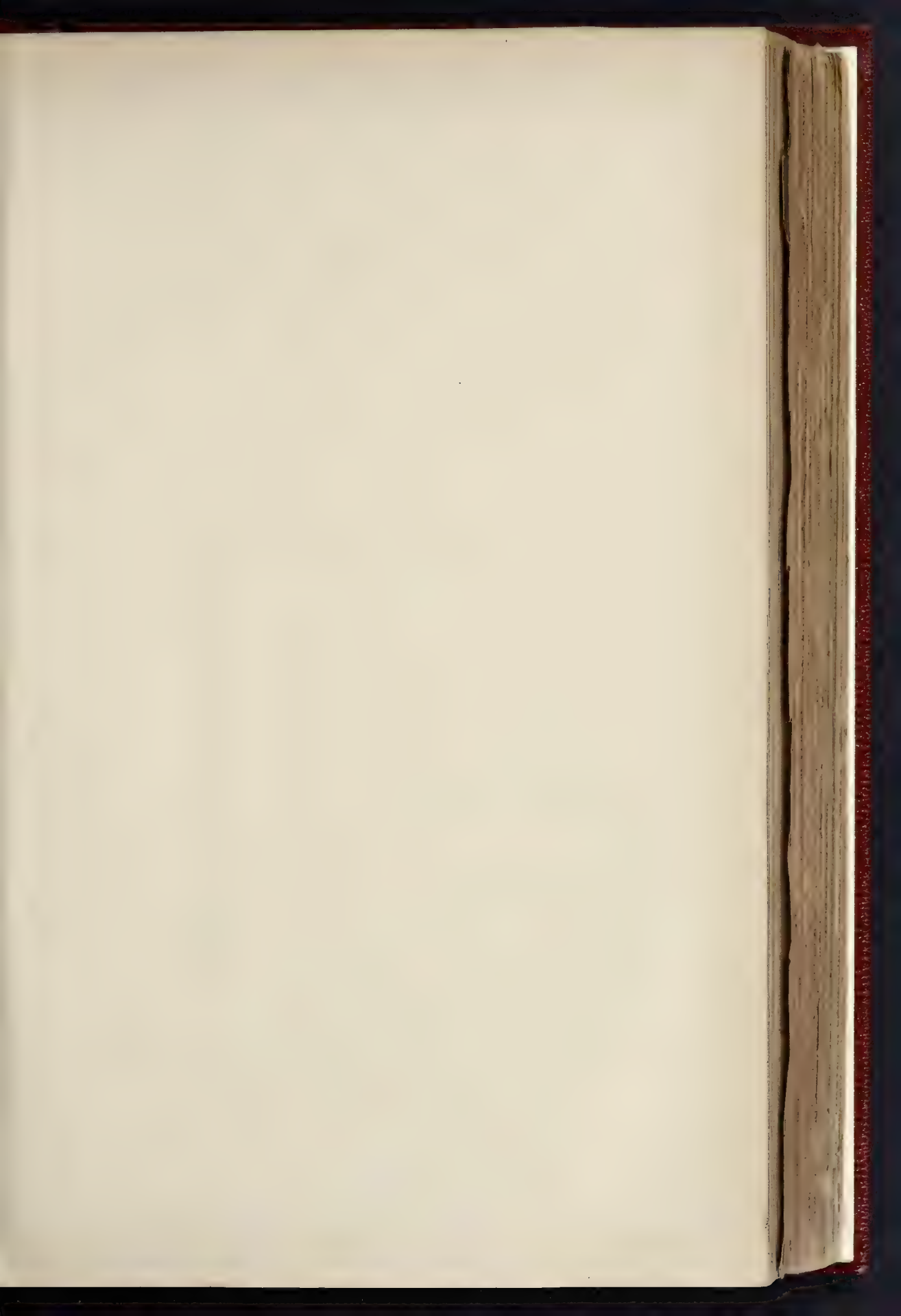
ST. PETER'S, EAST GRINSTEAD.

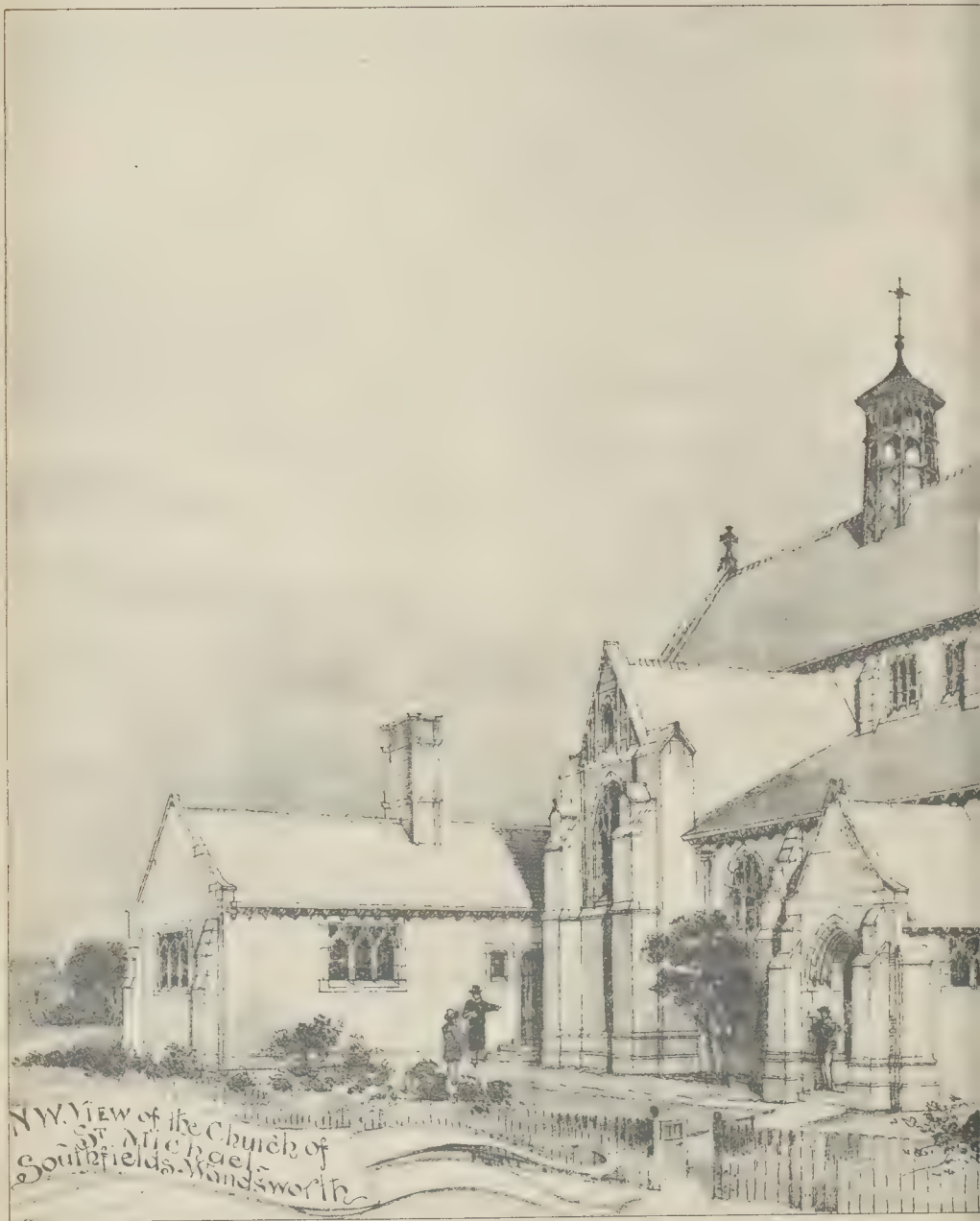
THIS church, now in course of erection on a site in the London-road, near the railway station, is being built for the Catholic community of the locality, from the designs of Mr. Fredk. A. Walters, of Westminster. The materials used externally are brick faced with rough cast, with Bath stone dressings, the roofs being covered with green Westmoreland slates. Messrs. James Longley & Co., of Crawley, are the contractors. The church will accommodate about 400 persons, and the cost will be about 5,000*l.*

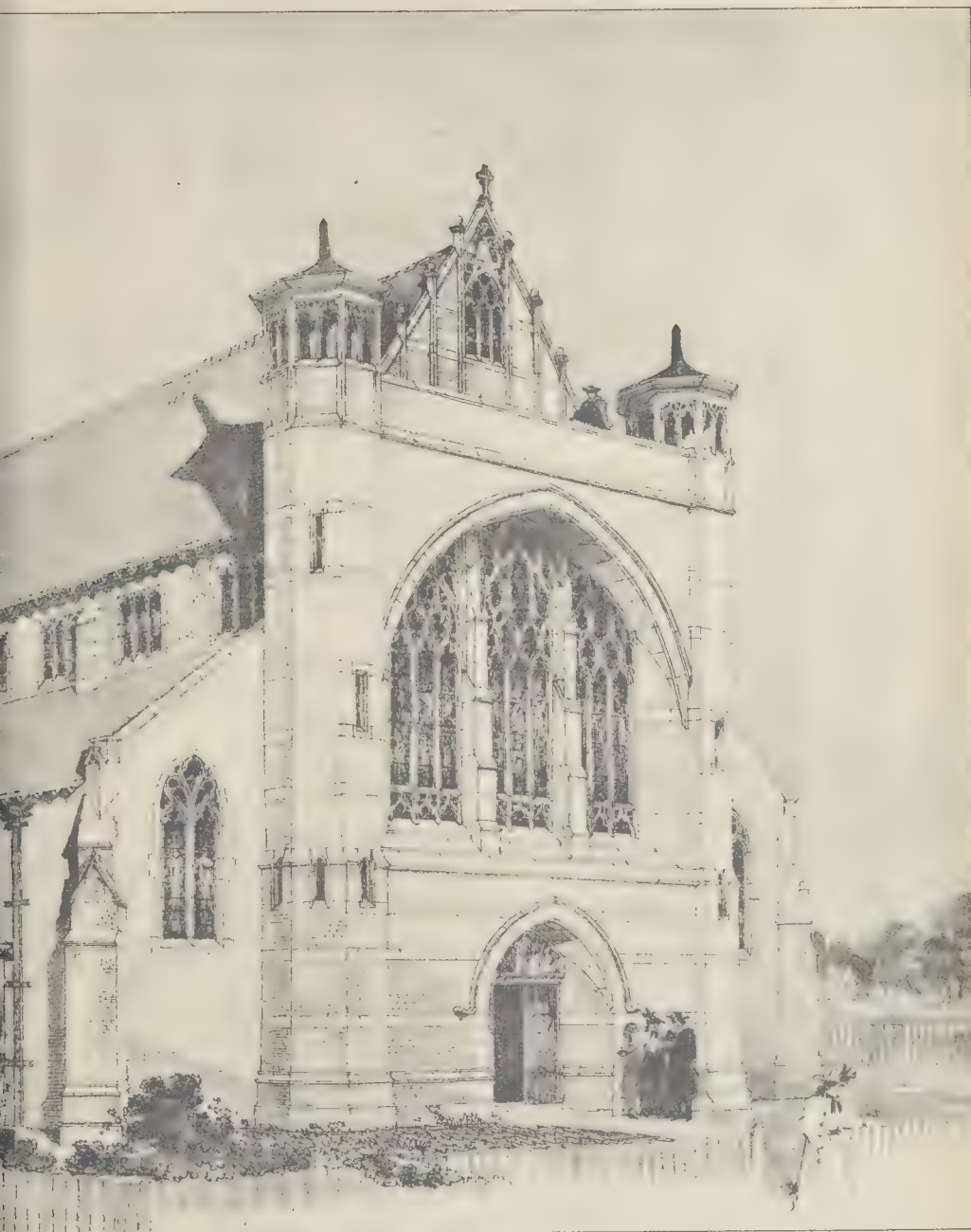
NEW POLICE OFFICES, COURTS, &c., ROTHERHAM.

THESE buildings, which are just being completed, are erected adjacent to the Municipal Offices. The accommodation comprises two large courts, with magistrates' rooms and separate entrance, large public halls and staircase, giving access to the two courts, and solicitors' and counsel rooms, and male and female witnesses' rooms on the first floor.

The police offices have a separate entrance, and the accommodation provided consists of charge room, chief constable's room, inspector's room, parade room, inspector's house, weights and measures' offices, large police yard, fifteen cells, and a large association cell. The architect is Mr. Richard J. Lovell, of London, and the builder is Mr. R. Snell, of Rotherham.





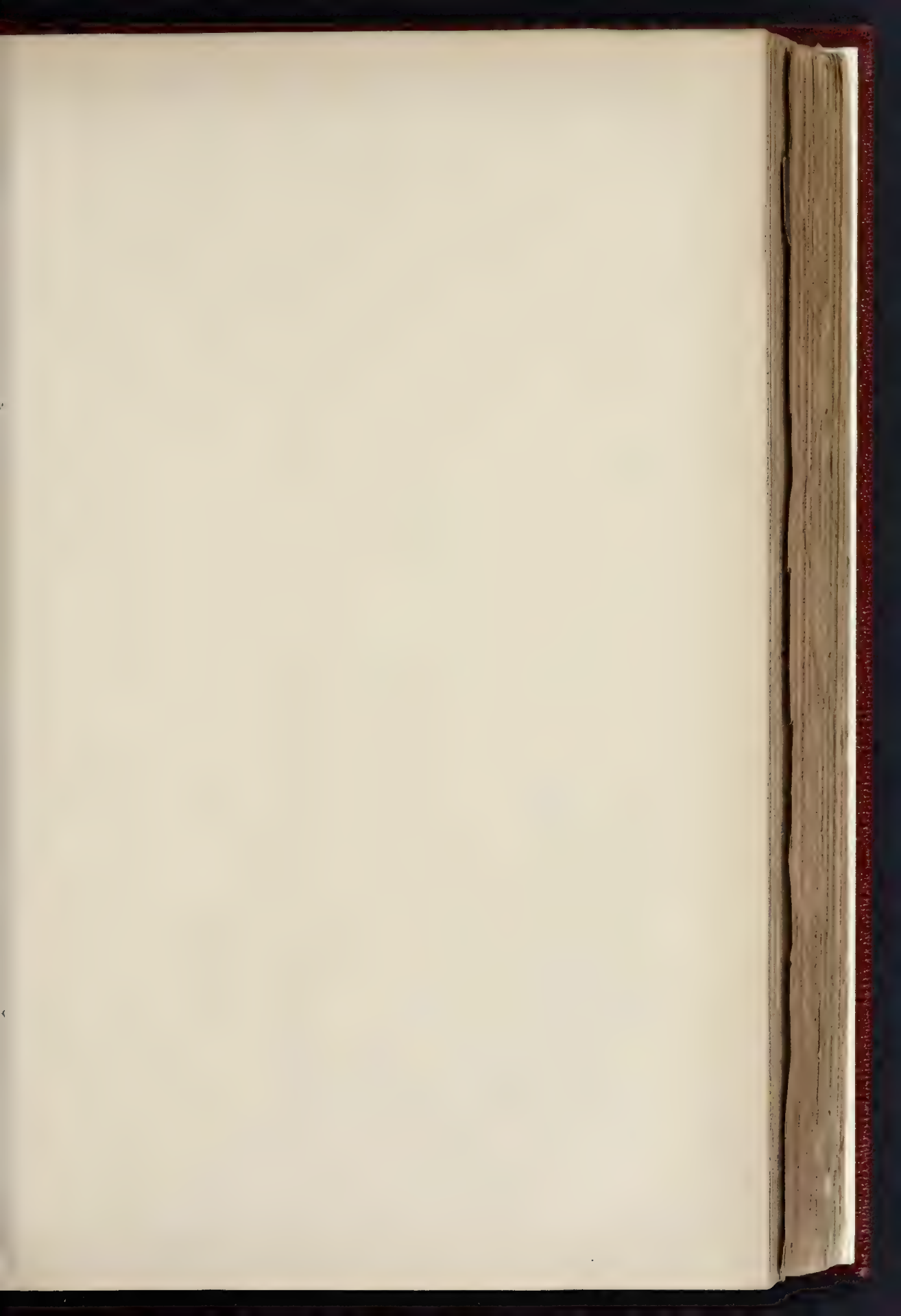




DESIGN FOR A CHURCH IN EXETER - By MR H C CORLETTE, A.R.I.B.A



ST. PETER'S, EAST GRINSTEAD.—MR F. A. WALTERS, F.S.A., ARCHITECT



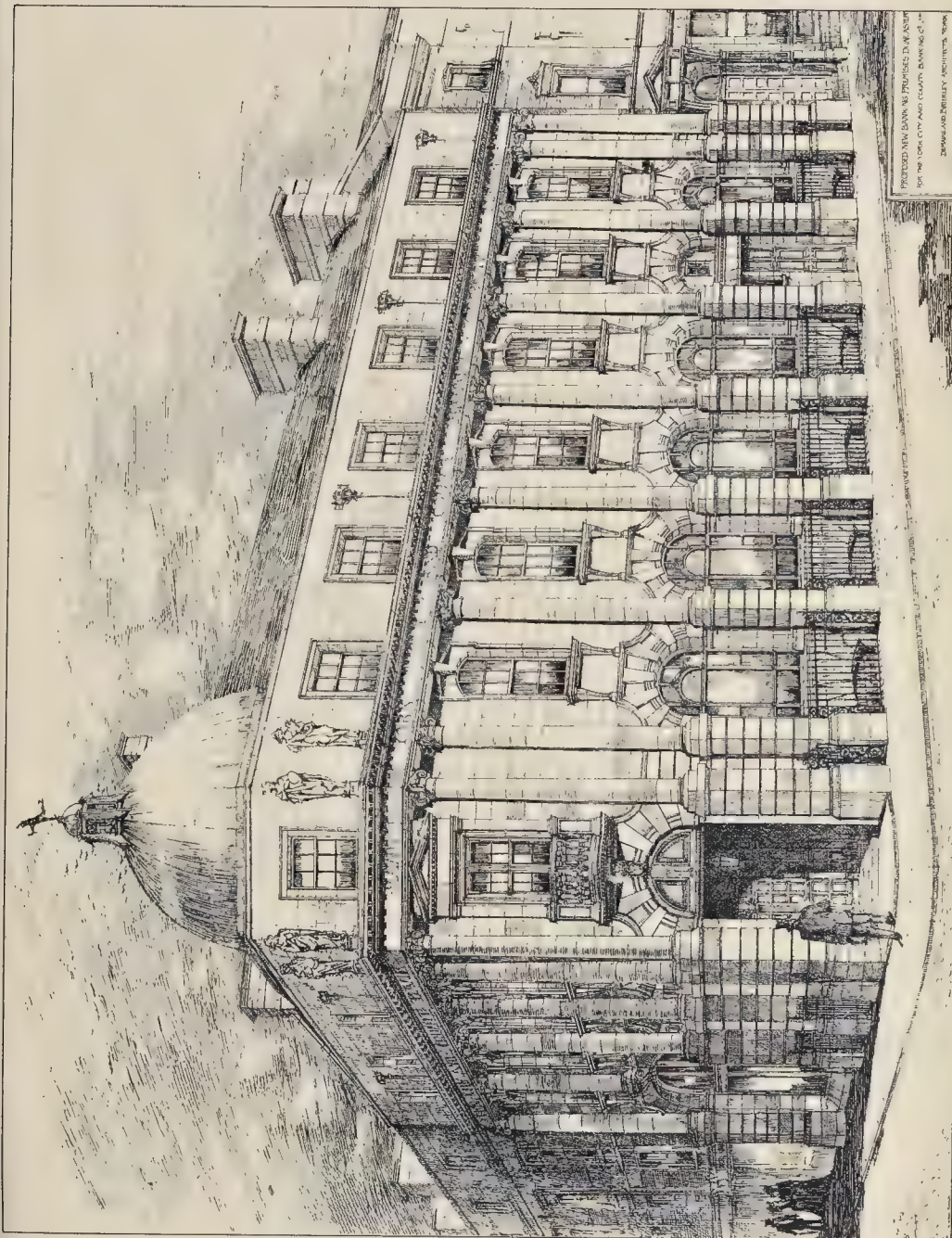
Police-Offices Court's Etc.
Rotherham 1902.

*Thos. J. Smith
archt.*

The drawing is a detailed architectural illustration of the Rotherham Police Station. The main part of the image is a perspective view of a large, multi-story building with a complex facade featuring numerous windows, arched doorways, and decorative stonework. A prominent clock tower with a domed roof and a spire is attached to the left side of the building. In the foreground, there is a paved area with some figures of people, suggesting a street scene. To the left of the main building, there is a small inset plan showing the layout of the site, including the main building, a smaller structure, and surrounding streets. The plan is labeled with 'POLICE STATION' and 'COURT'.

Police-Offices-Courts-Etc.
Rotherham.

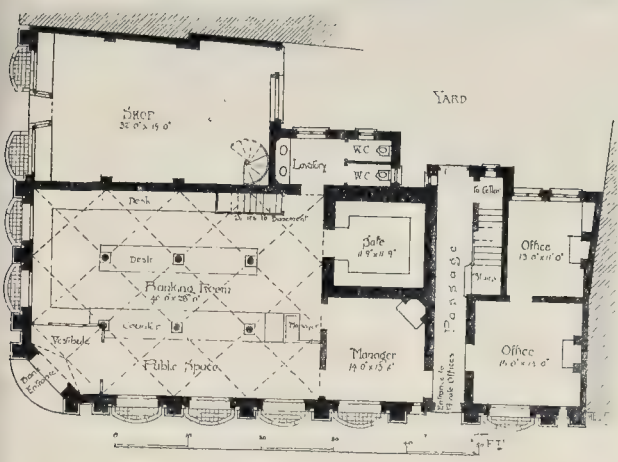
Richard L. Lovell
Archibute



PRINTED AND PUBLISHED BY
JOHN W. BARNES, 101 NASSAU ST., N.Y.

PHOTO-LITHO. SPENCER & CO. 433 EAST HANCOCK STREET, NEW YORK, N.Y.





Bank Premises, Doncaster. Plan.

NEW BANK PREMISES AT DONCASTER.

This building, which is now approaching completion, is faced with brown Portland stone, the roof being covered with Westmoreland slates, and the dome with copper. The crowning figure is a reproduction in bronze of John of Bologna's "Mercury."

The upper floors comprise offices and a caretaker's residence. The construction is fireproof throughout.

Mr. Wm. Enlay is the builder, and Mr. Carse has acted as clerk of works.

The carving and sculpture is by Messrs. Farmer & Brindley.

Internally, the bank is groined throughout. The walls are panelled, and, with the fittings, are of mahogany, by Messrs. Marsh, Jones, & Gribb.

Messrs. Demaine & Brierley, of York, are the architects.

SKETCHES IN WORCESTERSHIRE AND WARWICKSHIRE.

THOSE parts of the counties of Worcester and Warwick situate in the valley of the Avon are all of interest to architectural students, yet though Evesham and the country round Stratford-on-Avon are well known, the more remote parts of the district are almost terra incognita. The visit of the Architectural Association to Worcestershire in 1895 attracted much attention; and profiting from their experience, I and a friend of like tastes recently made an Avon valley the *locus* of a fortnight's sketching tour.

To properly explore the district cycles were indispensable, and having our headquarters at Evesham, a quaint, old-fashioned town, we made daily excursions, astride the wheel, to the various places of interest within a few miles of that centre, among these places being Broadway, Campden, Mickleton, Stanton, Stanway, and Stratford-on-Avon, all excellent sketching resorts. Not all of these places are accessible to the ordinary tourist, and some of the accompanying sketches will probably be fresh to the reader.

Salford Hall, a charming Elizabethan house six miles from Evesham, is locally known as the nunnery, having for thirty years in the early part of the century been occupied by Benedictine nuns, refugees from France. Part of it is still a Catholic chapel, the remainder being occupied by a genial farmer. The sketcher will obtain two or three days good work here, especially if he be a colourist, for the yellow and grey stone of the building affords a delightful contrast to the red tile roofs and the surrounding trees. Over the doorway, which is poor in design and detail, is the motto, *Moderata durant*, and the date 1662. One of the rooms, formerly the hall, has a fine five-light mullioned window with double transoms, and in a bed room is an interesting oak fire-place. This, however, like the panelling which

extends from floor to ceiling, is to some extent spoiled by being painted.

The two views of the old Vicarage at Evesham—a good example of the half-timbered style so much in evidence in this neighbourhood—are taken from opposite sides of the archway, standing close to the two parish churches and within a stone's throw of the beautiful Bell tower. Beneath the gabled portion of the building are the remains of a very interesting piece of Norman arcading, which suggest the existence at one time of a structure of a much earlier date than the present one.

The next sketch is of cottages at Clifford Chambers, a village in which is also a hall of excellent design. Its soft—almost salmon coloured—brickwork, with pearly grey stone-healing and yellow stone dressings, affords a charming piece of colour, such as one seldom finds in the stone district.

The block of cottages at Stanton, sketched from the village cross, is one of several effective groups in a small picturesque village, which, according to tradition, was once a considerable market town. The disgraceful feature of Stanton is its church, which, over a century ago, was described by Nash, the county historian, as being "airy, but in bad repair." Since that time the interior has been falling into absolute ruin, apparently without effort being made even to keep it in decent order. The Jacobean pews are tumbling to pieces, the floor is rotting away, and the whole church is a sight to sadden the heart of every architect and archaeologist.

The large, antiquated house at Bidford is known traditionally as the "Falcon Inn," the scene of the Homeric contest between the Bidford toppers and the Stratford lovers of good ale, among whom was Shakespeare. The Stratford champions were ignominiously defeated and passed the night under a crab tree, and the village received from the bard the epithet of "Drunken Bidford," which it still proudly retains.

Aylesbury. F. TAYLOR.

ARCHÆOLOGICAL SOCIETIES.

SURREY ARCHÆOLOGICAL SOCIETY.—The annual excursion of this Society is fixed to take place on the 28th inst., and will be to Epsom, Walton-on-the-Hill, and Banstead. The meeting place will be at Epsom, whence carriages will drive to Walton-on-the-Hill Church, where a short paper on "English Leadon Fonts," with especial reference to the example in this church, will be read by Mr. J. L. André. An account of this font, with an illustration, by Mr. André has already been published in the ninth volume of the Society's Transactions. A visit will next be paid to the site of the Roman villa at Chussex Plains. This was also illustrated and described in the second volume of the Society's Transactions by the late Mr. W. W. Pocock. The members will proceed next to Banstead, where Mr. F. A. H. Lambert will describe the church and its history. "The

Oaks" will be visited, and Mr. Ralph Nevill will relate briefly the history and associations of the house. Garratt's Hall, Banstead, will also be inspected, where the ancient fireplace and firedogs from Shortes Place will be shown, and in the hall will be exhibited a collection of pictures, books, and other objects of local and historical interest. At Burgh Heath a few notes on same and its connexion with Hubert de Burgh will be read by Mr. Montague S. Giuseppe, who has accepted the office of Honorary Secretary, in the place of Mr. Mill Stephenson, resigned. Sir William Vincent, Bart., of D'Abernon Chase, Ashted, will be the President for the day. Further particulars of the excursion can be obtained at the offices of the Society, 8, Danes' Inn, Strand.

NEWCASTLE SOCIETY OF ANTIQUARIES.—The members of the Newcastle Society of Antiquaries visited Easington, Seaham, and other places in the neighbourhood recently. On the way to Easington they alighted and viewed the church at Dalton-le-Dale, which was described by Mr. W. H. Knowles, architect, of Newcastle, who pointed out that it belonged to the Priory of Durham. It comprises an aisleless nave and chancel of equal width, and a south porch, and is a valuable specimen of a church which has apparently never been extended beyond its present foundations. It has also escaped recent alteration. The earliest portion of the architecture is the Norman door, now built up, in the north wall of the nave. This doorway is a piece of the earlier building incorporated, but whether it always occupied its present position it is difficult to say. Excepting a portion of the north nave wall, the church is of one date. The position of the windows, which are placed 11 ft. above the ground level, the section of the mouldings, and the flatness of the pilasters induced Mr. Knowles to think that the date of the work was within a few years of 1200. The chancel arch is modern. It is possible, Mr. Knowles said, that the north wall, with its Norman door, was left standing when the east, south, and west walls were built about the year 1200, and that it did duty until the fourteenth century, when it was rebuilt. At the same period the two-light window, with the pierced quatrefoil head, in the north chancel wall, was inserted, and the dwarf buttress below it, as well as the large buttress at the north-east angle, were built. The porch also is of the same date. There is a priest's door on the south side of the chancel, and a built-up window on the north nave wall at its east end. The lancets at the east end are the same as those at Lanchester, and, like them, the rear arch is trefoil-shaped. From Dalton-le-Dale the party continued their drive to Easington, where the rectory and its gardens were inspected. In the garden are various stones taken from the parish church, and portions of a decorated window attracted special notice. The rectory, which contains many vestiges of mediæval architecture, was inspected through the kindness of the Rev. Canon Scott-Moncrieff, as was also an adjoining building, said to have been a tithe farm. The visit to the rectory was followed by luncheon at the King's Head, Easington, after which the Parish Church was viewed, the Rev. Canon Savage of South Shields reading a paper descriptive of the place. He directed attention to the arcades and to the wood work of the period of Bishop Cosin, the pew ends and pulpits being selected as of more than ordinary interest. The rector showed a large carved grave cover just recently found in the burial ground, and which had been given a place near the entrance to the church, beneath the tower. From Easington the excursionists were conveyed by brake to Seaham, having an opportunity en route of inspecting the Dawdon Tower or rather its ruins, which were described by Mr. W. H. Knowles. At Seaham Church the party was received by the Rector, the Rev. A. Bethune. The church appears to be principally composed of late Norman and late fourteenth century architecture. Its seventeenth century pulpit and font cover are objects worthy of notice. After tea, provided by the rector, the room in which Lord Byron's marriage took place in Seaham Hall was pointed out. The excursionists subsequently returned to the brake and drove into Sunderland, where they took train for home.—*Newcastle Journal*.

PROPOSED NEW CHURCH, WEST HARTLEPOOL.—The work of designing the new Church of St. Oswald, in the parish of West Hartlepool, has been entrusted, we understand, to Messrs. Hicks & Charlewood, of Newcastle-on-Tyne.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—A visit was made by a party of the members of the Society of Engineers on the 20th inst. to the ironworks of Messrs. Easton, Anderson, & Golder, Limited, at Erith. The Erith ironworks were commenced in 1864 by the firm of Easton, Amos, & Anderson, and were laid out by Sir William Anderson, K.C.B. Designed at first as an off-shoot from the principal works at the Grove, Southwark, gradual extensions were carried out from time to time, until in 1873 the Grove Works were finally closed, and the machinery and tools moved down to Erith. The works stand on a plot of ground about 17 acres in extent, having a frontage of about 800 ft. to the River Thames, and the various shops are arranged side by side, the general direction being perpendicular to the river bank, so as to allow of the shop travellers working out on a gantry over barges lying in the river. A railway siding extends from the South-Eastern Railway into the works. The works are entered through the offices, which are placed at the south-west corner of the property, and which consist of a clerk's office, with manager's and other rooms on the ground floor, and a drawing office occupies nearly the whole of the first floor, the remainder being taken up by estimating and electrical offices; above is a photographic room. The various shops lie between the offices and the river. Commencing from the west side there are covered stores for stock, 95 ft. by 43 ft., and sheds for patterns covering an area of 150 ft. by 90 ft. Next to these is a pattern shop 100 ft. by 50 ft., with a packing store at one end, and an electrical shop in two bays with a store close by. The dimensions of the electrical shop are 150 ft. by 100 ft., and room is left at the river end for extensions. East of these shops is a large open yard, and again east of this is the main building, consisting of six equal spans of 43 ft. by 600 ft. The two western spans are occupied by an iron foundry 240 ft. long, a brass foundry and smiths' shop. The next two spans are given up to machine and erecting shops, the roof in the latter being carried up so as to allow for the erection of lofty engines, the high traveller rails being 39 ft. above floor level. The two bays next to these are devoted to boiler and bridge building; beyond this is another extensive yard, in which is a gantry used for the erection of caisson and other large work not easily dealt with in the shops. Beyond this is a field which is utilised as a ground for testing gun carriages, and is provided with suitable butts, &c. A large dining-hall is provided for the accommodation of the workmen. The works are provided with railway tracks, and materials can be transferred from one department to another at a low cost. Of late years an electrical department has been added to the works, and which received an additional impetus when the old Company of Easton & Anderson, Limited, was amalgamated with the electrical firm of W. T. Golder & Co.

Correspondence.

To the Editor of THE BUILDER.

PETERBOROUGH CATHEDRAL.

SIR,—I notice that in your last issue you refer to those who publicly expressed their objection to the demolition of the Peterborough gables as being either ignorant or as having a purpose "of their own."

As included in this reference, and being able to claim your knowledge of my having some acquaintance with the matters at issue, may I ask what is the ulterior motive that you are ascribing to me for my objection to Mr. Pearson's methods?

EDWARD S. PRIOR.

* * * If Mr. Prior looks at the wording of the sentence again, he will see that it does not necessarily include *all* who protested in every form against the work at Peterborough, though we admit that the sentence might be capable of being construed so. What was in our mind mainly was the violent speeches at archeological meetings and the violent letters in daily papers, abusing the Peterborough authorities as if they were about to commit murder. As to "motives," it is common talk that some of the most violent opposition from those who could not be called "ignorant" arose from personal animosity to Mr. Pearson. We do not suggest that Mr. Prior, or some others whom we might name, were moved with any such feeling; but we may naturally ask them "que diable faisaient-ils dans cette galère?"—ED.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER I.—INTRODUCTION.

THE object of a Bill of Quantities is essentially to enable builders to arrive at an exact estimate of work to be done, and in the case of a competition to place all the competitors upon the same footing, though upon looking through some of the bills sent to contractors one would think this idea was farthest from the thought of the persons who prepared them. Items lumped together, items most ambiguously worded, and (worst of all) items which give one the impression that the person who was supposed to prepare these bills was in grave doubt as to what was really meant, and so left it to the contractor to make up his deficiency.

The term "surveyor" is purposely avoided in the foregoing sentence, as bills such as have been described are generally prepared by somebody who has had more in his mind the fees than the idea of preparing bills of quantities with the object first mentioned.

In the next place, architects are frequently under the impression that quantities increase the cost of the work. This is a fallacy long since exploded as regards honest attempts to get a fair price, and as for those members of the profession who endeavour to save their clients money—more out of consideration for their own credit than for their client's pocket—by holding back information that ought to be placed before the contractors tendering, they are doing their best to make a rod for their own back, as well as for that of their clients. In looking through the law cases it will be found that few of the contracts, where there is any dispute, have been based upon a really good bill of quantities.

Even if quantities are not prepared for the employer, if by no means follows that he does not pay for them. Few contractors care to jump at a price, unless they jump high enough to cover all contingencies; so the drawings are handed to a surveyor, who has to prepare his bills in perhaps half or a quarter the time that should be allowed; he, therefore, to protect himself, has to lump items, and to take his dimensions liberally, and then, for these rough quantities, as it is frequently a case of "no success no pay," heavy fees are tacked on to the estimate, which, of course, have to be paid by somebody, and that somebody is the employer.

Again, no one who has not had experience in settling up the accounts at the completion of the works can appreciate the great assistance derived from a carefully prepared bill of quantities.

This being the case, it behoves the young surveyor to set out with the idea of preparing such bills as shall leave the persons tendering in no doubt as to the intention of the architect as shown by his drawings and specification, and it is well that he should bear in mind that this goal is not attained without strict application, and whatever treatises he may read will be of little avail unless he applies himself to his subject with diligence and a determination to thoroughly master all its details; for if there is one thing more than another where "a little knowledge is a dangerous thing," that one subject is the one now under consideration.

At no time have contractors shown their appreciation of quantities more than at present, and it is a good recommendation for the quantity surveyor's work that respectable builders frequently refuse to tender unless quantities are supplied.

The system that will be described in these papers will be that generally employed by London surveyors. There are, of course, provincial differences, but the writer has made inquiries in different parts of the country, and has found a generally prevalent feeling in favour of the London system, even in preference to that in vogue in the district in which the work is carried on. One cannot help thinking that this preference is largely due to the fact that, while in London the practices of architect and quantity surveyor are generally distinct, in the provinces the quantities are prepared in the architects' offices by an assistant who is often not fully qualified for the work, or who has his attention taken up with other matters.

The process of preparation of quantities is roughly divided into three operations.—First, "taking off," i.e., taking the measurements

from the drawings and entering them upon paper specially ruled in four columns; the second column containing the dimensions, the first the "times-ing" or number of times the dimension will repeat; the third for the result of the "squaring," and the fourth and widest for the description of the item, e.g. :—

4/	3.0	2 in. 4-panel
	7.0	moulded both
	84.0	sides door.

The second operation is that of abstracting, i.e., arranging the items in the various trades under their various headings, and in certain relative positions; this will be more generally described in its proper position.

The third operation is that of "biling," the finished product of the surveyor, i.e., putting the collected items on the abstracts in their proper order and with their full descriptions in the bill, to enable the builder to place his prices against the various items, and to money them out to arrive at a total.

These last two operations are termed "working up," in contradistinction to that of "taking off."

In addition to these there is the work of "squaring of the dimensions and the 'making up' of the abstracts in addition to the checking at each stage of the working up.

Every surveyor has his own pet order in taking off; some follow out a system that is now almost obsolete, i.e., confining themselves strictly to trades. Others follow a modification of this system by dealing with the carcass first, and afterwards the finishings, e.g., in taking the dimensions of brickwork they will take the deductions of brickwork and facings for the openings, leaving the joiners' finishings to be taken separately; others, again, follow a system whose chief characteristic is "want of system," i.e., taking the various items as the fancy strikes them.

All three systems have something to recommend them; the first the ease in abstracting and facilitating the writing of the bills, as it is not necessary to wait until the completion of the taking off before commencing the bills; but, on the other hand, the difficulty of remembering every little incidental item when one has left the bulk of the work militates against this system, in addition to the trouble of having to wade through the whole of one's dimensions in the event of variations on the contract, for the purpose of arriving at omissions.

The second system mentioned is theoretically undoubtedly the best, but again one is not always fortunate enough, in these days of rushing work, to get the drawings complete when commencing the work; it is therefore necessary frequently to drift, however unwillingly, into system or want of system No. 3, which enables the surveyor to go on with the work shown complete on the drawings in his possession. The chief danger in this last system is that of leaving out some item altogether. However, as the dimensions are simply the means to the end, whichever system is followed (or whatever combination of all three), the great thing for the surveyor to bear in mind is that it is often necessary to refer to the dimensions months, and possibly years, after they have been finished, and that therefore they should be written in such a way that with the drawings before him there should be no difficulty in tracing every dimension. This is greatly facilitated by making numerous headings and sub-headings, and notes to the dimensions themselves. The advantage of this will be obvious in the later chapters of these notes.

Another point the "taker-off" should always have before him is the importance of making his dimensions and descriptions self-explanatory. Never leave the abstractor in doubt as to the meaning—as to whether an item is similar to one before or not. If there are various items of a somewhat similar nature, but not absolutely identical, it is far better to write a full description than to say "as before; but, &c." If one wishes to refer to a similar item previously taken, unless there is absolutely no doubt to which the description applies it is well to refer to the column where the first description occurs.

Do not, in "taking off," adopt a "give and take" system—this is a very good rule in many things, but not in quantity taking. It is a very poor excuse, and one that does not beget confidence, when a question is raised as to the sufficiency of an item, to be compelled to allow that this particular item is short and to fall back upon the excuse that "you have an excess in some others." Each item should stand by itself and on its own merits, therefore let correctness

in every particular be the aim of the Surveyor, whether it is in "taking off" or working up." And this is only attained by conscientiously taking exact dimensions: e.g., if one, in taking the size of a window, is inclined to be too liberal, and if he wishes his dimensions to "hang together" as they should, the deductions from brickwork, for instance, must correspond with the extra allowance in joinery, otherwise the result is two different dimensions for what should be identical.

It will be obvious that a thorough knowledge of construction is absolutely necessary before anyone can hope to be able to take up the work of the quantity surveyor with any measure of success.

Having now given some idea as to what is required, we will in the immediately succeeding chapters proceed to consider the modes of measurement in the various trades.

GENERAL BUILDING NEWS.

GUILDHALL SCHOOL OF MUSIC EXTENSION.—The foundation stone of the extension of the Guildhall School of Music was laid on Wednesday by Mr. Deputy Pearce Morrison, Chairman of the Music Committee. The extension will be in the rear of the present building, on a site which has been reserved for the purpose. The new building will have a frontage to John Carpenter-street of 72 ft. 6 in., and a depth of about 51 ft. 6 in., the area of the entire site being about 3,700 ft. The accommodation to be provided consists of, on the ground floor level, an orchestral saloon, 47 ft. wide and 55 ft. long, with a stage 47 ft. wide by 13 ft. deep. In height the saloon will be 30 ft., and there will be a gallery, entered at the first floor level of the school. The saloon will accommodate about 650 persons, 440 being on the ground floor and the remainder in the gallery. There will be six exits from the saloon; four are on the ground floor, three of which doors will open direct on to the pavement in John Carpenter-street; the other two exits are in connexion with the gallery. On the second, third, and fourth floors there will be in all thirty class-rooms, ten on each floor. The basement will be taken up with dressing-rooms, &c., which will be in direct communication with the stage by means of a staircase at each side. In order to connect the new building with the old, it will be necessary to utilise three of the present class-rooms, so that the new gain in class-rooms will be twenty-seven. An elevator will be provided for communication with the various floors in the space now occupied by the piano lift. The floors of the new building will be fire-resisting throughout. All the class-rooms will be warmed by means of hot water radiators, through which fresh air will be passed. No open fireplaces will be provided in the new building. The extraction of the vitiated air from the various rooms will be effected by means of trunks having valved openings near the ceiling; these trunks will be connected at each floor into a large upcast shaft at the north end of the building, and in order to generate an upcurrent in the shaft, the smoke flue from the heating chamber will be placed alongside. In summer, when this heat will be absent, the necessary current will be provided by means of a steam radiator placed at the top of the shaft. The front elevation will be carried about 22 ft. higher than the present; it will be faced with Portland stone rising from a granite plinth. The style adopted will harmonise with that of the old building, which was designed by the late Sir Horace Jones. The architect of the new building is Mr. Andrew Murray, the City Surveyor. The cost of the new building, including fittings, is estimated at 20,500l.

NORTHERN POLYTECHNIC INSTITUTE, HOLLOWAY-ROAD.—The Lord Mayor recently opened the Great Hall of the Northern Polytechnic Institute in the Holloway-road. The educational buildings at present erected consist of two blocks—one with a frontage on the Holloway-road, and the other roughly parallel with it some 200 ft. away. These two blocks are connected by a corridor, on the north side of which is the great hall; while on the south side is a plot of ground, covering nearly twice the area of the hall, on which are afterwards to be erected the remaining buildings of the institute. Each of the main blocks consists of three floors. In front the ground-floor is taken up by the entrance-hall, the principal's room, and the secretary's offices. Above are the drawing office, the engineering department, and the physical lecture theatre, and laboratory. The second block contains the brick-work shop, the smithy, the carpenters' shop, and the mechanical and chemical laboratories. On the ground-floor beside the hall are the gymnasium, and a large room to be fitted up as a common room. The great hall is approached from the Holloway-road by means of a vestibule. It measures some 100 ft. by 55 ft., will seat over 1,200 persons, and is fitted with a large orchestral platform. The roof is elliptical in shape, and is covered with fibrous plaster divided into panels with ornamental centres, every alternate panel containing an electric light. In the day time the hall is lighted by circular-headed windows, supported by stone columns, each bay containing three windows, enclosed in a setting of

moulded bricks, whilst the floor is of solid cubes, and has a gradual slope from the entrance to the front of the platform. The gallery has a separate entrance from the Holloway-road, and an emergency exit to the rear. In the front there are three doorways, with three on the north side as exits, leading into a corridor connecting the body of the hall with the orchestra platform. Beneath the platform is a retiring-room, with other rooms for artists, speakers, &c., whilst lavatories are also provided close by. The heating is by steam, conveyed in pipes along channels each side of the hall. The architect was Mr. Charles Bell, of London, his design being selected in competition by the assessor, the late Mr. Wyatt Papworth. The work has been carried out by Messrs. Macfarlane Brothers, of Holloway. Messrs. Clarke & Sons, of London, supplied the heating plant; and Messrs. Kite & Co. the ventilating arrangements, and the plaster ceiling was made by Mr. Tanner, Holloway.

CARLTON HOTEL, PALL MALL.—Mr. Lewis H. Isaacs and Mr. Henry L. Florence have been appointed architects for the completion of the Carlton Hotel, now in course of erection from the drawings prepared by the late Mr. C. J. Phipps. The design for the exterior will be carried out with but little alteration; but the plans for the interior have undergone considerable modification.

NEW CHURCH, RHOSROBIN, NEAR WREXHAM.—This new church, to be dedicated to St. Peter, at Rhosrobin, in the parish of Rhosddu, is to be built on a site given by Sir Watkin Williams Wynn, on the west side of the road from Wrexham to Bradley Mills. It will consist of a single span nave, 50 ft. by 25 ft., with chancel, 25 ft. by 17 ft. 6 in., vestry, vestry porch, surmounted by a small octagonal bell turret, and south porch to nave, and is designed to seat 224. The church is to be built of bricks from the neighbouring brickworks of Messrs. Clark & Rea, with terra-cotta dressings, also made by the same firm, open timbered and boarded roof, slated with Bangor slates. All the interior woodwork, including the seating, is of pine. The contract has been let to Messrs. Thos. Rogers & Son, of Brymbo, at 84½l., the building committee finding the bricks, terra-cotta, tiles, sand, and carting of these, and the work is being executed from the designs and under the superintendence of Mr. J. H. Swainson, architect and surveyor, Wrexham, whose plans were selected in a recent limited competition.

CONVALESCENT HOME, CRANBROOK.—At Starviden Farm, between Staplehurst and Cranbrook, in Kent, Princess Louise, Marchioness of Lorne, opened a convalescent home, on the 20th inst. The building, which is of red brick, is erected on a site of three acres of ground. It is designed to accommodate eighteen patients—six male, six female, and six children—besides the nursing staff, which will consist of a matron and two nurses, and two small bedrooms for invalid nurses. The plans were prepared by Mr. C. Grieve, and the buildings have cost about 3,000l.

ADDITIONS TO HOME OF REST, DUNDEE.—On the 10th inst. a new recreation hall and dining-room was opened in connexion with the Bannatyne Home of Rest. The hall measures 36 ft. long and 24 ft. broad. Adjacent to the platform at the east end there are retiring and dressing-rooms—each occupying one of the corner turrets—and lavatory accommodation. The architects were Messrs. C. & L. Ower, Dundee.

ALTERATIONS TO CATFORD HILL BAPTIST CHURCH.—The additions made to this church practically amount to a remodelling of the original plan, which consisted of a nave 60 ft. by 39 ft. wide, with a small lecture hall and vestry behind. This lecture hall and vestry and one bay of the church have been taken down, and in the rear of the nave, and between it and the lecture hall or schoolroom and class-rooms, the church has been enlarged by the addition of double transepts on either side of the extended nave, and by an apse, or organ and choir-chamber, behind the new platform. The total length of the church is now 98 ft., and its width across the transepts 56 ft. The apse opens out into the extended nave by a stone arch, 22 ft. span. The preacher's platform is in front of the choir, and raised 4 ft. above the nave. In front of the preacher's platform is the Communion platform. Under the movable floor of this platform is the baptistry. On the west side of the apse is a vestry, with lavatory, and on the east side a large double vestry, 33 ft. by 16 ft., which can be separated into two by a sliding panelled wood partition. A new kitchen is also provided, fitted up with the necessary appliances. In connexion with the school there is an entrance lobby. Two hundred and forty additional seats are provided in the church and choir. The contract was taken by Mr. Thomas J. Barden, of Maidstone, for a little over 3,000l., and the architect is Mr. George Baines, of London.

VICTORIA PAVILION, MORECAMBE.—The new Victoria Pavilion was opened at the Winter Gardens, Morecambe, on the 10th inst. The building has been erected by Messrs. S. Whitehead & Sons, of Oldham, from the designs of Messrs. Mangnall & Littlewoods, architects, of Manchester.

WESLEYAN CHURCH, WEST BRIDGFORD.—The foundation stone has just been laid of a Wesleyan church for West Bridgford, Nottinghamshire. The building will seat about 800 persons, and will be situated at the corner of Musters and Patrick-roads. The church will have at the angle a clock tower of

over 50 ft. in height. The exterior of the building will be of Coxcomb stone, and Hollington stone is to be used for windows, doors, and all finished dressings. It is proposed to cover the roof with red tiles. The inside will have a nave 86 ft. in length, with a north and south aisle on either side. There will be a small minister's vestry with separate lobby and lavatory accommodation, and also a large vestry on the north side. The building has been designed by Messrs. Brewitt & Baily, architects, of Nottingham and Newark. Mr. Maule is the general contractor, and the firms of Messrs. Garton & Burton and Appleby & Lambert are the sub-contractors for the masonry and joinery respectively.

WAREHOUSE, LEITH.—At Leith Dean of Guild Court on the 10th inst., Messrs. Pattisons, Limited, applied for warrant to erect a warehouse nine stories in height at Bonnington. After agreeing to several alterations the plans were passed. The architects for the new building are Messrs. Geo. Beattie & Son, Edinburgh.

ALMSHOUSES, STOCKTON.—The new almshouses at Stockton are now occupied by the inmates. The new building is situated at the corner of Mill-lane and Dixon-street. It is of brick, with stone facings, and has been built by Messrs. Perks & Son, to the designs of Mr. T. W. T. Richardson, architect. The old almshouses stood upon 600 yds., and the new buildings cover about 1,300 yds. There are eighteen female inmates, seven of whom are on the ground floor, and eleven on the first floor. The Stockton Dispensary is in the same buildings, and consists of two rooms. The overseers' office and the poor-rate office are also in the Mill-lane front of the building.

RESTORATION OF COURTENAY PARISH CHURCH, NORTHAMPTON.—The parish church of St. Peter and Paul has just been re-opened and re-dedicated by the Bishop of Leicester, after having been restored. The restoration which has just been carried out is the continuation of a scheme of restoration commenced twelve years ago. The work has been done by Messrs. Branson & Son, Northampton, under the direction of Mr. William Hall, architect, Northampton. New choir stalls, and prayer desks, executed by Messrs. Evans and Filton, of Oswestry, have been placed in the church.

WESLEYAN CHAPEL, STANDISH, LANCASHIRE.—On the 13th inst. new Wesleyan chapel and schools at Standish, which are to cost about 3,000l., were opened. Mr. Dinsley, of Chorley, was the architect.

NEW CHURCH, CARDIFF.—The nave and aisles of St. Teilo's Church, Cardiff, were dedicated recently by the Bishop of Llandaff. When completed, the total length of the church will be 138 ft., with seating accommodation for over 800 persons, and the building will comprise nave and aisles, with south porch, chancel, morning chapel, vestries, and organ space. The tower, for which the foundations are already built, will be 130 ft. high. The portion now completed provides seating accommodation for 750 persons, chairs being used. The choir seats, pulpit, and font are of a temporary character, having been retained from the old iron church. Messrs. S. Shepton & Sons, of Cardiff, have carried out the designs of the architect, Mr. George E. Halliday, Diocesan Surveyor for Llandaff, whose designs were selected in a limited competition.

BUSINESS PREMISES, BIRMINGHAM.—The new building in High-street, Birmingham, known as the Louvre, which has been built at a cost of 20,000l. for Messrs. Edwin Fletcher & Co., Limited, was opened on the 13th inst. The building has a frontage carried out in four colours of terra-cotta, and a tower rises to a height of 125 ft. The premises are fire-proof and electrically lighted. The ground-floor shop measures 100 ft. by 50 ft., and beneath it is a basement. The architects were Messrs. Essex, Nicol, & Goodman, and the builder was Mr. John Bowen.

CONGREGATIONAL CHAPEL, BARNESLEY, YORKSHIRE.—The new Congregational Chapel, Sheffield-road, Barnesley, was opened on the 13th inst. It has been built from the designs of Mr. G. Moxon, and is of stone. Approached by steps, the chapel is entered through vestibules. It has two aisles, and the open pews, like all the woodwork, are of pitchpine, stained and varnished. The building will accommodate between 400 and 500 worshippers.

BAPTIST CHAPEL, BEXHILL.—The foundation stone of the "Beulah" Baptist Chapel, at the corner of Gifford and Buckhurst-roads, has just been laid. The inside dimensions of the chapel will be 67 ft. by 36 ft. and there will be double transepts 67 ft. by 7 ft. There will be two east and west 20 ft. by 7 ft. There will be two galleries—one at the north end to hold 120 persons and one at the south end to hold 30 persons. The total accommodation provided is for about 600 persons. The principal entrance, which will have vestibule and two lobbies, will be in Buckhurst-road. There will be a dwarf tower. There will also be an entrance from Clifford-road, at the North-east corner. The space under the south gallery will be utilised for an infants' class-room in connexion with the school. The church parlour will be 18 ft. by 14 ft. The minister's vestry will be 15 ft. by 10 ft. In the space between the minister's vestry and the school there will be a class-room. The baptistry will be in front of the rostrum. The roof will be open timbered with trusses supported by stone corbels, and the windows will be filled with tinted glass in leaded lights. The exterior will be faced with red bricks, with tracery headed windows and quoins in Bath stone. The roof will be covered with Broseley tiles. The building will be heated

with hot water from a heating chamber under the church parlour. The contract for the erection of the building has been given to Mr. Charles Thomas, Bexhill. The architect is Mr. R. W. Moore, of Brighton.

GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN.—The Princess Louise will open the new buildings in connexion with the Grosvenor Hospital for Women and Children, Vincent-square, Westminster, next Wednesday, at 4 p.m. Messrs. Roumieu & Aitchison have acted as honorary architects for the hospital and out-patients' department.

PARK HOSPITAL.—Mr. H. Hope (Birmingham) asks us to mention that his firm supplied all the wrought iron hopper ventilators throughout the hospital, and the glass-covered bridges for nurses' home.

ST. VINCENT'S CONVENT NEW CHURCH, CORK.—On the 16th inst. the Bishop of Cork dedicated the new church attached to St. Vincent's Convent, St. Mary's-road, Cork. The church, which is in the Early English style, comprises nave, aisles, side chapels, and two sacristies. The total length is 75 ft., and the width 52 ft. The height of the church from floor to ceiling is 45 ft. The sanctuary is laid with marble mosaic, and the altars and steps are of white marble. The floor of the choir is laid with oak parquetry. There is a large gallery for the organ at the end of the choir. The building is faced with red bricks, from Ruabon. The dressings of windows and doors are of Portland stone. The work has been carried out by Messrs. E. & P. O'Flynn, builders, Cork, from designs, and under the superintendence of Mr. William H. Byrne, architect, Dublin. The altars were made and erected by Mr. Daly, of Cork, while Mr. William H. Byrne, the decorator, Cork, is responsible for the decoration of the church.

HOTEL, NEWCASTLE, COUNTY DOWNS.—The new Railway Hotel at Newcastle, County Down, is approaching completion. The hotel will contain about 120 bedrooms, with suites of sitting and bedrooms self-contained. The materials of which the hotel is being built are red Rubus brick and Dumfries red sandstone dressings with a plinth or base of Castlewellan granite. The roofs are being covered with Ellerwater green slates and copper. The architect from whose designs the works are being carried out is Mr. James J. Farrall, of Dublin, and the contractors are Messrs. H. & J. Martin, of Belfast.

SCHOOL, SWANSEA.—The foundation stone of the new wing to the Trecroft-road Board School, Swansea, has just been laid. Mr. G. T. Lawrence is the architect, and Messrs. Bennett Bros. are the contractors.

FREE LIBRARY, ST. GEORGE, BRISTOL.—The foundation stone of a Free Library for St. George, Bristol, was laid recently by Mr. Augustine Birrell, O.C., M.P. The site is on the main road, near the District Council offices, and the building is to afford accommodation for 300 readers at a time, with shelving for about 17,000 volumes. It will be a single-storied building, with Cattybrook brick facings, and Ham Hill stone dressings. Wood block flooring is to be laid, and a glazed dado will surround the walls for a height of 5 ft., the upper portion being of sandstone. The boys and the library department will be separated from the public hall by an arched Ham Hill stone arches, supported on granite columns. The contractors are Messrs. W. Cowlin & Sons, the architect being Mr. Frank Wills, while Messrs. Crispin & Sons have been entrusted with the heating arrangements.

MINERAL WATER FACTORY, NORWICH.—A mineral water factory has been opened in connexion with the Anchor Brewery, St. Miles's, Norwich, by Messrs. Bullard & Sons, Limited. The new factory is erected on the south side of Lower Westwick-street, and the premises extend from St. Lawrence's Church-alley on the west to St. Margaret's Church-alley on the east. Measuring 147 ft. 6 in. in length, with an average width of 60 ft., the factory is built of Surlingham red bricks, with white stone dressings. The principal department, which is known as the manufactory, is about 108 ft. long by 60 ft. wide. The floor is of concrete. The roof is open, the principals being supported by iron girders which rest upon iron columns. Eastward of the manufactory are the brewing-room and machine-room, with the sugar and syrup-rooms above. The building operations have been carried out by the company's building staff, under the direction of the surveyor, Mr. W. F. Horton.

ST. PETER'S CHURCH, LURGAN, IRELAND.—This church was reopened recently. The new building comprises nave and aisles, transepts, sanctuary, side chapels, and baptistry, and the dimensions are:—Nave, 130 ft. long by 26 ft. wide; aisles, 83 ft. by 15 ft. each; sanctuary, 36 ft. wide by 25 ft. deep; transepts, 26 ft. wide by 33 ft. deep each; side chapels, each 15 ft. by 13 ft. The total length of church from sanctuary to west front is 155 ft.; total width across nave and aisles, 50 ft.; and across transepts, nave, and aisles, 122 ft. From ground to cross of west gable is 60 ft.; the height of side walls of nave, 38 ft.; and of aisles, 20 ft. The baptistry is placed in the south aisle, and the tower terminates the north aisle. The principal entrance is through the west front by a wide double door, having a moulded arch in two orders, supported on polished Aberdeen granite columns, with moulded bases and carved caps. The tympanum is filled with Portland stone for future sculpture, and a projecting gablet

with cross completes the doorway. An almost similar doorway gives access to the tower and north aisle, and a winding stone staircase leads to organ gallery from this entrance. The entrance to transepts is by a separate projecting porch. An inner, semi-octagonal porch encloses the main entrance. Each side of the nave is divided into five bays, and each transept is spanned by a single arch. An arch, with columns, &c., separates the aisles from transepts and the respond piers of sanctuary form the abutment for arching of side chapel and for communication between the latter and sanctuary. Red granite is introduced as columns to sanctuary and chapels. The confessionals are built between the buttresses of aisle walls. There are four confessionals—two in each aisle—but provision has been made for an additional one in each transept. The aisles are lighted by two single-light windows in each bay, and filled with lead lights, as are all the other windows. The walling of the church is of blue local stone, built in uncoursed rock-faced ashlar, and lined on the inside with brick. Dressed limestone has been exclusively used for all windows and doors, arches, plinth, and string courses, weatherings, &c. It will also be the material employed for the spire. The expenditure up to the present has been close upon 10,000, and to complete the tower and spire a further sum of 3,000, will be required. Mr. D. Macnaughton is the architect, and Messrs. Randel & Co. has been designed and made by Mr. E. Sharp, Dublin. The stained glass windows and Stations of the Cross are by Messrs. Mayer, of Munich. Mr. J. J. McDonnell was the architect.

PUBLIC BATHS AND WASH-HOUSES, DUMFRIES.—The plans have just been approved, and the estimates let for the new public wash-houses on the Greensands, Dumfries. The building is of two sections, the wash-houses block being a single story, and the part appropriated for the baths consisting of two stories. There are ten washing boxes. The laundry or ironing room measures 30 ft. by 20 ft. The rooms are to be lighted from the roof. The baths are in a separate section abutting on the river. The length of this block is 50 ft., and the breadth is 24 ft. The ground floor is occupied by the attendant's house. The baths are on the first floor. They are divided into two classes, with separate approaches. There are two first-class baths and four second class, as well as two spray and shower-baths in separate chambers. All the baths are to be of white enamelled porcelain. The contractors for the building are:—Masons, Messrs. John Crackston & Son; joiner, Mr. R. Finning; slaters, Messrs. John Bridges & Son; plumber, Mr. R. M. Glover; plasterer, Mr. W. Bell; painters and glaziers, Messrs. A. Muirhead & Son. The architect is Mr. James Barbour.

SANITARY AND ENGINEERING NEWS.

GRAVING DOCK, ABERDEEN.—Mr. H. H. Wake, C.E., Sunderland, the consulting engineer in this matter, recommends repairs by means of shut piling, and a widening of the entrance of the graving dock. **WATERWORKS, &c., SHOEBOURNNESS.**—New sewerage and waterworks were opened at Shoeboourness recently. The various works were explained by Mr. G. R. Strachan, partner with Mr. Mansergh, the engineer. The first place visited was the site of the outfall for the new Cambridge Estate sewer. The party were then driven to the waterworks, where it was found that the water was obtained from a total depth of 475 ft. All the machinery was in duplicate, and they had been able to throw 200,000 gallons in twelve hours with a depression in the well of not more than 50 ft. The tower was 60 ft. high, and the tank at the top was capable of holding 43,000 gallons.

THE DISPOSAL OF LEEDS SEWAGE.—For some time past the Corporation of Leeds have been under threat of penalties by the West Riding Rivers Board if steps were not taken to improve their method of disposing of the sewage of the city. At a meeting of the Leeds Council a few months ago, when it was agreed to spend nearly £38,000 for constructing seven additional settling tanks and raising the level of one line of the existing tanks at Knostrop Sewerage Works, objection was taken to the proposal, on the ground that it was time that a complete and improved sewage system should be adopted for the entire city. On the occasion in question the Council voted the sum required on the assurance of the chairman of the Streets and Sewerage Committee that a complete scheme would shortly be laid before the Council. Steps have now been taken to prepare such a scheme. The decision was come to at a special meeting of the Streets and Sewerage Committee. A report was submitted showing the results of various sewage works in different parts of the kingdom. It was ultimately decided to call in an expert to advise as to the best treatment of the sewage in connexion with Leeds. In consequence of the mixed trade effluents of the city that have to be dealt with from the various manufactories it was found necessary to have such an opinion. The system which seems at present to find favour with the Committee is that of bacteriological filtration. The Committee, however, are pledged to no particular system.—*Yorkshire Post.*

PROMENADE, COLWYN BAY.—A new promenade is being constructed at Colwyn Bay, which will cost

about 13,000. The esplanade and roadway (20 ft. wide) are to be on the railway station eastward about a mile, forming an inward curve below the embankment of the London and North Western Railway. The surface of the promenade varies in width from 40 ft. to 90 ft., and is being asphalted. It is provided with cart crossings, kiosks, lavatories, &c. It is also anticipated that it will eventually be lighted by means of electricity. The work is under the supervision of Mr. William Jones, engineer.

SEWERAGE SCHEME, NEWPORT PAGNELL, BUCKS.—At a recent meeting of the Newport Pagnell Rural District Council, the scheme of main sewerage and sewage disposal for the town was approved, after being fully considered by the Parochial Sanitary Committee, and it was decided to apply to the Local Government Board for sanction to a loan for carrying out the work. The scheme has been designed by Mr. D. Balfour, of Newcastle-on-Tyne and Edinburgh. The whole of the town is to be properly sewered with fireclay socketed pipes, and where subsoil is wet, Hassall's watertight jointed pipes are to be used, especially adjoining the River Ouzel and Ouzel. The sewage will discharge into an underground storage tank, from which it will be lifted by centrifugal pumps (driven by gas engines in duplicate) and forced through a rising main to the disposal works, where it will be specially treated by chemical or bacteriological tanks and land. Special pipes are to be taken also, by means of the Local Board, to prevent the flooding of the town during heavy rains.

DRAINAGE OF BILTON, HARROGATE.—A Local Government Board inquiry was held by Mr. W. O. Meade-King, M.Inst.C.E., as to sanction to a scheme of main sewerage and sewage disposal for Bilton, Harrogate, for the Harrogate Rural District Council. There was no opposition to the scheme, which has been designed by Mr. D. Balfour, of Newcastle-on-Tyne, and consists of main sewers to provide for the development of the district. The sewers will all converge to nine acres of land laid out on the broad irrigation principle, the sewage being first pumped to a tank, and then discharged into the Ouse. The effluent is to discharge into the river Nidd.

LOCAL SEWERS IN LONDON.—The London County Council have sanctioned, subject to a condition recommended by the Engineer, the construction of local sewers as follows:—Battersea: 150 ft. of 12-in. pipe and concrete sewer in Russell-street, Queen's-road, Fulham: 865 ft. of 12-in. pipe and concrete sewer in Brill-street, 140 ft. of 9-in. and 296 ft. of 12-in. pipe and concrete sewers in Byam-street: 500 ft., 520 ft., 576 ft., and 352 ft. of 12-in. pipe and concrete sewers in Byler-street, Edenvale-street, Elbe-street, and Elwick-street respectively; 194 ft. of 9-in. and 310 ft. of 12-in. pipe and concrete sewers in Nilkie-street and 670 ft., 780 ft., and 624 ft. of 12-in. ditto in Querrin-street, Townmead-road, and Tynemouth-street respectively, Sands End Estate. Hammer-smith: 402 ft. of 12-in. pipe and concrete sewer in Blomfield-road. Hampstead: 100 ft. of 12-in. pipe sewer in Westbere-road, Powell Cotton Estate. Lambeth: 82 ft. of 12-in. pipe and concrete sewer in Elder-road, West Norwood. Lewisham: 422 ft. of 12-in. pipe sewer in Griersson-road, Woolmore Estate, Honor Oak Park: 1,770 ft. of 4 ft. by 2 ft. 8 in. brick and concrete sewer in Stanstead-road, and 305 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick and concrete sewer in Waldrum-road, and 211 ft. and 1,073 ft. of 12-in. pipe and concrete sewers in Devon-street and 700 ft. of 12-in. pipe and concrete sewer in Oakfield Estate. St. Marylebone: 50 ft. of 9-in. and 150 ft. of 12-in. pipe and concrete sewers in Clarence Terrace: 445 ft. of underpinning of 4 ft. by 2 ft. 8 in. brick sewer in George-street; 245 ft. of 12-in. pipe and concrete sewer in Huntsworth-mews south; 205 ft. of underpinning of 4 ft. by 2 ft. 8 in. brick sewer in Little Barlow-street; 155 ft. of 12-in. pipe and concrete sewer in North Bank; 44 ft. of 5 ft. by 2 ft. 6 in. brick sewer in Salisbury-street; 470 ft. and 205 ft. of 12-in. pipe and concrete sewers in Sussex-mews and Walmer-place respectively; and 350 ft. and 240 ft. of underpinning of 5 ft. by 2 ft. 6 in. brick sewers in Walmer-street and Virgil-place respectively. Wandsworth: 900 ft. of 15-in. pipe and concrete sewer in Bleakhall-lane.

LONG BUCKBY WATER SUPPLY.—The Daventry District Council, having received seventeen schemes for this work, selected four for submission to Mr. John Eunsom, C.E., of Northampton, who advised the acceptance of the project of Messrs. J. Hill, Browne, & Co. as "being the best and most practicable."

FOREIGN.

FRANCE.—The Académie des Beaux-Arts has awarded to M. Ruyter the prize founded by the Académie for the best architectural work constructed during the last two years. M. Ruyter, it may be remembered, was the architect of the Mairie of the Xth arrondissement, illustrated in the *Builder* of April 11, 1896.—M. Roty, the medallist, has presented to the Musée des Médailles the series of studies which he made for the new French coinage.—On the eve of the National Fête the President of the Republic officially inaugurated the new Pont Mirabeau, the Rue de la Convention, and the Abattoirs recently completed on the left bank of the Seine. On the occasion of this triple solemnity M. Bouvard,

Director of Works, received the cross of Commander of the Legion of Honour; M. Injalbert, the sculptor of the statues on the bridge, was created Officer, and the grade of Chevalier was awarded to M. Moreau, the architect of the Abattoirs. The title of Chevalier was also awarded, as one of the National Féte honours, to M. Batteu, architect, of Lille.—A fine portrait medallion in bronze of Pasteur, by M. Patey, has just been placed against the outer wall of Pasteur's former laboratory at the Ecole Normale Supérieure.—The Gobelin's manufactory has just completed the repair of three of the splendid tapestries which decorate the church of St. Remi at Reims. These tapestries, six in number, were offered to the church in 1531, by Robert de Lenoncourt; they represent various episodes in the life of St. Remi, and constitute a valuable historic document.—The Natural History Museum and the Industrial and Commercial Museum of Paris, which have been established for some time in the Palais des Arts Libéraux have just been transferred to one of the buildings in the Jardin d'Acclimatation.—The bronze medallion portrait of Edmond de Goncourt, the novelist, by M. Lenoir, has been inaugurated at the cemetery of Montmartre.—The ancient church of Sceaux, built in 1476, is in course of restoration.—The monument in honour of President Carnot is to be inaugurated to-morrow (Sunday) at Limoges. It consists of a bronze statue of the late President, and a figure of a woman symbolising France.—The jury in the competition opened at Châlons-sur-Marne for the construction of a new college, has awarded the first premium to M. Albert Simon, of Reims; the second to M. Picart, of Epervay; the third to MM. Auguste Bahrmann and Léon Deaux, of Paris; and the fourth to M. Gillet, of Châlons-sur-Marne.—The death is announced, at the age of 73, of M. Lucien Harlingue, architect, of Paris, a member of the Société Centrale des Architectes, and the architect of many important buildings both in Paris and in the provinces.

GERMANY.—The Emperor William Monument at Cologne, which was unveiled by the Emperor last month, is said to be one of the best pieces of work of this kind in Germany. It is seldom that a monument immediately becomes popular in Germany, but judging from the general Press, and the innumerable photographs on view throughout the country, this seems to be the case with the Cologne memorial. The sculptor is Professor Richard Anders.—Charlottenburg is to have four new bridges, and the authorities promise that they are to be of considerable architectural pretension; a preliminary vote of 45,000l. has just been passed by the Municipality.—The Berlin Town Hall is to have a large piece of sculpture representing the River Spree. The sculptor is Herr Christensen, of Charlottenburg, and the work will be in marble.—The Berlin Tramway Company has now commenced negotiations with the various suburbs as to the prolongation of its various monopolies, prior to adopting the electric service. They have recently bought a site for a new tramway station at a cost of nearly 50,000l.—The suburbs of Charlottenburg will have some new law courts by the end of the year, at a cost of about 25,000l. This suburb, which is in reality an independent township, has a population of nearly 150,000.—There is some interesting information respecting the effects of sea water on various cements, mortars, and concrete in the *Centralblatt der Bauverwaltung* of the 14th inst. Examples are taken from works both in the North Sea and in the Baltic.—There is to be another competition for the new Town Hall at Dessau. There will be no premium, as the successful candidate will receive the commission; but every architect invited to compete will receive a fee of 35 gs. towards his expenses.—The Regent of Meklenburg-Schwerin is having a castle built at Lubstorf, from the designs of Professor Haupt, of Hanover. The building will probably be completed this year.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The St. Pancras Iron Works, St. Pancras-road, London, has been converted into a Limited Liability Company under the title "The St. Pancras Iron Works Company, Limited."—Mr. W. Griffiths, Stone Merchant, has removed his offices from 287, Kingsland-road to 35 to 39, Hamilton House, Bishopsgate-street, London, E.C.

SURVEYORSHIP APPOINTMENTS.—We learn that the Carpenters' Company have appointed Mr. H. Phillips Fletcher, F.S.I., A.R.I.B.A., as their Surveyor, in the place of Professor T. Roger Smith, who had held the appointment for many years, and who has now joined the Court of the Company.—Mr. Reginald S. A. Roumieu was appointed, on the 15th inst., Surveyor to the Girdlers' Company, and he has recently also been appointed Honorary Architect and Surveyor to the School for the Indigent Blind, St. George's Fields, S.E., a corporation established by Royal Charter.

BUILDING TRADES' EXCHANGE, EDINBURGH.—The Exchange of the Building Trades of the City and District of Edinburgh, 10, Shandwick-place, was opened on the 15th inst. by Mr. W. W. Robertson, Master of the Merchant Company. Mr. Peter Lawrence, President, occupied the chair. The Chairman, in introducing Mr. Robertson, said the Ex-

change was a federation of the building trades, along with the manufacturers, architects, surveyors, and others connected with those trades. That Exchange was one of the institutions for which they were indebted to America. They had present with them the founder of such institutions in this country—Colonel Bennet. Within the last two years combined meetings of representative builders and surveyors had been held, and they had now arranged, on strict lines, the rules and methods of the measurements of mason work. They were also empowered to proceed with the making of rules and regulations in regard to measurements for the other trades. Besides, the surveyors themselves had resolved to form a corporate body, and so ensure to their clients and the builders who worked for them that nobody but competent men would be engaged to do what was so important work.—Mr. Robertson, in declaring the Exchange open, said its foundation idea was one that must appeal at once to the builder and to every one who knew anything about the building trades. In nearly every town in America, and in Glasgow, there was such an Exchange, and it was right that Edinburgh, as a centre of good building, should not lag behind. Building a house now was not the simple thing it was a hundred years ago, and there was, therefore, need of men meeting to exchange ideas to work for a common good. That institution recognised that the wealth of the trades as a whole was what made for the wealth of the individuals. One of the objects of the Exchange was to promote uniformity in contracts and in the commercial usages of the building trades; another was to circulate information by literature; and they also proposed to grant diplomas for entrance in certain trades where they omitted themselves for examination, and to adjust controversies. After commending these objects, Mr. Robertson expressed the opinion that the Exchange was going to secure a great success. Success to the Exchange was afterwards drunk. Votes of thanks concluded the proceedings.

SALE OF PROPERTY.—On Friday, July 16, was sold some freehold property, consisting of six houses at the west corner of Old Road-street and Piccadilly, and covering 3,210 ft. super, for 115,000l., the purchasers being, we understand, the Prudential Assurance Company. The several premises are at present let for an aggregate of 2,410l. per annum, under leases which expire together seven years hence.

ELECTRIC LIGHTING, ECCLES.—On the 14th inst., at Eccles, Mr. W. A. Duct held an inquiry on behalf of the Local Government Board into the application of the Town Council for permission to borrow 2,200l. for the extension of the Town Hall and municipal offices; 6,800l. for the purposes of street improvement, and 11,400l. for purposes of electric lighting. Mr. S. V. Clivehugh (consulting electrical engineer) explained the details of the scheme. The estimated cost of maintaining and running the proposed works, including 5½ per cent. for interest and sinking fund, was 1,600l. per annum. In order to obtain that they intended to light 185 public lamps, charging 2l. each per year, bringing in 370l.; and 2,476 private lamps of 16-candle power, each of which was estimated to bring in 10s., which was a low estimate. This made a total of 1,608l.

CITY IMPROVEMENTS, BELFAST.—Mr. Charles P. Cotton, M.Inst.C.E., Chief Engineering Inspector of the Local Government Board, attended at the Belfast Town Hall on the 16th inst. and held an inquiry into the application of the Corporation of Belfast, acting as the Urban Sanitary Authority for the district under the Public Health (Ireland) Act, 1878, for a loan of 125,000l. for improvements in the city. The improvements are specified as follow:—An electric-lighting station, 65,000l.; new police cells, 11,000l.; divisional fire-station in Whitla-street, 6,000l.; arterial sewers, 15,000l.; flagging footway, 5,000l.; street improvements, 23,000l. Evidence as to the desirability of the proposed improvements was given by the Lord Mayor and others, and plans for the new schemes were produced by Messrs. J. C. Bretland (City Surveyor), Jas. Munce (Assistant City Surveyor), V. A. H. McCowen (Electrical Engineer to the Corporation), and Tulloch (Messrs. Graeme, Watt, & Tulloch).

MEMORIAL BUST, DUBLIN.—On the 15th inst., in the Science and Art Museum, Kildare-street, the memorial bust to the late Dr. Valentine Ball, C.B., F.R.S., who was for many years a director of that institution, was unveiled by Judge Boyd. The bust, which was executed by Mr. J. Hughes, A.R.H.A., is of white Carrara marble, supported on a pedestal of Kilkenny marble, with a base of black Galway marble.

WINDOW, LONGRIDGE CHURCH, LANCASHIRE.—There has just been erected a stained glass window in the Church of St. Paul, Longridge. The centre figure is the Crucifixion, whilst on each side of the Saviour are the Virgin Mary, St. Peter, St. Paul, and St. John. Below these are figures of the four prophets, Isaiah, Jeremiah, Zechariah, and Micah. Above the Crucifixion scene are four angels, whilst at the top portion of the window are four angels, the centre being the crown of victory. The smaller lights of the window are symbolical of the Crucifixion. The work has been carried out by Mr. C. E. Kemp, of London.

BIRMINGHAM GENERAL HOSPITAL.—Messrs. Morrison & Ingram, Sanitary Engineers (Manchester) ask us to mention that they carried out

the whole of the sanitary fittings at this hospital, their work having been selected as the result of an inspection of samples of work submitted for examination.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board have sanctioned the appointments of Dr. E. G. Younger and Mr. R. Simpson as Sanitary Inspectors in Gray's-inn and St. George-the-Martyr, Southwark, respectively, and the re-appointments of the following Sanitary Inspectors:—Messrs. Hills, Gathercole, May, Simons, Robbins, and Johnson in the City of London; and Messrs. Bennett and Freeman in Holborn.

CARDIFF TOWN HALL.—A meeting of the Cardiff Town Hall Committee was held on the 16th inst., to consider the Borough Engineer's epitome of requirements for the new Municipal Buildings. The suggested requirements were discussed at length, and some additions were made under various departments. It was resolved to approach Mr. Alfred Waterhouse, R.A., with a view to his acting as architectural assessor. Alderman D. Jones proposed placing the law courts on the western side—the police-courts attached on the north, with entrance from North-road—of the avenue, and the whole of the Municipal Buildings on the eastern side of the avenue, both at the southern end of the park, care being taken to reserve sufficient land for future extension. Mr. J. Munn seconded, and this was agreed to. Mr. F. J. Veall thereupon suggested that, in view of the two sets of buildings, they should have two competitions, the premiums to be divided thus—Town Hall, 300l., 200l., and 125l.; Law courts, 200l., 100l., and 75l. Mr. J. Munn objected that this might result in two styles of architecture. Mr. Veall did not press his suggestion. It was resolved to submit the requirements and conditions to Mr. Waterhouse.

CAPITAL AND LABOUR.

IPSWICH BUILDING TRADE DISPUTE.—The following is the arbitrators' award in the dispute between the Ipswich Building Trades Association and the Amalgamated Society of Carpenters and Joiners, Ipswich Branch. "All work done after the completion of a ten hours' working day on any other day than Saturday, and a six-and-a-half hours' working day on Saturday shall be considered as overtime. In addition to ordinary wages, overtime shall be paid for at the following rates, namely:—For the first and second hours at the rate of one penny per hour, for the third and fourth hours at the rate of two pence per hour, and for the fifth, sixth, and all subsequent hours at the rate of fourpence per hour. All work done on Sunday and Christmas Day shall be paid for at the rate of double time." The arbitrators were Messrs. George F. Josselyn, Fred. H. Fosdick, John Hervey, and Edward J. Gilchrist.

LEGAL.

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS AT BRIGHTON.

THE case of *Christy v. The Mayor, Corporation, and Burgesses, of Brighton*, came before Mr. Justice Bayles in the Chancery Division of the High Court of Justice on the 17th inst., when Mr. Fossell Lowe applied *ex parte* on behalf of the plaintiff for an interim injunction to restrain the defendants from carrying their new Town Hall to a greater height than it is at present. The learned Counsel stated that the original building which the defendants had pulled down was only 20 ft. high and they had now carried their new building to 28 ft. which materially interfered with the plaintiff's ancient lights in the "Three Tuns" at Brighton.

His Lordship granted the injunction until the 23rd inst. (yesterday) with leave to serve notice of motion for that day.

LIGHT AND AIR CASE:

TUCKER AND OTHERS V. TAUNTON MANUFACTURING COMPANY.

THIS case was heard before Mr. Justice Day without a jury at the Bristol Assizes. Dr. Hodges, Q.C., and Mr. Duke (instructed by Mr. Poole, Taunton) were for the plaintiffs, and Sir Walter Phillimore, Q.C., and Mr. Foote (instructed by Mr. Shearman, of London) were for the defendants.

The case arose in consequence of the erection by the defendants of a stock room immediately opposite and 7 ft. 6 in. away from the windows of class rooms used in connexion with the school belonging to the plaintiffs. The plaintiffs contended that this erection rendered the rooms unsuitable for class rooms, and claimed that the height of the building should be reduced.

Mr. Basil Cottam, of Bridgwater, was called on behalf of the plaintiffs, and he produced plans and sections and a model showing the position of the plaintiffs' and defendants' properties both before and after the erection of the stock room. The other professional witnesses were Mr. William Eve, of London, and Mr. Williams, of Bristol.

The defendants called Mr. H. H. Collins and Mr. W. Gibbs Bartlett, both of London, who contended that in considering the matter the angle should be taken from the centre of the window which was

19 and 21, Stamford-rd., U.T. 18½ yrs., g.r. 124,
r. 767.....

By WRIFFORD & DIXONS.

Sunbury, Middx.—Hanworth-rd., "The Sunbury Nursery" and 31 a., f. 704. £1,300
 Clapton, E. 43, with goodwill, and 10 a. g.t. 904. 490
 504.

By ORGILL, MARKS & ORGILL (at

Masons' Hall Tavern).
 Marylebone.—Marylebone-rd., "The Confectionery Castle" p-h., with goodwill, and two shops adjoining, u.t. 60 yrs., r. 3004. 49,500
 Wormwood Scrubbs.—Latimer-rd., "The North Pole" p-h., with goodwill, and house adjoining, u.t. 75, 70 and 45 yrs., r. 854. 33,800

By W. H. & J. A. RADON (at Hope).

Hope, Derby.—"Nether Ashop Farm," 59 a. r. 1. 1,150
 Thornhill, Derby.—Moisty of three houses and 3 a., f. 250

By AMOS DUBERIN (at Colne).

Kellbrook, Yorks.—"Tunstall Farm," 90 a. r. 39 p. f. 3,400

By R. THIRNBECK (at Sedburgh).

Sedburgh, Yorks.—"Garsdale Rigg Farm," 45 a., f. 1,800
 July 1.—By C. C. & T. MOORE.

Commercial-rd., East—9 and 15, Newbold-st., u.t.

31 and 33 yrs., g.t. 74, 105, u.t. 92 yrs., g.t. 35, 37, 39, and 41, Nelson-st., u.t. 92 yrs., g.t. 504, r. 804. 300
 Whitby, Yorks.—"The Old Mill," 10 a. g.t. 904, r. 64. 300

5, Oxford-st., u.t. 124 yrs., g.t. 128.

5, Oxford-st., u.t. 124 yrs., g.t. 128. 310
 Mile End—1, Dudley-rd., u.t. 70 yrs., g.t. 44. 310
 Stepney, 19, Colney-rd., u.t. 43 yrs., g.t. 44. 310

104 Gate—20, 22, 24, and 26, Ramsey-rd., u.t.

104 yrs., g.t. 20, 22, 24, and 26, Ramsey-rd., u.t. 324, also 25 and 27, u.t. 354. 760
 Bow—23, British-st., u.t. 72 yrs., g.t. 44, 105, r. 324, also 25 and 27, u.t. 354. 760

By HORACE DOVE.

Notting Hill.—44, Egin-cr., u.t. 64 yrs., g.t. 154. 470
 Clapton—39, Crickfield-rd., u.t. 64 yrs., g.t. 154. 470
 Stoke Newington—26, Fountain-rd., u.t. 80 yrs., g.t. 104, e.t. 654. 730

By STIMSON & SONS.

Camberwell—30, Camberwell New-rd., u.t. 68 yrs., g.t. 74, e.t. 404. 340
 Wandsworth—181, Wandsworth-rd., u.t. 104 yrs., g.t. 184, 188, r. 704. 310

Brooklands, Surrey, &c., l.g.t. 1034 78, u.t. 124 yrs.

Brooklands, Surrey, &c., l.g.t. 1034 78, u.t. 124 yrs., g.t. 32. 650
 Merton—4, Bathurst Villas, u.t. 92 yrs., g.t. 184. 600

July 29—By W. W. WILLOUGHBY.

Wandsworth—Lydden-rd., f.g.t., 124, 128, reversion in 70 yrs. 280
 By A. J. SHEPHERD.

Bromley—94, 96, and 98, Brunel-rd., also l.g.t. 74, 105, u.t. 65 yrs., g.t. 44, 125. 620
 40, Engling-rd., u.t. 65 yrs., g.t. 44, 125. 620
 Limehouse—17, 19, 21, and 23, Parnham-st., u.t. 154 yrs., g.t. 114, 116, 118, 120. 435

Bethnal Green—1, to 4, Tuscan-rd., u.t. 30 yrs.

Bethnal Green—1, to 4, Tuscan-rd., u.t. 30 yrs., g.t. 274. 750
 Poplar—48, Benedit-st., u.t. 76 yrs., g.t. 54, 105, e.t. 504. 775
 West Ham—41 and 43, Park-rd., u.t. 30 yrs., g.t. 274. 775

By WYATT & SON (at Southampton).

Southampton—Shirley Warren, Three plots of land with cottages thereon, about 5 a., f. 200
 Three building plots, f. 400

By T. R. OWEN & SON (at Haverfordwest).

Furzey Park, &c., Pembroke.—Enclosures and three cottages thereon, 21 a. 3 r. 9 p. f. 1,210
 Haroldstone West, Pembroke.—"Broomgrove Cottage" and 30 a. 3 r. 6 p. f. 380

Steynton, Pembroke.—Three enclosures, 32 a. 3 r.

Steynton, Pembroke.—Three enclosures, 32 a. 3 r. 2 p. f. 1,155
 "Thornton House" and 6 a. 2 r. 4 p. f. 477
 A homestead, two cottages, and 2 a. 3 r. 10 p. f. 1,400

Haverfordwest, Pembroke.—"Red Lion" and 5 a.

Haverfordwest, Pembroke.—"Red Lion" and 5 a. 1 r. 4 p. f. 415
 Walton West, Pembroke.—Farmhouse and 11 a. 1 r. 10 p. f. 600

A house and cottage, on perch, f. 142

A house and cottage, on perch, f. 142
 By T. W. GAZE (at Diss).

Scole, Norfolk.—"Street Farm," 44 a. 1 r. 3 p. f. Diss, Norfolk.—Seven freehold houses, r. 494 768
 35 p. f. 1,000
 35 p. f. 1,000

By EGERTON, BREACH & GALSWORTHY.

Twickenham, Middx.—Cane-rd., &c., sixty-four plots of building land, f. 2,059
 July 3.—By C. M. STANFORD (at

Great Bromley, Essex.—"Great Bromley Hall

Great Bromley, Essex.—"Great Bromley Hall Estate," 145 a. 2 r. 4 p. f. 3,500
 East Mersea, Essex.—"Weir's" and "Boarded Barn" Farms, 76 a. 3 r. 15 p. f. 350

Three enclosures, 24 a. 3 r. 9 p. f. (at Colchester).

Three enclosures, 24 a. 3 r. 9 p. f. (at Colchester). 350
 By SEXTON & GRIMWAD (at Colchester).
 Ardleigh, Essex.—"Lodge Farm," 80 a., f. 1,000
 By PAXTON & HOLIDAY (at Oxford).

Islip, Oxon.—A building plot, 12 a. 3 r. 12 p. f.

Islip, Oxon.—A building plot, 12 a. 3 r. 12 p. f. 124
 Enclosure of land, 15 a. 2 r. 2 p. f. 570
 July 5.—By P. MATTHEW MILLS.

Holborn—Nos. 123 and 124 ("The Old Bell")

Holborn—Nos. 123 and 124 ("The Old Bell") area 7,200 ft., a building lease for 80 yrs., g.t. 7504, with licence attached. 11,600
 By J. H. BETHELL.

Upton Park—Cromwell-rd., f.g.t. 184, reversion in 90 yrs. 500
 Forest Gate—Westburg-rd., f.g.t. 104, 105, reversion in 80 yrs. 275

By GREGG & PIDDYCH.

Stepney—48 and 50, White Horse-lane, f. r. 354 88
 48 and 50, White Horse-lane, f. r. 354 88
 79 to 95 (odd), Bridge-rd., f. r. 2,305

By S. WALKER & SON.

City of London.—Upper Thames-st., a plot of land, area 440 ft., f. 2,810
 Monument-st., two plots of land, area 1,000 ft., f. 3,500
 Monument-st., a plot of land, area 420 ft., f. 2,400

By W. R. NICHOLAS & Co. (at Reading).

Caversham, Oxon.—Gosbrook-rd., "Ivy Cottage," f. r. 304. 4,495
 Gosbrook-rd., twelve plots of building land, f. 101

Aberfeld, Berks.—"Target Farm," 16 a. 2 r. 7 p. f. 700
 By R. DALTON (at Carlisle).

Burgh-by-Sanday, Cumbria.—"The Moorhouse Farm" and 180 a. 3 r. 34 p. f. 5,000
 By C. F. MOORE (at Cirencester).

South Cerney, Glos.—"Cerney Wick Farm," 148 a. 2 r. 30 p. f. 3,000
 By R. & W. BADCOCK (at Abingdon).

Steventon, Berks.—"Lane End Farm," 65 a. 2 r. 26 p. f. and c. 1,525
 Various enclosures of land, 156 a. 3 r. 26 p. f. and c. 1,515

"Pike's Farmhouse," four cottages and 2 a. 0 r. 38 p. f. c. 406
 House, Bakehouse, and "Pumhouse Close," f. r. 14 p. f. 450

Sutton Courtney, Berks.—"Hulgrove Meadow," 12 a. 2 r. 7 p. f. 200
 By FRANK LLOYD (at Wrexham).

Wrexham, Denbigh.—Two cottages and 4 a. 1 r. 24 p. f. 360
 "Pendwillyn Farm," 4 a. 3 r. 20 p. f. 451

Three enclosures, 5 a. 1 r. 12 p. f. 451
 Gwerthly, Denbigh.—Enclosure of land, 23 a. 2 r. 16 p. f. 1,810

Broughton, Denbigh.—The Broughton Farm, 31 a. 3 r. 30 p. f. 2,200
 By BRAD & W. L. WYLLIE.

Strand.—Wych-street, f.g.t. 604, reversion in 234 yrs. 1,700
 Drury-cr., f.g.t. 604, reversion in 90 yrs. 1,550

Wanstead.—7, Moorhouse-rd., f.g.t. 1,210
 By GIDDY & GIDDY.

Mapledurham, Oxon.—"Dunelm" and 34 a., u.t. 92 yrs., g.t. 304. 750
 Regent's Park—41, Avenue-rd., u.t. 8 yrs., g.t. 111, e.t. 1504. 260

By HARDS & BRADLEY.
 King's-cross—55, York-rd., u.t. 634 yrs., g.t. 54, r. 304. 355

By C. H. WHITE.
 Tooting—39, 41, 43, and 45, Tooting-grove, f. r. 754 88. 845

By W. W. WILLOUGHBY.
 Dulwich—28, Court-rd., u.t. 81 yrs., g.t. 134, r. 854. 960

By DUNCAN & KIMPTON.
 Norwood—199, Gipsy-rd., f. r. 304. 610

By EASTMAN BROS.
 Sydenham—44, Kirkdale, f. r. 1204. 2,150

By OSBORN & MERCIER.
 Willershorough, Kent.—"Spotlands" and 138 a. 1 r. 32 p. f. 6,775

By WALTER SIMMONDS.
 Peckham—40 to 48 (even), Grenard-rd., u.t. 674 yrs., g.t. 254. 990

By ADDISON & SONS.
 Peckham—38, 40, and 42, Rosemary-rd., u.t. 69 yrs., g.t. 154. 45

By MATTHEW MILLS (at Winchester House).
 Somers Town—Stibbington-st., "The Eastnor Castle" p-h., f. r. 704. 4,700

By CHALTON & SONS.
 Chilton-st., "The Victoria" p-h., f. r. 1204. 8,410
 Chilton-st., "The Somers Town Coffee House" p-h., f. r. 264. 11,100

By J. & S. MOTION (at Masons' Hall Tavern).
 Greet-st., "The Jubilee" p-h., f. r. 1204. 10,200

By J. & S. MOTION (at Masons' Hall Tavern).
 Scibbington-st., "The Lord Somers Arms" p-h., also 183, Aldenham-rd., f. r. 954 58. 10,700

By J. & S. MOTION (at Masons' Hall Tavern).
 Euston-rd., "The Rising Sun" p-h., f. r. 1124. 22,100

By J. & S. MOTION (at Masons' Hall Tavern).
 Leytonstone—High-d., "The Red Lion" p-h., u.t. 78 yrs., r. 2004, with goodwill. 40,010

By W. ROLFE (at Masons' Hall Tavern).
 Southwark Bridge-rd.—"The Fox Hotel," u.t. 72 yrs., r. 1204, with goodwill. 28,760

By BARKER & CATTHE (at Masons' Hall Tavern).
 Haymarket—"The Black Horse" p-h., u.t. 204 yrs., r. 1004, with goodwill. 13,000

By CHISLEHURST COMMON, Kent.—"The Crown" p-h., u.t. 40 yrs., r. 1004, with goodwill. 4,000
 By NICHOLAS & LOSTLAND (at Canterbury).

Lindridge, Worcs.—"Church House Farm," 150 a. 10 r. 15 p. f. and c. 3,000
 By W. WEATHERHEAD (at Keighley).

Keighley, Yorks.—19, 21, 23, and 25, West-lane, f. 12 and 14, Bridge-rd., f. 12 and 14, f. 1,800
 Change Gate, freehold shop and premises. 1,070

Cooke-lane, a building site, area 374 yds., f. 1,070
 North-st., a freehold residence, r. 504. 1,070

Low-st., block of shops, workshops, houses, &c., area 1,188 yds., f. 5,500
 Coney-lane, three cottages, with buildings, 480 yds., f. 1,450

Greengate, eleven freehold cottages, area 742 yds. f. 1,450
 Beck-rd., two plots of land, area 1023 yds., f. 1,450

Oakworth-rd., two freehold cottages. 350
 High-st., "The Devonshire Arms Hotel," and three shops and club premises, area 1,672 yds., f. 25,000

Low-st., "The Black Horse Hotel," f. 10,250
 24, Low-st., and a shop and warehouse, 575 yds., f. 5,360

Oakworth, Yorks.—Nine closes and land, 216 a. 2 r. 24 p. f. 820

Sutton, Yorks.—"New Hall Farm," 73 a. 3 r. 6 p. f. 3,200

A freehold allotment, 29 a. 3 r. 5 p. f. 700

By Messrs. COBB (at Rochester).

Strood, Kent.—Hillside-avenue, six building plots, f. 720

Frindsbury, Kent.—Enclosures and farm buildings, 12 a. 2 r. 38 p. f. 1,200

Freehold house, cottage, and 2 r. 12 p. f. 550

Enclosures of land, 17 a. 3 r. 6 p. f. 1,195

By PAXTON & HOLIDAY (at Hook Norton).

Hook Norton, Oxon.—Enclosures of land, 51 a. 1 r. 21 p. f. 1,236

"Six Ash Farm," 36 a. 1 r. 2 p. f. 1,374

House, shop, and three cottages, f. r. 454. 740

Whitchford, Warwick.—"Whitchford Mill," and 15 a. 2 r. 12 p. f. 500

Epwell, Oxon.—Three enclosures, 11 a. 2 r. f. 224

July 7.—By BAXTER, PAYNE, & LEPPER.

Farnborough, Kent.—Main-rd., two plots of land, 4 a. 1 r. 5 p. f. £500
 New-rd., three plots of land, 13 a. 0 r. 29 p. f. 930

By G. E. CLARKE.
 Walthamstow—47 to 55 (odd), Cambridge-rd., f. 1,784. 675

By Messrs. CRONK.
 King's-cross—14, All Saint's-st., u.t. 474 yrs., g.t. 124. 200

By Messrs. CRONK.
 Knockholt, Kent.—"Melrose" and 10 a. 2 r. 17 p. f. 1,700

By DUNN & SOMAN.
 Fryerning, Essex.—"Round Barn Fields," 16 a. 2 r. 30 p. f. 1,450

By PHIBBS GIBSON.
 Dulwich—37, Lancaster-rd., u.t. 82 yrs., g.t. 154. 1,255

Sydenham—Longton-rd., "The Red Cottage," f. r. 754, subject to a rent charge of 154 178. 200

New Romney, Kent.—"Crockley House," f. r. 544 105. 500

By J. H. LYNCH.
 Hyde Park—5, Oxford-ter., u.t. 234 yrs., g.t. 104, r. 1204. 1,060

By A. PHILLIPS.
 Hornsey—88, Inderwick-rd., u.t. 98 yrs., g.t. 82, r. 624. 405

By RUSHWORTH & STEVENS.
 Kensal Green—65 and 69, Earlsmead-rd., u.t. 943 yrs., g.t. 104. 350

By RUSHWORTH & STEVENS.
 Brixton—45, 47, 49, and 51, Lorn-rd., u.t. 20 yrs., g.t. 484, r. 1894. 570

By RUSHWORTH & STEVENS.
 Marylebone—88 and 90, Boston-pl., u.t. 23 yrs., g.t. 34, r. 544 128. 185

By RUSHWORTH & STEVENS.
 Islington—75 and 77, Cloudeley-rd., u.t. 22 yrs., g.t. 84, r. 304. 170

By RUSHWORTH & STEVENS.
 Mile End—9 and 11, Cephus-rd., u.t. 33 yrs., g.t. 64 68, r. 484. 445

By W. WESTON (at Paddington).
 Paddington—17, Marylands-rd., u.t. 66 yrs., g.t. 82 105, e.t. 1204. 450

By W. WESTON (at Paddington).
 Maida Vale—19, Carlton Vale, u.t. 51 yrs., g.t. 84. 620

By W. WESTON (at Paddington).
 Kilburn—40, Albert-rd., u.t. 62 yrs., g.t. 64, r. 84. 900

By W. WESTON (at Paddington).
 Notting Hill—68, Bevington-rd., u.t. 60 yrs., g.t. 64. 260

By W. WESTON (at Paddington).
 Paddington—32, Beethoven-st., u.t. 79 yrs., g.t. 74, r. 364. 250

By Messrs. SPELMAN (at Great Yarmouth).

By Messrs. SPELMAN (at Great Yarmouth).
 Gorleston, Suffolk.—Part of "The Church Close," 22 a. 2 r. 22 p. f. 730

By Messrs. SPELMAN (at Great Yarmouth).
 "The Scooty" and "Harper" Pieces, 23 a. 2 r. 31 p. f. 660

By Messrs. SPELMAN (at Great Yarmouth).
 Beccles-rd., &c., three plots of land, 14 a. 3 r. 66, Fenst-rd., f. r. 124. 235

By W. T. BAILEY (at Lowestoft).
 Lowestoft, Suffolk.—"The Sparrow's Nest" and 16 p. f. 3 r. 17 p. f. 7,400

By W. T. BAILEY (at Lowestoft).
 Whapload-rd., sixteen freehold cottages, f. r. 1,410

By G. DURRANT & SONS (at Harleston).
 Harleston, Norfolk.—Exchange-st., two shops and houses, f. 300

By N. EASTON & SON (at Hull).
 Bainton, Yorks.—"Bainton Balk" Farm, 34 a., f. 10,000

By N. EASTON & SON (at Hull).
 Paull, &c., Yorks.—"Hill Top Farm," 80 a., f. 2,000

By N. EASTON & SON (at Hull).
 Stockwell—10, Gateley-rd., u.t. 74 yrs., g.t. 94 54, r. 454. 370

By N. EASTON & SON (at Hull).
 39 and 41, Stanley-st., u.t. 78 yrs., g.t. 134, r. 604. 515

By GREEN & SON (Hammersmith).
 Chiswick—22, 24, and 26, Holly-rd., u.t. 83 yrs., g.t. 164 105. 660

By GREEN & SON (Hammersmith).
 Contractions used in these lists—f.g.t. for freehold ground-rent; l.g.t. for leasehold ground-rent; i.g.t. for improved ground-rent; g.t. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.t. for estimated rental; u. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cred. for credit; yd. for yard; &c.

By GREEN & SON (Hammersmith).
 Contractions used in these lists—f.g.t. for freehold ground-rent; l.g.t. for leasehold ground-rent; i.g.t. for improved ground-rent; g.t. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.t. for estimated rental; u. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cred. for credit; yd. for yard; &c.

By GREEN & SON (Hammersmith).
 Contractions used in these lists—f.g.t. for freehold ground-rent; l.g.t. for leasehold ground-rent; i.g.t. for improved ground-rent; g.t. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.t. for estimated rental; u. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cred. for credit; yd. for yard; &c.

By GREEN & SON (Hammersmith).
 Contractions used in these lists—f.g.t. for freehold ground-rent; l.g.t. for leasehold ground-rent; i.g.t. for improved ground-rent; g.t. for ground-rent; r. for rent; f.

LLANDILO (Wales).—For the erection of schools, for the Llandilo Fawr School Board. Mr. Hy. Herbert, architect, Brynmartyn, Ammanford, R.S.O.:—

B. Howell & Son, Ltd.	£2,197 18 0	Thomas & Evans ..	£1,945 0
Ben Davies	2,106 17 3	Ben Jenkins	1,995 0
L. Davies	2,103 3 8	D. Evans, Llandilo*	2,751 0
Thomas & Stephens	1,970 0 0		

* Accepted.

LONDON.—For the further extension of the Argus Printing Co. Ltd., premises, 20, Abchurch-lane, for the Argus Printing Co. Ltd. Mr. Chas. Val. Hunter, architect, Wardrobe-chambers, Queen Victoria-street. Quantities by Mr. Chas. Robson, Lewisham, 19,831
Contractors masonry and fireproof floors by Messrs. Mack Pawcett, & Co., Queen's Anne-gate — 19,831
Larke & Son £2,700
J. Greenwood 2,145
J. Aspinwall 2,135
Foster & Dickson 2,086
H. Williams 2,075
Holloway 2,075
Downs 19,291

LONDON.—For the erection of warehouse at Shacklewell-lane, Stoke Newington, for Messrs. Lloyd, Attree, & Smith, Mr. J. R. Vining, architect — £5,461
Thomson & Son 8,691
F. & H. Higgs 8,691
Holliday & Greenwood 8,688
Johnson & Co. 8,630
Turtie & Appleton 8,575
Jarvis & Son 7,975
Patman & Fotheringham 7,980

LONDON.—For alterations at No. 48, Bishopsgate-street Within, E.C. Mr. J. R. Hamond, architect — £7,715
Ashby Bros. £7,715
Dixon 710

LONDON.—For paving portions of High-street, for the Shoreditch Vestry, Mr. J. R. Dixon, C.E., Town Hall, Old-street, E.C. — Per sup. yd. s. d.

John Mowlem & Co. 15 2
Geo. J. Anderson 15 2
Improved Wood Pavement Co. 13 9
William Griffiths, Kingland-road, N.E. (accepted) 13 9

LONDON.—For factory at Dalston-lane, N.E. Mr. A. E. Hughes, architect — £10,100
H. L. Holloway £10,100
Lawrence & Son 10,124
Faulkner 10,137
Williams 10,186

LONDON.—For additions to warehouse at Wick-lane, Old Ford, for Messrs. Allan, Cockshill, & Co. Mr. F. M. Elgodd, architect — £7,777
Holland & Hannen £7,777
Holloway Bros. 7,840
Harris & Wardrop 7,797

LONDON.—For rebuilding the "Sir Robert Peel" public-house, Walworth-road, Mr. W. J. Ingram, architect — £2,314
Lang & Son £2,314
F. & H. Higgs 2,480
Bier & Gash 2,430
Whitehead 2,415
Rowe & Gash 2,325

LONDON.—For warehouse at Brunswick-street, Hackney-road, Mr. J. Hamilton, architect — £1,359
Sewin Bros. £1,359
W. Shurmer 1,359
Barrett & Power 335

LONDON.—For the erection of four shops at Christ-street, Poplar, Messrs. J. & S. F. Clarkson, architects — £2,523
Turnbull & Son £2,523
Harris & Wardrop 4,565
Atkinson & Dolman 4,537

LONDON.—For stables, &c., at Gainsborough-road, Hackney Wick, for the Acme Wood Block Company. Messrs. Barnes, Williams, & Co., architects — £6,600
White & Co. £6,600
Outwaite 654
Kiddle & Son 610

LONDON.—For alterations to the "Prince Arthur" public-house, Poplar, Mr. F. A. Ashton, architect — £1,863
A. E. Symes £1,863
W. Shurmer 2,479
J. H. Cockes 2,479
J. H. Cockes 2,479

LONDON.—For alterations and decorations at 9, St. Marylebone-street, Mr. R. Kelly, architect, 23, St. Swinburn-lane — £1,100
Geo. Britton, Kensington — No competition.

LONDON.—Accepted for alterations and repairs to three houses, Brady-street, Bethnal Green. Mr. W. W. Jenkinson, surveyor, & Micklethorpe-street — £10
Geo. Britton £10

LONDON.—Accepted for the erection of warehouse, No. 3, New Inn Broadway, New Inn Yard, Shoreditch, for Mr. E. C. Street, Mr. W. P. Punnett, architect — £985

LONDON.—Accepted for the erection of warehouse, No. 4, for Mr. E. C. Street, Mr. W. H. Punnett, architect — £663
B. R. Cogman £663

LONDON.—For alterations to the Master's offices at the Hackney J. R. Honerton, N.E., for the Guardians, Mr. W. A. Finch, architect, 26, Finchbury-avenue, E.C. — £1,313
W. A. Finch £1,313
W. Shurmer 1,440
T. E. Mitchell 1,393

LONDON.—For making-up and paving Little Vale-place and Stanwick-road, S.W., for the Fulham Vestry. Mr. Chas. Botterell, C.E., Town Hall, Walsham Green, S.W.

	Stanwick-road, Sec. II.				Little Vale-place			
	Roadway	York	Imperial	Victoria	Adamant	Roadway	York	Imperial
Imperial Stone Co., Greenwich —	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
J. Bull Chiswick —	145	—	45	—	—	69	—	29
Lawrence & Thacker, Up. Tooting —	155	—	—	—	—	—	—	—
Roswell & Co., Kensington —	190	8	—	—	—	100	30	—
E. Parry, Fulham —	177	10	60	10	—	100	30	15
J. Meary, Fulham —	170	—	—	—	—	100	30	—
H. J. Greenham, Hammersmith —	172	—	—	—	—	100	30	—
G. Wimpey & Co., Hammersmith —	159	—	—	—	—	112	—	—

LONDON.—For alterations and additions to the "Queen Hotel," Manchester-road, Poplar, E. for Mrs. C. Marmar. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E. — £1,535
A. E. Symes £1,535
C. Simmons 1,530
W. Watson 1,530
J. H. Cockes 1,530

LONDON.—For the manufacture, supply, delivery, and erection of three triple-expansion engines, and six centrifugal pumping engines, together with condensers and all accessories complete, at proposed new pumping-station at North Woodleigh, for the London County Council — £1,250
D. Stewart & Co., Ltd. £1,250
James Watt & Co. 1,250
Drysdale & Co. 1,250

For the manufacture, supply, delivery, and erection of two Lancashire boilers, with all fittings complete, at the proposed pumping station — £1,100
D. Stewart & Co., Ltd. £1,100
James Watt & Co. 1,100
Drysdale & Co. 1,100

D. Stewart & Co., Ltd. £1,100
James Watt & Co. 1,100
Drysdale & Co. 1,100
Tinklers, Ltd. 1,135

LONDON.—For erecting new premises for the Stratford Co-operative Society, Plaistow. Mr. B. Pite, architect — £2,400
Aikin & Green £2,400
W. Watson 2,380
W. Shurmer 2,380
W. Beale 2,363
Barrett & Power 2,340
Greger & Son 2,339
J. A. Reed 2,300

LONDON.—For new wing, &c., to the convent, Clarendon-square, W. — £13,950
W. Watson £13,950
W. Shurmer 11,575
Smith & Sons 11,394

LONGTON.—For rebuilding "Coach and Horses" and premises, for the Burton Brewery Company, Limited, Mr. Edward Forth, architect and surveyor, Burton-on-Trent. Quantities by the surveyor — £1,750
Hall & Robinson £1,750
T. R. Yaxall 1,750
J. A. Reed 1,750

MAIDENHEAD.—For a steel lattice bridge, 65 ft. span, Bray, for the Berkshire County Council, Mr. Joseph Morris, County Surveyor, 105, Friar-street, Reading — £1,377
Price & Cornhill £1,377
W. Richards & Son 875
C. G. Carter 875
Matthew T. Shaw 795
J. Shewell & Co. 764

MANSFIELD.—For alterations and additions to the Mansfield and Mansfield Woodhouse District Hospital, in commemoration of Her Majesty's Diamond Jubilee. Mr. R. Frank Vallance, hon. Sec. Mansfield — £1,668
H. Vickers £1,668
J. H. Vickers 1,668
J. F. Price 1,646

MANSFIELD.—For new banking premises, Market-street, Mansfield, for Messrs. Samuel Smith & Co., bankers, Nottingham, Mr. R. Frank Vallance, architect, Mansfield — £1,660
H. Vickers £1,660
J. H. Vickers 1,660
J. F. Price 1,646

MANSFIELD.—For erecting a dwelling house, Pleasant-hill, Mansfield, for Mr. Alfred Archer. Mr. R. Frank Vallance, architect, Mansfield — £1,350
C. G. Carter £1,350
H. Vickers 1,350
J. F. Price 1,350

MIDDLETON (Lancs.).—For the execution of sewerage works, Wests Brook Contracts Nos. 3 and 4, for the Corporation, Mr. H. L. Himel, C.E., 41, Corporation-street, Manchester — £1,350
Contract No. 3.
G. Freeman & Sons, Hollinwood, Oldham.

J. Alcock & Son, Oldham.
(As per schedule of prices.)

NORWICH.—For the execution of sewerage works, Contract 6, for the Corporation, Mr. A. E. Collins, C.E., Guildhall, Norwich — £4,888
Workman £4,888
Monk & Newell 33,596
B. Cooke & Co., Bath — 29,679
[City Engineer's estimate for above work, £30,000; plus £2,000 for contingencies, £32,000.]

OXFORD.—For alterations to Fish Market, and north end of No. 2 Avenue, Meat Market, for the Corporation — £1,395
Ward Bros. £1,395
T. Ward 1,395
J. Woodridge 1,395

POULTON-LE-FYLDE (Lancs.).—For the construction of sewerage works, for the Fylde Rural District Council, Messrs. Hinell & Murphy, C.E., 41, Corporation-street, Manchester — £1,395
W. Underwood & Bate, Dunelmfield, as per schedule of prices.

RHOSKUBIN (near Wrexham).—For erecting St. Peter's Church, Rhoskubin, Rhoskubin, Wrexham. Mr. J. H. Swainson, architect, Wrexham — £1,130
W. H. Wycheley & Co. £1,130
Davies Bros. 1,073
C. C. Probert 1,073
W. E. Samuel 973

SEVENOAKS.—For levelling, paving, &c., Mount Harry-road East, for the Urban District Council, Mr. Jacob Mann, C.E., Council Offices, Sevenoaks — £1,444
Thomas Adams £1,444
John Jackson 1,444
Sidney Hudson 1,444

Surveyor's estimate, £1,784.
Accepted at schedule of prices.

SNARESBROOK.—For the erection of residence, stabling, &c., Messrs. Gordon, Lowther, & Guntun, architects — £3,645
Munday & Co. £3,645
Fleming & Bottomley 3,645
Sibey & Sons 3,645

SOWERBY BRIDGE (Yorks).—For alterations, &c., Dalton Brow Wesleyan chapel, for the Trustees, Mr. A. G. Balzell, architect, 15, Commercial-street, Halifax. Quantities by architect — £1,400
Halstead Brothers £1,400
Fleming & Bottomley 1,400
Halifax 1,400

STAINES.—For the supply of 400 tons of granite and 1,000 tons of flint for the Urban District Council. Mr. E. J. Barrett, C.E., Town Hall, Staines — 14 in. Gurney Granite. Per ton. s. d.

W. Griffiths 15 0
Mowlem & Co. 15 0
A. & F. Manuelle 15 0
L. Summerfield 14 9

14 in. Leicester or other Granite. Per ton. s. d.
Cleehill Hill Stone Company (per J. G. Bull & Co.) 15 0
Trickett & Sons 14 0
Society and Stony Stanton Granite Company 14 0
Narborough, Leicester 14 0
Narborough and Enderby Granite Company 14 0
Van Praeg & Co. 13 0
Crest Granite Company 12 0
Whitwick Granite Company 12 0
T. Wainwright 11 0

Flint. Per ton. s. d.
E. J. Broderick 6 11
C. Graham Flint Company 6 7
W. Norris, Farmham 6 7

TRING.—For the erection of lych-gate, lych-house, &c., Wilstone Cemetery, Mr. W. Huckle, architect, Tring — £1,400
E. Smith & Son £1,400
H. Wright 1,400
J. H. Wright 1,400

UPTON PARK.—For alterations, &c., to the "White Hart" public-house, Upton Park. Mr. F. A. Ashton, architect — £2,300
A. E. Symes £2,300
J. H. Cockes 2,300
W. Shurmer 2,300
W. Watson 2,300

WALTHAMSTOW.—For erecting dwelling-house, Greenleaf-road, for Mr. John Clark. Mr. H. C. Marton, surveyor, Walthamstow — £1,465
F. J. Adams £1,465
Stewart & Wavman 450

WALTHAMSTOW.—For erecting residence at Prospect Hill, Mr. J. Williams Dunford, architect — £1,440
C. Burrage £1,440
J. A. Reed 1,440
W. Shurmer 1,440

WALTHAMSTOW.—For erection of church and schools, at Hoe-street, Walthamstow. Messrs. Gordon, Lowther, & Guntun, architects — £5,347
E. Lawrence & Son £5,347
Edwards & Medway 5,397
W. Dalby 5,397
Sewin Bros. 5,397
Bateman 5,347

WALTHAMSTOW.—For carrying out certain repairs and renovations at the undermentioned schools, for the Walthamstow School Board:—
Jarvis—Marsh-street Schools (boys) £149 15
Jarvis—Marsh-street Schools (girls and infants) 8 5
Evans—Carnell-road Schools 149 0
Challis—Higham Hill Schools 82 10
Penn—Maynard-road Schools 75 10
Studd—Trotter-avenue Schools 69 10
Evans—Markhouse-road Schools 69 10

WATFORD (Herts).—For the erection of branch bank for the London and South Western Bank, Limited, Messrs. Fildmore & Anderson, architects, Watford. Quantities by Mr. R. J. Stamp — £4,744
Yerbury £4,744
Brigden 4,886
Gordon & Son 4,874
Andrews & Son 4,865
Fennell 4,995
Judge 4,907

WHITWORTH (Lancs.).—For the construction of sewers, &c., for the District Council, Mr. H. L. Himel, C.E., 41, Corporation-street, Manchester — £1,395
Black Tempest, Marple, as per schedule of prices.

WHITCHURCH (Wales).—For the execution of sewerage works, for the Llandud and Dives Pwll Rural District Council, Mr. W. Fraser, C.E., 19, Queen's-chambers, Cardiff — £2,995
Frank Ashley £2,995
Wm. Amos 2,995
Mackay & Davies 2,995
Wm. Cox 2,995
Varnes & Shaplin 2,995
E. S. Morgan & Co. 2,995
Thor, Harris 2,995

WITTINGTON (Lancs.).—For the erection of stables, workshops, and sheds at the Town's Yard, Wittington, for the Urban District Council, Mr. A. H. Mountain, C.E., Town Hall, Wittington — £1,170
Workshops, Sheds, &c. Total.
Evan Roberts & Son £1,170
Frank Ashley 1,170
Wm. Amos 1,170
Mackay & Davies 1,170
Wm. Cox 1,170
Varnes & Shaplin 1,170
E. S. Morgan & Co. 1,170
Thor, Harris 1,170

WIMBLEDON.—Accepted for building two villas in Southey road, Wimbledon. Mr. W. Banks, architect, 99A, Gracechurch-street, E.C.4.
Geo. Brittain £1,480

LONDON SCHOOL BOARD TENDERS.

At the meeting of the London School Board on Thursday, the following lists of tenders were submitted by the Works Committee:—

CHELSEA (Munster-road).—Interior and exterior painting:—
W. Hornett £295 0 0
F. Chidley 311 3 8
W. Brown* £328 15 0

CHELSEA (Saunders-road).—Interior painting:—
E. T. Foley £239 0 0
G. H. Sealy* £187 10 0
C. Neal 375 0 0
W. R. & A. Hilde 239 15 0

CITY (Swan-street).—Painting interior and exterior:—
F. T. Chichester £275 15 0
W. Derby* £275 0 0

EAST LAMBETH (Sayer-street).—Interior and exterior painting:—
W. V. Coad £258 0 0
F. R. Blaxton 484 17 0
B. E. Nightingale* £340 0 0

EAST LAMBETH (Surrey-square).—Interior painting:—
Hobday & Green £454 0 0
F. R. Blaxton* 308 17 6
D. Charteris 390 0 0

EAST LAMBETH (Victory-place).—Interior cleaning (old portion), and interior painting (new portion):—
B. E. Nightingale* £217

EAST LAMBETH (Wood's-road).—Interior painting:—
Maxwell Bros. Lim.* £534

FINSBURY (Pakeman-street).—Cleaning interior of J.M. School, and painting interior and exterior of S.M. School:—
E. Lawrence & Sons £468
Stevens Bros.* £370
F. Cruwys 467

GREENWICH (Blackwall-lane).—Interior and exterior painting:—
C. Foreman £435 0 0
W. Banks £334 11 6
E. Proctor 339 0 0
W. Holding & Son* 359 0 0

GREENWICH (Burgess-grove).—Interior painting:—
W. Banks £265
C. Foreman £370
Thomas & Edge 339
E. Proctor* 339

GREENWICH (Holston-street).—Interior and exterior painting:—
Ft. Somerford & Son £357 0 0
W. Holding & Son £390 0 0
C. Foreman 473 0 0
W. Banks* 350 14

GREENWICH (High-street).—Interior and exterior painting:—
C. Foreman £350 0 0
W. Banks £459 11 0
Thomas & Edge 541 0 0
E. Proctor* 480 0 0

GREENWICH (Sydenham Hill-road).—Interior painting:—
A. Black & Son £439
G. Kemp £578
E. P. Butler & Co. 293
J. & C. Bowyer 293
W. Akers & Co. 289

HACKNEY (Hackney Divisional Offices).—Interior cleaning:—
C. Barker £279 0 0
W. Suk & Son* £40
C. Wiles 58 16

HACKNEY (Sydney-road).—Exterior painting:—
G. Wiles £348
Stevens Bros.* £488
W. Suk & Son 347
A. W. Derby 377

HACKNEY (Wanlock-road).—Interior painting:—
McCormick & Sons £484
J. Grover & Son £358 10 0
P. Perkins & Co. 484
Stevens Bros.* 351 0
T. Nicholson 368 0

HAGGERSTON-ROAD.—Painting:—
McCormick & Sons £270
G. Barker £546
W. Sharnier 553
J. Grover & Son* 553

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HATTON GARDEN, and 29, RAY STREET,
FARLINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 65, 274 Holborn. Tele. Address: "SNEWIN, London."

HEBER-ROAD.—Painting:—
Holiday & Greenwood £777
Rice & Son* £495

HIGH-STREET (Bromley, E.).—Painting:—
W. G. Beaumont & Son £330
A. W. Derby £372
D. Gibbs & Co. 318
J. T. Robey* 300

LONDON FIELDS.—Painting:—
McCormick & Sons £717
G. Barker £390 0 0
F. Brittain 375
C. Wilmott 278
J. Morris* 498 0 0

SOUTHWARK (Westminster Bridge-road).—Interior and exterior painting:—
F. G. Minter £107 10 0
G. Foxley £107 10 0

TOWER HAMLETS (Portman-place).—
W. G. Beaumont & Son £546
A. W. Derby £477
G. Wiles 540
A. M. Symms* 399

WEST LAMBETH ("Latchmere" School).—Exterior painting:—
H. J. & G. Mallett £275
E. B. Tucker £449
Holloway Bros. 350
H. Brown* 395

TO CORRESPONDENTS.

J. H. C. & Co., H. C. A. S. (amount should have been stated).
A. G. M.B., J. E., G. G. (below our limit).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.
Letters or communications (beyond news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.
Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 12s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 20s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
SLATER and TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,

BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.

BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Douling Stone Co.).

Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand,

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO. LITHOGRAPHERS AND PRINTER.

Estate Plans and Particulars of Sale promptly
executed.

4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"

For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

SZERELMEY STONE LIQUID.

THE TEST OF TIME.
OVER FORTY YEARS' GENERAL EXPERIENCE
HAS PROVED THAT

SZERELMEY STONE LIQUID

ABSOLUTELY WATERPROOFS AND PRESERVES
BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.

Adopted by Governments and Public Bodies
throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE French Asphalte COMPANY.

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND
WORKMANSHIP FOR BUILDINGS,

DAMP COURSES, AREAS, ROOFS,
WASHHOUSE AND DAIRY FLOORS,

&c., &c.

This Asphalte was chosen to be
laid at Sandringham, on the new

General Post Office, and other
important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

COPPER AND ZINC ROOFING.

F. BRABY & CO.

LONDON. LIVERPOOL. GLASGOW. BRISTOL.

352 to 364, Euston-rd., N.W. 6 & 8, Hatton Garden. 47 & 49, St. Enoch-square. Ashton Gate Works, Coronation-rd.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.

NO SOLDER. NO EXTERNAL FASTENINGS.

Particulars on Application. Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.

The Builder.

VOL. LXXIII. No. 2843.

JULY 31, 1897.

ILLUSTRATIONS.

The Cloisters, Salisbury: Three Bays.—Measured and Drawn by Mr. George O. Scorer	Double-Page Ink-Photo.
Hôtel Métropole, Folkestone.—Mr. T. W. Carter, F.R.I.B.A., Architect	Double-Page Ink-Photo.
Catholic Church, Beverley.—Messrs. Smith, Brodick, & Lowther, Architects	Single-Page Ink-Photo.
Some Cornish Church Towers.—Sketches by Mr. W. R. Jaggard, A.R.I.B.A.	Single-Page Ink-Photo.
Examples of "Influence of Material on Architecture"	Double-Page Ink-Photo.

Blocks in Text.

Perrot and Chipiez' Theory of Greek Doric Entablature	Page 84	Roman Construction in Concrete on Brick Framework: Baths of	
Restoration of Mycenaean Palace by Perrot and Chipiez	" 85	Agrippa	Page 86
Early Types of Timber Construction	" 85	Angle of the Parthenon	" 87
Origin of Greek Doric Entablature according to Viollet-le-Duc	" 85	Roman Architecture: The Pantheon	" 87
Roman Construction: Baths of Diocletian. Concrete Vault with		Catholic Church, Beverley (plan)	" 92
Brick Groining	" 86		

CONTENTS.

The President of the Royal Academy on Art	83	Peterborough Cathedral	91	General Building News	94
The Influence of Material on Architecture	84	Use of Slates in London	91	Sanitary and Engineering News	95
Notes	87	The Cloisters Salisbury	92	Stained Glass and Decoration	95
Notes on Lancaster and its Neighbourhood	89	Hôtel Métropole, Folkestone	92	Foreign	95
Collapse of a French Railway Bridge	92	St. John's Catholic Church, Beverley	92	Miscellaneous	95
Architectural Societies	92	Sketches of Cornish Towers	92	Legal	96
The London County Council	92	Influence of Material on Architecture	92	Capital and Labour	96
Competitions	91	Student's Column: Quantities and Quantity Taking.—II.	92	Meetings	96
Builders' Benevolent Institution	91	Obituary	93	Some Recent Sales of Property	96

The President of the Royal Academy on Art.



HE re-issue, with some additions, of Sir E. J. Poynter's Lectures on Art,* is an appropriate sequel to his elevation to the Presidency of the Royal Academy; unless indeed it may be

thought that the publication of some entirely new lectures dealing with artistic subjects from the point of view of the present decade would have been still more to the purpose. But the President is an artist who thinks painting is better than writing, and his lectures for the most part deal in a broad and generalising spirit with questions which are of permanent interest; they represent more or less his confession of faith, and they are written in a calm and dispassionate temper, and with a freedom from party spirit, which forms an agreeable and wholesome contrast to the spasmodic and over-strained style of the new art criticism; a wholesome contrast also to that of Ruskin, whose violent and shallow depreciation of Michelangelo forms the subject of the ninth chapter of the book (originally a "Slade" lecture). Sir E. Poynter, it is true, has none of Ruskin's eloquence, none of his *curiosa felicitas* in epithet and illustration; but he impresses one much more with the idea of a man writing with a single aim—that of expressing the truth about art as it appears to him.

Since the first edition of these lectures was published the position of things has changed a good deal; but the rise of "impressionism" seems rather a reason with the author for reiterating his advice as to the study of Michelangelo and other great Italian masters of design, whose "impressions" of life and nature "were not less vivid than those of any modern painter, and were executed with a command of the resources of the art which has almost passed out of knowledge." These words are from the Preface to the present edition of the Lectures, and are therefore written for

the present moment, as the conclusion of a paragraph of warning against the danger of neglecting the study of form "in favour of so-called impressions thrown hastily on the canvas." And even in regard to points in which there has been a good deal of improvement in taste since the strictures in the first lecture (on "Decorative Art") were first delivered, much of what was then said requires only a little difference of application for the present day. "Looking back," the author says, "to the time (1869) when my first lecture was delivered, I find it difficult to believe that a condition of art existed in England to which some of my remarks at that time justly applied." Some of the remarks made in that lecture are fortunately out of date now; they may have, as the author suggests, a historic value. But some which seem out of date in regard to detail only need a fresh application to be as true as ever. If the design of plate has improved a good deal from his description of a quarter of a century back, that of jewellery is for the most part as bad as ever; if a bunch of roses is no longer painted on the coal scuttle, with the delightful idea of rendering such an object more fit for a drawing-room, the reform has not extended to all articles of humble practical usefulness. Let any one who thinks so try (*experto crede*) to get so simple an article as an umbrella-stand of unaffected and suitable design, and he will find out. Or look at the style of pianoforte case which is still prevalent, with its decanter-stopper legs and coarse mouldings and ornament. We are still only halfway out of the wilderness of Zin.

One of the most important points in this chapter or lecture on Decorative Art, and one which may be specially recommended to the attention of the younger generation of artists, is the position taken by the author in regard to the two qualities or principles often distinguished as Realism and Idealism. These two classes of art, Sir E. Poynter urges, are not so much opposed as complementary. The narrow view of Realism tends, as he says, to the production of a class of picture in which the supposed Realism is achieved by the identity of some historical accessory, "as though one should paint the flight of Napoleon from Waterloo, and make the interest of the picture depend on the fact that the coach is painted from the real original at

Madame Tussaud's, an idea which fully comes up to our modern notions of Realism."* The weakness in such a case is when more attention is given to minor facts of realism than to the essential ones; the coach and its details carefully painted, the figure weak and commonplace. The failure of what is called realism is that it is not real enough. Many persons think they are quite able to judge whether a picture is true to nature or not, and will give their admiration to a weak and commonplace work, as a representation of nature, because it gives all which they themselves have observed in nature; a closer and more artistic observer of nature would see that the realism was only superficial, and that the painter had neglected what might be called the inner and more delicate details of values of tone and colour, truth of aerial perspective, &c. "It seems simple pedantry to him if you tell him the picture is bad because it is untrue; can he not see with his own eyes?" &c. It is just the difference between superficial realism and the genuine artistic realism which makes the distinction between a mere imitation of nature and a work of art.

"Every truth of nature thoroughly understood and expressed has a charm in its own degree. The stump of a tree and a broken-down railing is quite enough to make a good picture if it is painted with due understanding of the subtle relations of tone and colour which pervade all nature. But to convey the fact that there is in a particular spot a certain stump of a tree of which you give a portrait, by the side of a certain broken railing of which you give a portrait, is not painting a work of art at all."

And the author goes on to remark on the painful truth, obvious to all who listen to the popular talk in picture galleries, that most of our popular art depends entirely on the facts represented and not on the art which is expended in painting them. "Hence the complete absence of what is called style in the popular school of painting in England"; for "style is that power of realising the beauty of nature which is only to be obtained by study, and the power of expressing this knowledge as one who has had a complete education in his craft." That is more, perhaps, a suggestion than a definition of the undefinable quality which we feel as style; but it is a very fruitful one, and will bear thinking out

* Lectures on Art; by Sir E. J. Poynter, P.R.A. Fourth and enlarged edition, with portrait. London: Chapman & Hall; 1897.

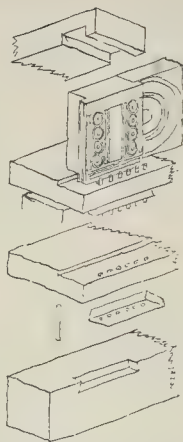
* It is an odd coincidence that there is actually a picture of this subject in the Royal Academy at this moment—"After Waterloo," evidently inspired by the "real" coach.

both by painters and public, if the public can be ever persuaded really to *think* about art at all.

On the question of the supposed antagonism of realism with idealism, Sir E. Poynter suggests that Michelangelo was one of the greatest realists the world has ever seen; both figures and accessories are studied from the point of view of being as true to Nature as they can be made. And this, Sir E. Poynter urges was exactly the cause of his superiority to Luca Signorelli. Both were idealists, with lofty and poetic aims, but Michelangelo was the more accomplished draughtsman and painter. "Astonishing as is the power of Luca Signorelli's imagination, and admirably true as are the action and expression of his figures, he fell short precisely on that point of realism which makes the enormous gulf between him and the greater artist." The greatest and most complete painter, in short, is he who grasps both the real and the ideal. And in regard to this point Sir E. Poynter draws an interesting comparison between Greek art and that of Michelangelo; pointing out that the Greek passion for the decorative element in art, for design above all things, led to the restriction of human interest and character in their figures; the figures in the Panathenaic procession represent two or three types of beauty, but show no variety of character. That, in all design, whether of figures or foliage types, which is conventionalised to a high degree, is the inevitable limitation; variety of character is sacrificed more or less. Michelangelo, in Sir E. Poynter's view, was an idealist who commenced from realism and through it worked upward to idealism, and hence combined both elements in his art.

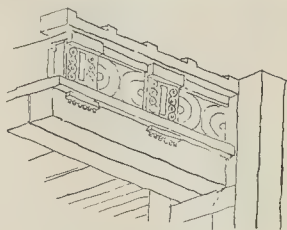
One of the new chapters in the book, "Some remarks on ancient decorative art," though it does not positively tell us anything (because nothing is positively known), is very interesting as an attempt to form some conception as to what were the qualities and character of that Greek Art of painting which must have had such remarkable beauties of its own, but which has so entirely perished. The best idea of the style of thing may, the author thinks, be gathered from some of the best of the Pompeian paintings, in connexion with which subject he has a word to say as to the restorations in the Pompeian Court at the Crystal Palace under the direction of Owen Jones, who appeared to think that "in decoration one blue is as good as another, and one red as good as another."

We do not know whether it is quite fair on "civilisation" to attribute to it, as the author does in his first lecture, "the development of the principle that beauty is not essential to our happiness." There are other forms of civilisation besides the scientific. This is an age of mechanical and scientific invention, and the particular form of development which civilisation has taken up in this age is, consequently, that of the mechanism of production and locomotion. But the word "civilisation," as well as the idea, has a good deal wider significance than what relates to the development of railways, viaducts, and electric motors. Nor are we sure that we are quite with the author in his complaint that "the worst and most tasteless efforts in architecture that our great towns afford are better than the outrages that our men of science in-



Pieces of Architrave and Frieze in Mycenaean Palace.

Perrot and Chipiez' Theory of Greek Doric Entablature.



Component parts put together.

flict on us in their railway bridges and other works; for the former may afford a trifling pleasure, even if of an unreasonable kind, to people ignorant of art, while the latter are only regarded, even by the most uncultivated, as at the best an unavoidable necessity in the progress of things." For ourselves, we would rather see a well designed bridge (in an engineering sense) than a bad and tawdry piece of architecture. It is at least real and good in its own way. The great mischief arises with the attempt to artificially adorn it. There is an interest, even a beauty of its own, in a great and daring piece of pure construction, which painters who know nothing of construction perhaps can hardly appreciate. Sir E. Poynter probably regards the Forth Bridge as a monstrosity; to our thinking, as a vast piece of unadorned structure, there is something very grand about it. The Tower Bridge, where an attempt has been made to adorn the construction, is much more objectionable. But we recommend both artists and the public to read Sir E. Poynter's lectures attentively, as among the most sound and sensible essays on Art which have appeared in recent days.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.

BY BANISTER F. FLETCHER, A.R.I.B.A.

CHAPTER III.

Greece: Timber to Stone and Marble.

MUCH as Greek culture owed to the preceding Asiatic civilisation, still the change effected through them in its nature and tendencies has so profoundly affected the development of European progress, as to constitute the Greeks the veritable source of literary and artistic inspiration. Greek architecture stands alone in being accepted as beyond criticism, and as being an obligatory study for students of otherwise very different principles. What was the real course of the development of this great style, and more especially what was its origin, and how did the influence of materials affect it?

Perrot and Chipiez, in their monumental

work on "Art in Primitive Greece," go elaborately into the question of the wooden origin of the Greek column and its entablature, and endeavour to show how the timber construction of the period was imitated in the maturer style in stone. Some sketches are given from their illustrations. In the origin of the Doric order there are some interesting suggestions, particularly

the derivation of the guttae from constructive pegs. And it may be allowed that the restoration given of the timber architecture of the palaces of this period, and the explanation of the wooden types used decoratively in the later stone architecture, are well dovetailed into each other. The authors decline to accept the favourite theory of the derivation of the Doric capital from the Egyptian—as, for instance, the Doric capital at Beni-Hassan—but give no derivation of it themselves.

Viollet-le-Duc, however, refutes the wooden origin of Greek architecture, and holds that it is emphatically an original stone treatment. He is unable to conceive how the Greek Doric capital can be derived from a timber form, and he considers the triglyphs in the frieze, instead of being derived from the ends of wooden beams—which could not be seen on four sides of a building, and which would be very difficult to flute across the grain of the wood—to be original stone uprights, fluted to express their function of vertical support, and therefore treated in this respect in the same manner as the columns, which he considers were fluted when in position. But Garbett calls the wooden theory an "insolent libel," and asserts that in the case of the inclination of the soffit, this barbarous theory is at once disproved by two facts, the inclination being observed on the fronts equally with the sides of the building, and its angle being wholly independent of that of the roof.

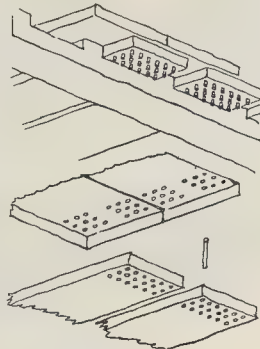
Viollet-le-Duc, describing the house of Chrenylus in his "Habitations of Man, &c.," talks of the columns of Pentelican marble which support architraves of wood, surmounted by friezes and cornices overlaid with stucco and ornamented with delicate painting. He premises that wood suitable for building was by no means abundant in Greek lands, while there was a profusion of marble at hand. Columns and capitals of stone and marble were therefore substituted for those of wood, the capitals having a smaller development than the wooden prototype, lest they should break under their burden. He speaks of the Ionic as an earlier type than the Doric, and refers to it especially as derived from wood, while he refers to

the Dorians as a people who, considering the want of relation existing between the Ionic capital and the material (marble), abandoned this traditional form of the wooden capital and adopted a new one springing naturally from the use of stone. This sturdy Doric capital at first projected considerably beyond the shaft of the column, but gradually received a more refined outline. Viollet-le-Duc then proceeds to discuss the wood or stone theory of the Doric entablature, and after a long dissertation, he goes on to say that "the form given to the entablature of the Doric order can be adapted with some unimportant variations to a structure in stone as well as of wood, in neither case involving the necessity of falsifying the form or the structure," and that it is scarcely admissible that a wooden original suggested the stone structure in the composition of the Doric order; indeed he would rather suppose the converse, especially since the further we go back into antiquity, the more the entablature deviates from the style of the structure in wood, and conforms to that dictated by the use of stone. A later writer, Mr. H. H. Statham, in a recent work on architecture clearly disproves* the wooden theory, and, with considerable justice, adds that whoever supports the theory of the wooden origin of the Doric column has to explain these facts:—(i) that the further back we go in the known and approximately dated examples, the thicker the columns are, while the reverse would probably have been the case had the original forms been wooden; and (ii), that the characteristic moulding under the abacus of the Doric column is an essentially stone form, and one which it would not be all easy to work in wood.

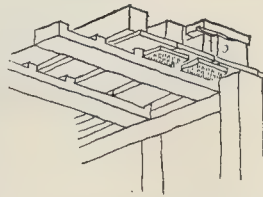
So much for the theories of origin. Further, in considering the effect of finely dressed marble blocks as a building material, it will be seen that the architecture of jointed stone gave rise to the lintel-statics in their simplest expression.

Stability was achieved solely by the judicious observance of the laws of gravity, mortar was unused, the adherence of the blocks of marble not being necessary; for the weights in their structures only acted vertically, needing but vertical resistances. The supports were of necessity close together for the reason that stone or marble lintels could not be obtained beyond a certain length. In fact, the employment of hewn stone by itself directly shaped the development of the style. In matters of

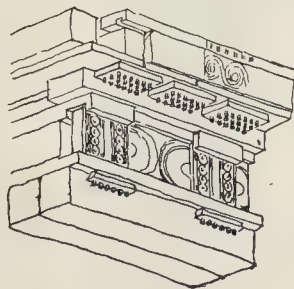
grained marble—which was employed in rendering possible the delicate adjustment and refined treatment practised in the struc-



Separate pieces of Cornice.

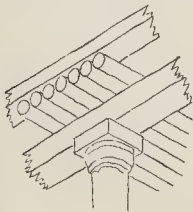


Cornice pieces put together.

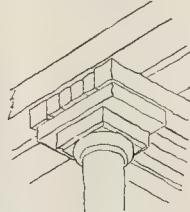


Restoration of Entablature.

Restoration of Mycenaean Palace by Perrot and Chipiez.



Mycenaean Palace: First epoch. Arrangement of woodwork.



Mycenaean Palace: Second epoch. Arrangement of woodwork.

Early Types of Timber Construction.

detail, that is, in the mouldings, features, and sculpture, the influence of the hard, fine-

tures of the great Hellenic period are clearly illustrated. This trabeated architecture necessitated and received great severity of architectural treatment; grandeur, refinement, and unity of effect were preferred to the more broken picturesqueness of the

aggregated cells of the Egyptian temple as seen in perspective.

The absence of mortar referred to is only appreciated when the idea with which the Greeks regarded its use is understood. Even by the Romans it was only regarded as a means of aggregation, but the Greeks never thought of using it to transmit or equalise the pressure between the stones. In such constructions of large regular materials mortar was insufficient to produce such a result, therefore it was regarded as useless, and was not employed; the blocks were bound together by uniting them with pieces of iron strongly embedded. It is not only materials, but their method of application, which influences architecture, and in the case of the Temples of Paestum and Ægina, Choisy has carefully examined into this, and he finds that the Greeks placed the stones on their natural bed or otherwise, according to the pressures they had to bear, and he finds that the architraves which had to support a cross pressure were placed with the planes of their beds in a vertical position as being better able to withstand the weight upon them, and enabling a wider intercolumniation to be obtained. This knowledge could only have been obtained by a careful use and study of materials.

What is simpler than placing a stone horizontally on two vertical supports? Yet from this simple principle what a numerous train of deductions were drawn by the Greeks.

CHAPTER IV.

Rome: Stone and Marble to Brickwork and Concrete.

The transition from Hellenic to Roman civilisation is that from the specialised culture of individual cities or small states to the universality of a world-wide empire.

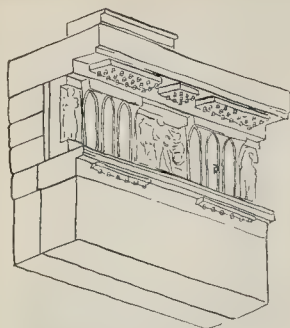
Under such conditions the influence of materials is even more marked. Individual design tends to be absorbed in the stereotyped standards of officialism, and local types of construction are replaced by an uniform system.

How the Romans evolved from the simplest elements such methods of construction will become apparent in tracing the change from the Greek masonry to the Roman concrete.

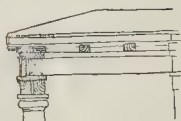
In the earlier periods the Romans employed the Greek system of jointed stone, close-fitting, and without mortar, as the Greeks had done; but in this case it was as a casing to the thick masses of walling composed of pebbles, rough stones, brick or rubble work, united by lime and sand.

The Greek method of building with large materials, blocks of stone, rough or cut, and without mortar, continued, however, to the last century before our era, being general in the monuments of the Republic. But the practical spirit of the Romans and their instinctive taste for simple things urged them to make in ordinary cases a more economical use of their immense riches. Instead of composing the body of their monuments of large blocks painfully placed in position, they sought by means of a procedure less expensive, and by expedients until then unknown, to inaugurate the employment in large masses of irregular materials reduced into fragments and bound together by mortar. The Romans were the first to found, upon the employment of such elements, a system of monumental construction which, with a rare sagacity, they adapted to their

* Perhaps Mr. Fletcher meant to write "clearly disapproves." Mr. Statham certainly does not undertake to "disprove" the wooden theory; he gives some reasons against its acceptance.

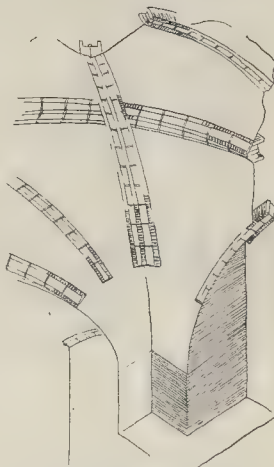


Entablature of Selinonte Temple.

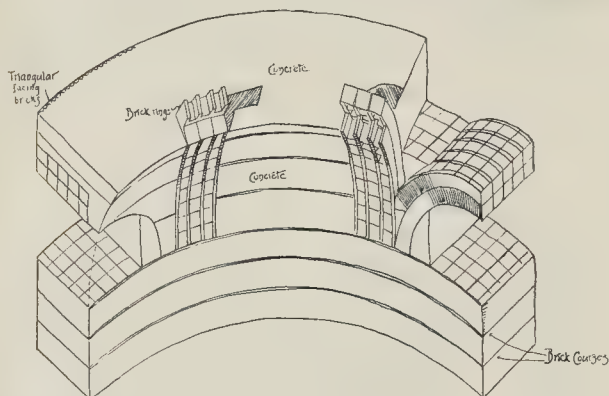


Mycenaean Palace: Longitudinal section through prodromos.

Origin of Greek Doric Entablature according to Viollet-le-Duc.



Roman Construction: Baths of Diocletian. Concrete Vault with Brick Groining.



Roman Construction in Concrete on Brick Framework: Baths of Agrippa.

new needs. They profited by the facility with which walling composed of pebbles and mortar accommodates itself to the most diverse situations. Thus they contrived a method of building, as it were, universal, which was used with success in every district of the empire.

The materials which they made use of were not special to any country. The most shapeless ashlar stones, pieces of hard rock the least fit for cutting, small fragments of stone which would be rejected in our days as quarry debris, sufficed for the most important projects. The craftsmanship required was perfectly simple, for rough labour only sufficed. The buildings, composed, as it were, of plastic material, were modelled at the will of the architect, and could be erected by hands quite unused to the art of building. Cheap and plentiful labour, at hand everywhere in the empire, and at the direction of a central authority, naturally took its place among the influencing materials, and tended to uniformity. To carry their schemes into execution, the Romans had only to employ a

certain amount of labour, it being immaterial by whom it was supplied—whether by slaves found on the spot itself, subjects liable to statute labour, or the Roman armies themselves, while the legal punishment of condemnation to working on public buildings was largely enforced. Any of these means, in default of trained masons, satisfied the needs of the builder, as all the operations consisted only in puddling the mortar and spreading over it the broken stones in uniform beds. From the time that lime and shapeless pebbles displaced the ashlar masonry of the Greeks, and allowed of the using by the empire of its vast resources of unskilled labour, the style of the Romans grew to be everywhere uniform and above the influence of local conditions; for through the colonies and legionary camps the new method penetrated to the extremities of the empire. They could improvise, at all the points where the rule of Rome extended, entire cities, recalling by their general traits the physiognomy of the metropolis, which cities became in their turn centres whence radiated

the architectural ideas as well as the manners and customs of Rome.

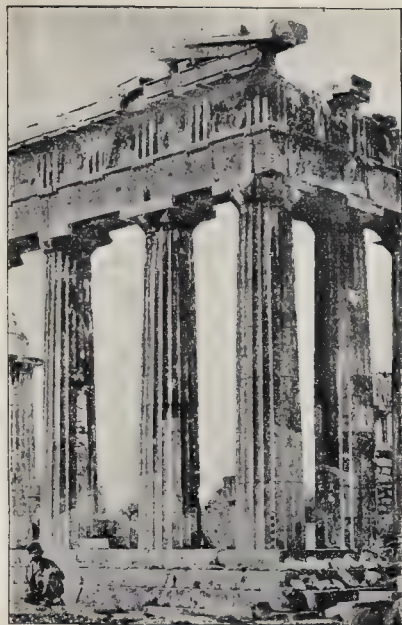
The most important of all the constructive features employed by the Romans was the semi-circular arch of jointed stones and the hemispherical and cradle vaults, the latter being further developed into the cross-vault. The arch had been previously used in Assyria, and the Etruscans, from whom it is supposed the Romans obtained it, had also used it; but the Romans were the first to carry it out as a structural system, and by its use they covered the largest areas even now in existence, roofed with such material. They not only used this kind of covering, which rests on all sides of the space to be covered, but also the simple or wagon-headed vault, which rests on only two sides of the covered rectangle. From the latter they invented the cross-vault, which exerts its whole pressure on the angles of the apartment. The beauty and advantages of this kind of vaulting led the Romans to use it over all corridors and long apartments, thus throwing the pressure of the vaulting on the points of division and leaving the remainder of the walls free for openings.

These three systems sufficed for everything, and the combination of their plans were simply the necessary result of these methods. For example, if a circular hall were built, they covered it with a hemisphere; if an oblong hall, whose lateral walls are sufficiently thick, they covered it with a cradle or half-cylinder vault; if a square hall, they covered it with a groined vault. If the oblong hall were very wide, if its side walls had to be pierced by large openings, thereby presenting only isolated points of support, they divided it into square bays (generally three, in order to get a central bay), and covered it with three groined vaults; that is to say, a longitudinal half-cylinder, intersected by three half-cylinders of equal diameter with the first—to such varying needs did the new method of the arch lend itself.

This is hardly the place to go into detail in regard to Roman construction. M. Choisy, in his "Art de Bâtir chez les Romains," has exhaustively treated of this, and he has described the different kinds of walling as (a) walling of concrete filling with stone facing, the concrete being in layers, and compressed; (b) walling in which each stone is placed directly on a bed of mortar; and (c) walling in which the separate employment of lime and pebbles was effected without previous mixing, but simply by being thrown in *in situ*. This was the most usual method—quick and rapid of execution, in which motives of economy occupied entirely the mind of the Roman architect.

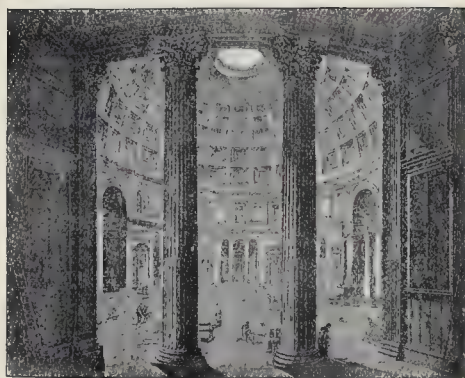
As to the arcuated system of construction, it will be seen at once that this employment of small materials influenced very largely, if not wholly, the development of the vault and dome—so essentially a part of Roman architecture.

Vaults of concrete had nowhere a usage so general as amongst the Romans; every ruin is filled with their debris, besides the fragments of masonry that exist as witnesses of the original structure. Such vaults were composed of brick ribs as guiding and permanent centres, with a filling of small material. They are found in an almost endless variety, and may be seen in turn covering rectangular enclosures besides rotundas, exedrae, and recesses which are



Angle of the Parthenon.

(Illustrating the age of marble in large blocks, and its influence on Greek trabeated construction.)



Roman Architecture : The Pantheon.

polygonal on plan. Being executed to rough moulds the system lent itself equally well to the most varied plans, and to the most numerous needs as regards distribution. The majestic simplicity of their forms gives to these edifices a severe grandeur which agrees well with the monuments of Roman greatness, and is specially appropriate to their material needs.

The Romans, then, were the first to generalise a system of vaulting at the end of the first century B.C., in making it simple and practicable by the employment of small material artificially bound together with mortar. The effect was far-reaching, and only here need be noted its effect on planning, in which it became necessary that the points of support should be placed with abutments for the thrust of vaults, which resulted in the production of structures as complex and as suited to the needs of the Romans as the simple Greek structures were to the Greeks.

In regard to the finishing or decoration of Roman buildings, sculpture was used as a mere decorative accessory without any connexion with the architecture. A Roman edifice built of rubble-work or bricks might receive a decoration of any or every kind of marble with no absolutely necessary connexion with the general character of the building. Such decoration was a kind of second structure whose richness did not belie the material used, nor the manner of using it. For when in Roman buildings the decoration was foreign to the structure, there was no attempt to conceal its own purpose.

The Romans made it their chief object to employ every decorative material then obtainable—granite, jasper, porphyry, marble, painted stucco, bronze, and mosaic were used with profusion to produce the rich effect in which they revelled. Roman architecture is a clothed body; if the dress is properly

fashioned it neither embarrasses nor distorts the form of the body, but is always a dress, which, as such, is rational and appropriate—rich for the rich, simple for the poor—and whose decoration disfigures neither the style nor the form.

What have the materials at hand done for architecture in this section? They have rendered possible the most gigantic structures of the world, they have facilitated the erection of buildings of every class, suited to every need; but at the loss to architecture of refinement, for the refinement of the Greeks was swept away, and the coarse material which was pressed into the service of architecture, especially in the provinces of the Empire, largely accounted for the decline in technical and artistic workmanship which is so marked in the work of the later Empire.

NOTES.

Excavations at the Temple of Apollo at Branchidæ.

THE *Archäologischer Anzeiger* contains in its current number (1897.2) a letter of great architectural interest from M. Haussonnier, respecting the excavations on the site of the Branchidæ Temple of Apollo at Delphi. Some account has already appeared in the *Bulletin de l'Académie des Inscriptions et Belles Lettres*, January 15, and M. Haussonnier's letter to the *Anzeiger* is supplementary to this. It is illustrated by a photographic view of the front of the temple as at present disengaged. M. Haussonnier reports as follows: The whole of the principal façade of the Temple is now laid bare. It stood on a basis of seven steps, further sub-divided to form an approach of thirteen steps, extending over the five central intercolumniations. This approach was shut in north and south by two

pylons placed against the thirteenth column, starting from the angle column. These pylons therefore stand exactly where the line of the cellar wall, if produced, would fall. They would seem to have been intended to serve as bases to sculptural groups never actually erected. The principal façade of the Temple was never completely finished. Both the steps near the pylons bear mason's marks, which would have disappeared in the final process of finishing. The façade consisted of ten columns, not one of which is standing. Of the bases of these columns two were taken to the Louvre by Rayet and Thomas in 1873; the remaining eight have now come to light. Like the steps and pylons, none of the bases are completely finished off. The bases are richly ornamented and pure in style, but unquestionably the most interesting point is the peculiar and so far unique character of the capitals. These are decorated with two heads of divinities, each taking the place of a volute; between the two heads in the middle of the capital is the head of a bull. This last feature has, of course, appeared before in Greek capitals, but no example hitherto has been known of the head of a god as decoration to a capital. The two gods represented in the Didymæan capitals are Apollo and Zeus; one head of a bull has also been found. All three heads are fine specimens of decorative sculpture—large and impressive in style, and recalling in some respects the Pergamene school. The frieze also was adorned with sculptures of similar character, including a series of heads of Medusa—one placed above each capital. A number of inscriptions complete the architectural interest of the excavations, among them a record of the expenses occurred in the erection of the Temple. From these inscriptions we learn the regulations in force during the building and many of the architectural terms employed, and more important still, the date of the Temple; the work of building was in full course in the middle of the second century, B.C. Altogether the Didymæan Temple forms now an important chapter in the history of Greek architecture.

THE Workmen's Compensation Bill has passed through Committee of the House of Lords with less alteration than was expected. The

main changes may be briefly summarised. Contributory negligence on the part of the workman again becomes a defence on the part of the employer. As the Bill left the Commons, this defence was only available when an accident was solely caused by the negligence of the workman. Now it is obvious there may be a gross act of negligence on the part of the master, and a slight one on the part of the workman, both of which contribute in their degree to the accident. But the workman will then have no compensation. The important clause by which, if the funds of a benefit society were insufficient to meet a workman's claim, the balance was to be paid by the master, is now entirely expunged. The result is that a workman must make his choice. He may belong to a society, and get what he can out of it if he meets with an accident, or he may keep out of any society and trust to the provisions of this Bill. We are inclined to think that the omission of the clause is desirable, and that the change made in the House of Lords is a good one. The clause in question left things in an unsatisfactory state; it is better that two clear courses should lie before the workman for his choice. But the spectacle of the Prime Minister consenting to the omission of the clause and pouring ridicule upon it in the House of Peers when, a few days before, it had been defended in the Commons by Mr. Balfour and Mr. Chamberlain, shows how little we can really trust to politicians or believe what they say. For, obviously, these important members of the Government must have known the views of the Prime Minister before they defended the measure in the Commons.

Gallery of British Art. WE gave a full description of this building in our issue of July 17, after the private view on the 14th, and it is unnecessary for us to refer specially to the ceremonial opening by the Prince of Wales on the 21st, which has been fully reported in the daily papers. We may say that since the private view the majority of Mr. Watts's pictures have been hung in the gallery assigned to them, where they are seen in a very good light. Some progress has been made in the arrangements for the sculpture. Mr. Fehr's fine group of Perseus and Andromeda will stand in the large hall, facing the entrance, and three out of the four niches are occupied with single figure subjects, which are still in wrappings. The small circular room in the rear of the main hall is at present to be occupied by some small bronzes; two beautiful works by Mr. Onslow Ford are already there; but in this place alone the lighting is unsatisfactory; a single centre light is required to show the works satisfactorily, and indeed this small apartment seems to have been introduced for architectural effect without any very distinct idea as to the use to which it was to be put. It should be noted that in spite of the ceremonial "opening" having taken place on the 21st, the building will not be really open to the public till August 16.

Results of the Paris Bazaar Fire. It appears that one result of the Paris Fire has been that strenuous efforts are being made to improve the present very dangerous state of many of the places of public entertainment in the French capital. Several establishments, in fact, have already been

closed, and others have to be materially altered. For about a month past, too, preparations have been made for an "International" Congress of Fire Prevention at Paris, having particular regard to the recent calamity. An influential committee, including many Ministers, Senators, and Deputies, has taken up the matter, and we understand that England is cordially invited to participate in the discussions. It would, however, be well to warn those entrusted with the arrangements in this country that there is no subject more popular with irresponsible theorists than that of Fire Protection, and that a very careful selection will have to be made from the papers or proposals offered unless this country is to appear ridiculous in the eyes of the Continental expert. Enthusiastic amateurs did more harm than good on the occasion of earlier catastrophes. Regarding an exhibition that is to be held in connexion with the Congress, we should also like to give a word of warning against the tendency to unscrupulous advertisement, common to many fire-engine makers and inventors, who only see the financial aspect of any calamity that may tend to assist their trade. Such methods will not be popular in France. Altogether, the participation at the French Congress will have to be very skillfully managed by men experienced in the subject if it is really to produce practically beneficial results.

London Board Schools' Work Exhibition. THE Annual Exhibition held by the School Board for London of the work executed by the students in the various schools under its control is a satisfactory indication that in many respects the instruction given is a good preliminary education or foundation upon which the technical schools can base satisfactory instruction in after years. The Exhibition has been held at the Hugh Myddelton School in Clerkenwell, and included drawings, designs in paper and colour, modelling in clay and cardboard, woodwork, besides other subjects which are not immediately within our province. Attention should be especially directed to the "hand and eye" section in which we noted designs executed by the superposition of paper of different colour thus forming simple compositions of squares and triangles; and to the brushwork designs which are a good training for freehand and decorative colour work. The modelling in cardboard is also a good introduction to the study of advanced solid geometry, which forms the backbone, as it were, of so many of the crafts. The progressive instruction given to those intending to follow the craft of carpentry seems very well done, and forms an admirable introduction to the subject. It shows a desire on the part of the authorities to keep *au courant* with the latest ideas on the subject, and we note with satisfaction, in this respect, that the systems in vogue on the Continent and in America are being introduced with good results.

Health Report of Liverpool. THE report of Dr. Hope, the Medical Officer for Liverpool, on the health and sanitary condition of the city during the year 1896, is admirably drawn up and contains many interesting and valuable statistical tables. Among special points we may notice the system adopted in regard to the courts and alleys of inferior house property, by which

each tenant is in turn made responsible for the cleanliness of the court during a period of one week, the sanitary inspector recording in his book whose turn it is, and informing the tenant, who, if neglecting to act, is liable to an information under a By-law of the Local Sanitary Act, in which case the magistrate generally imposes a fine. It is stated that this system has worked very well; there is a marked improvement in the condition of the courts, and also in the apparent willingness of the people to cleanse them. "The attention of the officer is, however, very necessary, since when the visits are lessened the filthy habits of the people soon lead to a recurrence of the dirty conditions." Insanitary house property seems still to give a good deal of trouble, and early in the year 240 houses, "of the usual back-to-back court type," were registered for demolition. It is stated that there is ample accommodation for the inhabitants of these condemned houses within a short radius of distance, and indeed one-third of the houses condemned were empty, having become too dilapidated even for the lowest class of tenants.

Steam-rollers in France. SOME particulars of the cost of steam rolling on roads in France have lately been supplied to the *Annales des Ponts et Chaussées* by M. L. Pierret. The items of expense which he includes are coal, water, oil, &c., the drivers' wages, repairs, and interest on capital. He made his experiments with three sizes of road rollers, namely a 12-ton, a 16-ton, and a 19-ton roller, and he found the cost of working each per mile run was 2s. 9d., 3s. 2½d., and 3s. 5½d. respectively.

Proposed Decoration of the Seine at Paris. THE municipal authorities of Paris have had before them a scheme for a decorative treatment of a portion of the bank of the Seine near the Pont Neuf, proposed by a clever young sculptor, M. Moncel. His proposal is to decorate the point of the tongue of land called the "Vert Galant" with a ship's prow in stone or granite, in the form of an ancient trime, above which is to be a female figure with great outspread wings, gilt, holding in her left hand a broken chain, and in her right an olive branch. The statue, evidently to some extent inspired by the "Victoire de Samothrace," is supposed to symbolise Liberty moving, by way of the Seine, to the sea. The statue is proposed to be of bronze, and thirteen metres in height. The sculptor estimates the cost of the work at 140,000 francs, which seems a rather low estimate. Nothing is said as yet as to the probability of the scheme being accepted.

The Parish Church, Twickenham. WE learn that proposals have been made for a restoration of St. Mary's parish church—the works to include refacing of the stone tower and the reinstatement of the rest of the fabric. Most of the church fell to the ground in the night of April 9, 1713; the body of the church was rebuilt of brick, and completed in 1715, after the designs of John James, architect also of the adjacent Orleans House (1710), to which Gibbs added the Octagon Room. Within the church, on the east wall, are the memorial to his parents, "et sibi," set up by Pope (who was buried beneath the middle aisle), and, on the north wall, the monument to the poet erected,

1761, by Warburton, Bishop of Gloucester. On the outer walls are tablets to Mary Beach, Pope's nurse, *ob.* 1725, and Kitty Clive, the actress, who died at Little Strawberry Hill, or "Cliveden," in 1785. Here, too, were buried Edward Seymour, portrait painter (1757), the royalist John Berkeley, Lord of Stratton, Admiral Byron, and, *teste* the Register, Kneller. The advowsons of Twickenham, Isleworth, and Heston, formerly belonged to the monks of St. Valery, and were then granted to Winchester College. After the Surrender Henry VIII. gave the first two to the Dean and Canons of Windsor. In 1807 Sophia, Baroness Howe of Langar, pulled down Pope's Villa, to which Sir William Stanhope had added two wings—see the plates in E. Ironside's book on the parish (1797), and the "Beauties of England and Wales"—having bought it after Pope's decease on May 30, 1744.

MR. T. G. JACKSON, R.A., has been appointed architect for rebuilding two of the Westminster School boarding-houses in Little Dean's-yard; the one known as "Rigaud's" is nearly finished. For the rear portion abutting upon Great College-street, formerly "Dead Wall," a portion of the massive stone wall was demolished which surrounds two sides of the old Infirmary (since College) Garden, and was built by Litlington, Abbot in 1362-86. Down the present street flowed a stream, whose water served the mill, and its dam, erected by Litlington. On the south side of the street, directly opposite the new boarding-house, a clearance has just been made by the side of Black Dog-alley, on the site of the garden of William Benson or Boston, elected Abbot in 1532. On the north of the Infirmary Garden stood St. Katharine's Chapel for the sick monks' infirmary, of *circa* 1172, and destroyed for the most part in 1571. The late Sir G. G. Scott, in his investigation of the site, found an old hall of *temp.* Litlington, who is known to have built a new house for the infirmary. The hall abuts on the chapel's south side, and has a doorway into the chapel. He was satisfied it is the hall of the infirmary's house, now incorporated in a canon's residence (see plan in the *Builder*, February 23, 1884). Of late years the Garden has been encroached upon by the building of two houses, Nos. 1 and 2, "Abbey-garden."

NOTES ON LANCASTER AND ITS NEIGHBOURHOOD: IN RELATION TO THE ARCHITECTURAL ASSOCIATION EXCURSION.

As already stated, the Architectural Association has selected for its excursion-ground this year the district around Lancaster, and in a note on page 25 *ante* we gave the list of places which it is proposed to visit during the excursion week (August 9 to 14). It may be useful to those joining the excursion if we give in advance a little information as to what should be specially looked for in some of the principal buildings visited, as well as in the town of Lancaster itself.

Claughton Hall, near Hornby, is a quaint mullioned house, of the time of Charles I., with two lofty lower-like gables, one of which is corbelled over in a curious manner. On the east side is a small oriel window carried upon bull-nosed corbels, the detail of which will repay examination. Water-colourists will find a good subject in Claughton Hall.

Hornby Church has a fine Octagonal Perpendicular tower. This, together with the chancel, was built by Sir Edward Stanley, of Flodden Field memory; the nave was erected from

Messrs. Austin & Paley's design a few years ago, replacing the debased work of the year 1811, when the Mediaeval nave was taken down and rebuilt in the style of the period. The octagonal-ended chancel is somewhat picturesque, with its panelled buttresses and gargoyles.

Thurland Castle is a stately pile surrounded by a moat. It dates from the time of Henry VI., but has twice been restored (by Messrs. Austin & Paley), the first time after the fire, when it was in possession of the North family, and latterly for the husband of the present owner, Mrs. Lees, when the drawing-room wing and the library were carried out, together with other work. The Church of Tunstall, which is near the Castle, contains an effigy of the supposed founder of Thurland, Sir Thos. Tunstall, who also rebuilt the church in the time of Henry V.

Approaching Kirkby Lonsdale, the traveller passes over the famous "Devil's Bridge," of three arches—two of 55 ft. span and one of 28 ft. Its history is lost in obscurity, but it is known to have existed before 1275. The Church of Kirkby Lonsdale, a very large fabric, has three arcades and contains some good Norman work in the west and south porch doorways and the western portion of the nave arcade: the piers of the latter are "scored" in similar fashion to the Durham work. The east window is a beautiful example of lancet.

The Hall at Ark is a massive-looking house with mullioned windows and the form of circular chimneys peculiar to the North country. It dates from the sixteenth century and has a later doorway and a panelled room, with a nice wood chimney-piece.

Cartmel Priory Church, the only portion remaining, except the gatehouse, of what must at one time have been an establishment of considerable extent, is of cruciform plan, and possesses many features of great interest. The most singular of these is perhaps the tower, which is a square raised upon the transitional Norman crossing, with an upper square stage placed diagonally to the lower one; the method by which this is accomplished, of building arches across the angles of the lower tower, should be examined. The interior of the choir is very fine, the transitional Norman arches being well preserved; there are also Early English and Perpendicular insertions, the east window being of the latter period and of great width and height. A sketch book could easily be filled from the choir stalls alone: the lower portion, or stalls proper, is of Perpendicular period and has some very good misereres. The upper or screen portion, which extends along two sides and across the entrance to the choir, was added in 1620 and is a very fine example of Renaissance work; the vine and emblems of the Passion are chiefly employed as ornament, which is very profuse. In the south aisle is the monument to some members of the Harrington family, though which particular ones is a source of perplexity to antiquaries. The monument has two recumbent figures of a knight and his lady and remains of some other sculptured figures, and altogether is of an unusual design. The monument at the west end, to the memory of the late Lord F. Cavendish, was designed by Messrs. Austin & Paley, the figure being by Mr. Boehm.

Holker Hall, one of the residences of the late Duke of Devonshire, and now of Mr. V. Cavendish, M.P., is a modern mansion of very dignified appearance, standing in a well-wooded park. The greater portion, containing the principal apartments, was built from Messrs. Austin & Paley's designs, after the fire, which destroyed most of the original house. The house, with its fine ceilings, chimney-pieces, &c., is conceived in the spirit of the best old work.

Borwick Hall, a very picturesque manor house of the time of Charles I., is illustrated in "Nash's Mansions." It is approached through a gatehouse, and has a balustraded terrace. The panelling inside the house is very plain. A portion of the house is used as a farmhouse, and the rest is empty.

Beetham Church possesses a tower which is characteristic of the district. The church itself was restored by Messrs. Austin & Paley some years ago. (These architects seem to have done a good deal of restoration work in the district, and with happy results.)

Levens Hall is very well known for its formal gardens, laid out by Beaumont (an illustration may be found in "Nash's Mansions"); but probably fewer are aware of the wealth of the interior in rich panelling, carved mantels,

and plasterwork. The house dates from the time of Henry III., but has been altered by each of the two succeeding families, as may be seen by the various styles, and dates on the arms, &c. Levens garden, with its elaborate array of clipped trees and shrubs, is cited as a notable example of the "Formal Garden," in the recent well-known books on the subject by Mr. R. T. Blomfield and the late Mr. Sedding.

Samelsbury Hall is a half-timbered mansion, the only example in the town. The ancient portion remaining is the great hall, with open timber roof, and the two-storied chapel (now used as a sitting-room) which probably date from the end of the fourteenth century. The interior has been much mutilated, under the name of "restoration," by the insertion of a sham minstrel's gallery, which had evidently never existed in the original work. There are some remains of the original woodwork however.

Livesey Hall, near Blackburn, is a good example of the smaller type of stone-built hall, and dates from 1608. Judging from the date panels, it appears to have been built in three different sections. A view of it from the pen of Mr. Harrington was exhibited in the Royal Academy of 1890.

Hoghton Tower presents a great contrast to the last-named place, being of great extent and bold situation. With the exception of Haddon Hall, which it somewhat resembles, there are few Elizabethan halls in the country that can compare with it for picturesque-ness. It consists of buildings grouped around two quadrangles, the lower one, which is entered through a gate-house (one of the oldest portions), is about 130 ft. by 108 ft., and has a sort of inner terraced court, approaching the level of the upper courtyard by a flight of steps. Around the lower quadrangle are grouped the kitchen and servants' quarters, and stables. The upper quadrangle is 70 ft. square, with the great hall on the north. This hall is, perhaps, the main feature; it has a flat ceiling and very fine bay windows. On the east side are the rooms said to have been occupied by King James I. when he was entertained here in 1617, on the occasion described by Harrison Ainsworth in one of his novels, "Lancashire Witches." After becoming dilapidated, and being abandoned as a residence, Hoghton Tower was judiciously restored by Messrs. Austin & Paley some years ago, and, at the present time extensive alterations are being carried out by Sir James de Houghton under the supervision of Mr. Oliver, architect, of London. We published a view of the inner courtyard, from the pen of Mr. Langham, in the *Builder* for Oct. 4, 1890.

In regard to Furness Abbey we need scarcely say anything, as it is too well known through publication, and we gave illustrations, plan, and a description of it in the *Builder* of July 6, 1895, forming No. XIV. of the series of "Abbeys of Great Britain." It may be sufficient to remark here that the remains date from about 1160 to 1400, with portions of every style, noting particularly the very beautiful chapter house remains, and the sedilia and infirmary.

The church at Lancaster is in the Perpendicular style, with an uncommonly long choir, the interior effect of which is very fine. At the eastern end are some very elaborately carved stalls of fine detail, said by some to have been brought from the neighbouring Abbey of Cocksands. Of this abbey (about seven miles from Lancaster, at the mouth of the Lune), there still remains the Early English chapter house. Cockerham Church, with a good tower is near.

Lancaster Castle has gone through many changes, but still retains much of interest, notably the Norman keep and the entrance gateway tower (the latter mentioned by Rickman as one of the finest examples in the country). The gateway was built about the twelfth century, and resided here. The well tower and Adrian's tower are of Roman origin. The Assize Courts form part of the castle block. The Shire Hall is one of the finest halls of justice in the country.

Lancaster itself is not rich in ancient architecture, but many "bits" may be found, such as door-heads and hoods, the almshouses in King-street, and good examples of modern work in the bank and the Storey Institute, &c. (Messrs.

* The Royal Albert Asylum, and the new work at the Ripley Hospital (including chapel, schools, &c.), also the Royal Infirmary, all the work of Messrs. Austin & Paley, are near the town on the south side.

Austin & Paley, Architects), and the Catholic church with its fine spire, by the late Mr. Paley, and the additions to the presbytery, and new schools, recently added.

Evening visits might be paid to Heysham, near Morecambe (five miles) where the ancient Norman Church and Saxon ruins, with the ancient sculptured stones and crosses and rock-cut graves, form objects of interest. In Higher Heysham, close by, is the old Hall, a very picturesque gabled house, which is worth sketching.

COLLAPSE OF A NEW FRENCH RAILWAY BRIDGE.

A MOST unfortunate result attended the testing of a newly-constructed railway bridge over the river Adour, near Tarbes, in the Hautes Pyrénées, on the 17th inst. For some time past the inundations that have occurred in the South of France have done immense damage in this district, and a little while ago the bridge which carried the "Chemin de fer du Midi" over the river was—with the exception of its abutments—completely washed away.

The bridge, which was of ordinary plate-girder construction, was some 140 ft. long, supported near the middle of the river by a masonry pier. This structure being carried away by the floods, it was only natural that the railway company should desire to be in a position to resume their traffic at the earliest possible date, and consequently they applied to the Government to allow the military engineers to construct a new bridge on the Marcellie principle—a type of construction named after its inventor, General Marcellie.

This form of bridge has often been most successfully employed in similar cases, since the great rapidity with which it can be erected makes it particularly serviceable for such occasions, as well as for military operations. The bridges are composed of several "sections," all of which are more or less complete in themselves, and so arranged and prepared that they are capable of being rapidly bolted together to form a structure of the required length. These "sections" are of mild steel, and are kept in stock, in large quantities of varying sizes, at the Government workshops at Versailles, and when it is desired to construct a bridge of this type, they, together with everything required for their erection, as well as the necessary men, can be despatched at very short notice.

In the case under consideration the Minister of War gave his sanction for a bridge of this kind to be built on the 7th inst., and at eight o'clock in the evening of the same day the bridge complete, with tools and men, in fact everything needed for carrying on the work, left Versailles in a special train.

On the 9th inst. it had been unloaded at the site, and a start had been made to connect the various sections together in such a way as would allow the girders being rolled forward over the river as the work progressed.

Whilst the military engineers were thus constructing the steelwork of the bridge, the officials of the railway company were engaged on repairing the abutments which had been damaged by the floods, and so well was the work pushed on, that on the 17th inst., or only seven days after it had been commenced, the entire structure was completed and ready for testing.

Altogether the erection was a most interesting piece of work, and furnished those engaged upon it excellent experience likely to be of great value to them in times of war. The importance also to the railway company of being able to resume their traffic after so short a delay, instead of being forced to wait six to eight weeks for a new bridge of ordinary construction, cannot be overrated.

Before allowing the regular passenger service to pass over the structure, the company subjected the bridge to their usual tests. These consisted of running a heavy engine over the bridge, in the first instance, and it is said that under this load nothing unusual was observed, and no sign of weakness manifested itself. After this, a more severe test was resorted to, two locomotives coupled together, and followed by a train of loaded wagons, were run on the bridge, but these had not proceeded very far before the whole structure started to one side, and ultimately gave way; the two locomotives, with the rest of the train and the bridge itself, falling into the river. Unfortunately, there were at the time some twenty persons on the bridge, and all these were more or less seriously

hurt, and it is feared that at least two may succumb to their injuries.

What was the cause of the catastrophe is at present unknown. The test load was heavy, amounting in all to some 160 tons, but it cannot be said to be excessive, as a train with two locomotives might at any time pass over the bridge under ordinary working conditions, and the company were certainly right to test the structure with such loading.

We shall be anxious to know the result of the inquiry that has been instituted to ascertain the cause of the mishap, but we cannot help thinking that the cause will prove to be more in the nature of an accident than of any neglect on the part of the French military authorities, whose high ability is universally recognised.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION.—The Architectural Association made their last summer Saturday visit on Saturday last to Oxford. The party numbered twenty-four, and included the President, Mr. Hampden W. Pratt. The following buildings were specially visited:—The New Municipal buildings and Public Library; the Cathedral; St. John's College; the Radcliffe Library (for general view of city); Brasenose College; St. Mary's Church; the Divinity School and Convocation House; New College; Merton College, and Magdalene College. Mr. H. T. Hare explained the arrangements of the New Municipal Buildings and its principal features, and afterwards took the party through the offices, council chamber, mayor's parlour, assembly hall, town hall, sessions court, and public library. Mr. N. W. Harrison acted as guide to the colleges, &c., and much interest was taken in the recent work of Messrs. Bodley and Garner. Basil Champneys, Jackson and Wilkinson Moore.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The members of the Plymouth, Devonport, and Stonehouse branch of this Society made an excursion to Plympton on Saturday, the 24th inst. The church of St. Mary, built in the Decorated and Perpendicular styles, consisting of a chancel, north and south porches, a fine tower containing eight bells, a spacious nave with two side aisles, and two exterior aisles, which were anciently chapels, was inspected by the party. Mr. R. A. Mill (Plymouth) conducted the party, in the unavoidable absence of the Chairman (Mr. C. King). A very pleasant and instructive afternoon was spent.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held at the County Hall, Spring-gardens, on Tuesday, Dr. W. J. Collins presiding.

Loans.—On the recommendation of the Finance Committee the following loans were sanctioned:—£7,450, to the Islington Vestry for electric lighting works; 2,100, to the Strand District Board for wood and asphalt paving; and 1,000, to the Guardians of the Fulham Union for alterations in the relief offices and workhouse.

Works Accountant.—The Finance Committee reported that under the Standing Order of July 20 they had considered the desirability of making arrangements for the carrying out of the duties of Works Accountant. The Committee was of opinion that the book-keeping staff should at once be separated from the clerical staff under the manager, and placed under the control of Mr. Bundy, who had been in charge of this branch of the work since December. As these arrangements should be of a temporary character, the Committee considered that Mr. Bundy, whose salary was now 225*l.* a year, should be styled "Acting Works Accountant" and be paid at the rate of 250*l.* per annum. They recommended "That Mr. H. W. Bundy be temporarily appointed Acting Works Accountant, and that he be paid at the rate of 250*l.* per annum."

This was agreed to, as was a further recommendation that Mr. Bundy be granted 1*l.* for extra work and increased responsibility during December and January last.

Arbitration on Jobbing Works.—The General Purposes Committee reported that in July last year the Works Committee, in submitting to the Council the accounts for jobbing works which had been completed during the year ended March 31, 1896, stated that there were six accounts outstanding, the schedule value of

which amounted to 2,713*l.* 2*s.* 1*d.*, but which the architect declined to certify unless the total was reduced to 2,444*l.* 10*s.* 8*d.* The amount in dispute was therefore 268*l.* 5*s.* 5*d.* The Council, on the recommendation of the Works Committee, referred it to the General Purposes Committee to settle the points in dispute with regard to the schedule prices of the jobbing works referred to. Subsequently the Council adopted a resolution authorising the General Purposes Committee to submit the dispute to outside arbitration. The Committee now reported that before they could proceed with the appointment of arbitrator, the Special Committee of Inquiry into the Works Department was appointed, and, in the circumstances, it was deemed desirable to postpone the question of arbitration on the points in dispute between the architect and the late manager until the Special Committee had reported. Eventually, the accounts were settled without going to arbitration by the allowance of 64*l.* 5*s.* 1*d.*, and by disallowing the difference, 204*l.* No further steps were necessary, and the Committee recommended that the reference be discharged. This was, on the motion of Mr. Beachcroft, adopted.

Buildings of Historic and Architectural Interest.—The General Purposes Committee reported having proceeded to give effect to the resolution of the Council of January 21, 1896, instructing them to consider and report in the case of the contemplated destruction of any building of historic or architectural interest what course of action the Council should adopt. At a conference which had been held in various institutes and societies interested in the subject resolutions were passed embodying the following points, viz.:—(1) That a register or list be made of buildings of historic or architectural interest in London; (2) that it was desirable to form a general Committee to include representatives of the different societies interested in the matter, and that the Council have a representative on that Committee; (3) that the existing Committee for the Survey and Registration of the Old Memorials of Greater London having already made a register of buildings in the East End of London, be requested to continue its work, with the view to similar registers being compiled for the rest of London; and (4) that the General Purposes Committee be requested to consider the desirability of the register being printed from time to time by the Council, with suitable drawings and illustrations. The Committee now reported that although they were not now in a position to bring up definite recommendations on these resolutions, yet they thought that steps should be taken without delay in the direction of printing the register referred to in resolution 1. The particulars for the registers had been completed, so far as the parishes of Bow, Poplar, and Bromley were concerned, the information being the result of the complete surveys of the parishes, and contained a record of each building which had hitherto had historic or architectural interest, giving particulars, situation, date of building, and historical matters of interest attached to the building. There were architectural drawings both of the building and of ornamental details in those cases where such information was worth preserving. The registers, plans, and drawings would, the Committee understood, be presented to the Council, free of cost; but it was obvious that they would lose much of their utility if they remained in the possession of the Council without being printed. The society were continuing their labours in other parts of London, and from time to time would present to the Council further portions of the register, compiled on exactly the same lines as had been adopted for the three parishes now completed, and thus, in course of time, the whole of London would be surveyed in the manner now being proceeded with. The Committee was of opinion that the opportunity of securing such valuable and interesting information should not be lost, and hoped the Council would see its way to authorise the expenditure necessary for printing the register. The sum of 100*l.* would be more than sufficient to cover the cost of printing the manuscript in hand at the present time. They accordingly recommended that an expenditure up to 100*l.* be authorised for the purpose of printing the register referred to.

This was unanimously adopted. The Crystal Palace.—On the recommendation of the General Purposes Committee the Council resolved to inform the Camberwell Vestry that it could not accord its support to the project for acquiring the Crystal Palace as a public

institution for the enjoyment of the people for ever.

Diamond Jubilee Stands.—The General Purposes Committee presented a balance-sheet of the receipts and expenditure in connexion with the stands erected by the Council on the occasion of the Diamond Jubilee procession. Four stands were erected, affording accommodation for 2,719 persons, and the amount received by sale of tickets was 3,601*l.* The expenditure amounted to 2,862*l.* 11*s.* 5*d.*, leaving a credit balance (estimated) of 738*l.* 13*s.* 7*d.*

The Barking Outfall.—On the recommendation of the Main Drainage Committee the following was agreed to:—That the Council (a) sanction the construction of two additional sludge-settling channels and other incidental work at the Barking outfall in the manner proposed by the Engineer, at an approximate cost of 18,000*l.*; (b) that the Engineer be instructed to prepare the necessary specification, and that the drawings be lithographed and the quantities taken out at a cost not exceeding 250*l.*

Lighting Embankment and Bridges.—A recommendation of the Highways Committee, "That the Highways Committee be authorised to invite tenders by public advertisement for the erection of the generating station and for the supply of the necessary machinery, mains, lamp standards, and other plant for the electric light installation for the Victoria Embankment and the Westminster and Waterloo Bridges, authorised by the Council's General Powers Act, 1893, subject to such modification as might be agreed upon," was, after a short discussion, referred back; as was also a further recommendation authorising the same Committee to invite tenders for repairing the carriage-way of the Embankment.

The Millbank Estate.—The Housing of the Working Classes Committee submitted plans, specifications, quantities, and estimates (amounting to 11,653*l.*) for the construction of sewers and roads, with temporary surfaces, on the Millbank Estate, and they were ordered to be referred to the Manager of the Works Department to carry out the work without the intervention of the contractor.

On the recommendation of the same Committee, it was, however, agreed: That the estimate of 14,900*l.* submitted by the Finance Committee be approved, and that the Housing of the Working Classes Committee be authorised to invite tenders for the erection of Hogarth-buildings, Millbank Estate, and to accept the lowest satisfactory tender, subject to such tender not exceeding the amount of the architect's estimate, and that standing order 182 be suspended to enable this to be done.

Similar recommendations were made with regard to several large blocks of workmen's dwellings proposed to be erected on the Boundary-street site.

The Works Department.—The Housing of the Working Classes Committee recommended that the erection of Clifton Buildings (estimated to cost 17,943*l.*) should be left to the Works Manager.

Lord Onslow moved, as an amendment, that the work be put up to public tender. He declared that the Council had lost its confidence in the Works Department in so far as large jobs were concerned.

Lord Dunraven seconded.

Mr. McKinnon Wood, Chairman of the Committee, resisted the amendment, declaring that the object of the noble Lords was to give the department the class of work which could not possibly be executed to advantage.

The amendment was rejected by forty-eight to forty-three, and the recommendation adopted.

Safety of Bazaars, &c.—The Theatres and Music Halls Committee reported having considered what security was afforded the public by the existing law against fire and panic in charitable bazaars and other similar gatherings. It was pointed out that the Council had no control over permanent buildings not licensed by the public for entertainments, except in the case of theatres licensed by the Lord Chamberlain, and then, of course, only in regard to their structure. The District Surveyor had certain powers in connexion with the erection of a public building, but they ceased six months after the premises had been completed, and, if they were subsequently used for bazaars and other similar gatherings, the Council had no control in the matter, even if the internal arrangements for the entertainments were of the most objectionable character. It was, of course, a well-known fact that bazaars

and public meetings were held in premises that were quite unsuitable for such purposes, but as the law at present stood no steps could be taken in the matter by the Council. The Council could now only grant licences for music or music and dancing once a year, but if it had additional power to grant such licences, and licences for public entertainments of any description at any time during the year, such as for one or two nights or for periods of longer duration, but less than one year, and if it were made illegal to hold any entertainments to which the public would be admitted without a licence, the Council would have proper control over all places, as it could attach conditions to the granting of a licence, as it now did in regard to temporary licences for stage-plays, that would render the building in which the gatherings took place practically safe. This could be effected by making Part IV. of the Public Health Act, 1890, apply to London. Some slight amendments would, however, be required to the Act in order to make it include all entertainments to which the public were admitted. It was not desired to interfere in any way with private entertainments. They recommended "That it be referred to the Parliamentary Committee, after conference with the Theatres and Music Halls Committee, to take such steps as may be necessary to obtain an amendment of the law to enable the Council to grant licences for entertainments to which the public are admitted at any time during the year, as above suggested."

This was adopted.

COMPETITION.

TOWN HALL, CARDIFF.—Mr. Alfred Waterhouse, A.R.A., has been elected assessor in the competition for the new Town Hall, Cardiff. In expressing his willingness to act, Mr. Waterhouse suggested to the Committee that it was undesirable that the proposed 5 per cent. commission to be received by the successful competitor should include travelling expenses. Every inducement, he said, should be afforded to the architect to devote as much time as possible for personal supervision of the building operations, and nothing should be done to handicap the ablest architects obtainable in the country. The suggestion was adopted. An extension of time has been notified, the plans having to be in by December 4 instead of October 31, as previously proposed.

BUILDERS' BENEVOLENT INSTITUTION:

ANNUAL MEETING.

The fiftieth annual meeting of the Builders' Benevolent Institution was held on Thursday, July 22, at the offices, 35, Southampton-row, Bloomsbury. Mr. W. Scrivener (Vice-President) occupied the chair, supported by Messrs. Thos. Stirling, Thos. Hall, E. S. Rider, C. Ansell, F. Foxley, E. V. New, and others.

Major Bruton (the Secretary) read the annual report, which stated that the income during the past year had been sufficient for the maintenance of the pensioners, and, believing it would meet with the approval of the subscribers, the Committee admitted the whole of the thirteen eligible candidates to participate in the benefits of the Institution. Although the large increase in the number of the pensioners entailed much responsibility, the Committee were of opinion that the necessary income would be forthcoming to meet the increased expenditure, particularly as the advanced age of the applicants required immediate relief. Much of the success of the year had been owing to the energy of the President, Mr. Henry Holloway, to whom the Committee offered their hearty acknowledgments and gratitude. The subscribers were asked to kindly bear in mind that the present was the fiftieth year since the foundation of the charity, so that a largely increased contribution would be hoped for on so special an event. The Committee desired to offer their thanks to the stewards of the annual dinner, and to the Hon. Auditors. Much regret was felt at the loss by death of Sir William Lawrence and Sir James Clarke Lawrence, Bart., both Past Presidents of the Institution, the latter being also a Trustee. The Committee announced that Mr. Charles Wall would be the President for the ensuing year, and that the annual dinner would take place in Carpenters' Hall on Thursday, November 25.

On the motion of Mr. New, seconded by Mr. Foxley, the report and balance-sheet were unanimously agreed to.

Mr. T. Stirling next moved "That the Committee be empowered to give temporary relief in cases of urgency to selected but unsuccessful candidates for the charity to an amount of not exceeding 5*s.* to any one candidate." At the close of the elections there had often been a good deal of disappointment among the unsuccessful candidates, and it had been considered that this would be a generous course to pursue.

Mr. New seconded the resolution, which was agreed to *nem. con.*

On the motion of Mr. Hall, seconded by Mr. Stirling, a cordial vote of thanks was passed to Mr. Henry Holloway for his support and services during his year of office.

Thanks were also given to the Trustees, to the Treasurer, Mr. Geo. Plucknett, J.P., and to the Committee, the retiring members being re-appointed, with the addition of Mr. Henry Holloway. Thanks were also passed to the Auditors.

Mr. Stirling proposed Mr. Charles Wall as President for the ensuing year, which was seconded by Mr. Hall, and carried by acclamation.

A vote of thanks to the Chairman closed the proceedings.

Correspondence.

To the Editor of THE BUILDER.

PETERBOROUGH CATHEDRAL.

SIR,—I have just read your note to Mr. Prior's letter in the *Builder* of to-day. In it you say "It is common talk that some of the most violent opposition from those who could not be called 'ignorant' arose from personal animosity to Mr. Pearson." It is the habit of common talk to say foolish things, and when the common talker is so hopelessly incapable of understanding the matter under discussion as are those who prefer a smart new copy to a genuine original work of art, he is no doubt hard put to it to account for the persistence of better informed men about matters which to him are of little importance. But the statement that they who opposed the proposal to pull down the front of Peterborough Cathedral were moved to do so by personal animosity to Mr. Pearson is only saved from a harsher term by its absurdity; and I wonder much that it has been allowed to appear in a respectable newspaper. It has, however, appeared, and, as one of those whose names were attached to the specification set forth by the Society of Antiquaries and the Society for the Protection of Ancient Buildings, I ask you, sir, for space enough to assure Mr. Common-talker, and all his kind, that, incredible as it may seem to them, my only motive was the wish to save that splendid front from a mischievous operation which, as a professional man, I was convinced was quite unnecessary. I answer for myself only, but I believe the same is true of every one who worked with me. As for Mr. Pearson, to most of us he was known only by his works. Beyond them he was only a name with which nobody had any quarrel. J. J. MICKLETHWAITE.

* * * *Qui s'excuse s'accuse.* As not the slightest reference was made to any particular person, most readers will draw their own conclusions from Mr. Micklethwaite's hurry to fit the cap on his own head. His sneer at those "who prefer a smart new copy to a genuine work of art" is a characteristic specimen of the *suggestio falsi*. Mr. Micklethwaite knows perfectly well that those who opposed the foolish clamour of the Society of Antiquaries did not want "a smart new copy;" they never suggested such a thing, and no such thing has been done. They wanted the work of reparation carried out in a rational manner without danger to the building and without risk to life and limb, all which would have been involved in the Society of Antiquaries' foolish and dangerous proposal. The actual appearance of the rebuilt gable is an ample and sufficient answer to all malcontents, or ought to be so.—ED.

USE OF SLATES IN LONDON.

SIR,—I have lately been asked the question "when were slates first used in the City of London for roofing purposes?" Being quite unable to give an answer I thought that perhaps some reader of the *Builder* might be able to supply me with a date. I should therefore be much obliged if you would publish this letter. F. F. G.

CARBIDE OF CALCIUM.—The Acetylene Illuminating Company draw attention in a circular to the fact it has been prescribed by an Order in Council held on the 7th inst. that 5 lbs. of carbide of calcium may be kept without a licence, provided it be kept in separate substantial hermetically closed metal vessels containing not more than 1 lb. each.

Illustrations.

THE CLOISTERS, SALISBURY.

THE cloisters at Salisbury have often been the subject of picturesque sketching; a careful measured drawing of three bays of the work, like that of Mr. Scorer which we publish in this issue, has a different kind of value. It shows the extremely refined character of the design, and the almost classic symmetry and completeness with which each feature takes its place in the design as subordinate to the whole. It may be described as an illustration of a Gothic "Order" almost as complete in its logical development and proportion as a Classic Order.

HÔTEL MÉTROPOLE, FOLKESTONE.

This new hotel stands in its own grounds of about four acres, and is bounded by roads on all sides, the south front by the Lees having a magnificent and uninterrupted view of the sea.

The building is faced with dark red bricks from the High Broom Brick Company, Tunbridge Wells, and terra-cotta, executed by the Burmantofts Company. The roofs covered with light green Tilberthwaite slates, the dome to centre roof being covered with copper by Messrs. Braby & Co. The constructional iron and steel work—some 700 tons—by Messrs. Drew, Bear, Perks, & Co. The fire and sound-proof floors by Banks' Fire-proof Construction Syndicate, together with all coffered and other ceilings, cornices, encasement to iron columns, &c., which were covered with helical steel lathing—no wood lathing being used throughout the building. The partitions, where not brick, are constructed of iron framing and lathing, encased in solid plaster, and are perfectly fire-proof—a patent of the above Company.

All the staircases and external steps are fire-proof, and executed in Stuart's granolithic concrete. The rooms in roof are fire, heat, cold, and sound proof, being specially finished with Anderson's silicate cotton.

All communicating doors between rooms are removable, and are double and sound-proof. All sashes are removable, and can be cleaned inside rooms, and are fitted with N.A.P. patent fastenings.

The warming and ventilation, cooking apparatus, complete installation of electric light and bells, and the whole of the engineering work (except lifts) have been executed by Messrs. J. Slater & Co. The wiring for electric light is Andrews' concentric wiring, executed by the patentee for the above firm, as also a complete system of improved telephones for the hotel service. Heating coils are placed in all the principal rooms, halls, and all corridors and landings.

Fire hydrants are on every floor, executed by Messrs. Shand & Mason, with fire alarms in all public corridors. Some 20,000 gallons of water are stored in the set-back roof for drinking, fire, and sanitary purposes, and the tanks can be re-filled by steam pumps at any moment.

The whole scheme of sanitation has been most carefully planned by the architect. There is no drain inside the building. All baths, lavatories, and water-closets are unenclosed and detached from the main building by well aerated lobbies. The plumbers' work and fittings have been executed by Mr. George Jennings, under the direction of the architect. Walls of lavatories, &c., are lined with tiles and glazed bricks; floors, marble mosaics.

The general lavatory, ball-room lavatory, ladies' lavatory, hairdresser's rooms, and staircases to same, have been lined with Burmantofts faience.

In the basement, the kitchen, larders, pantries, service-rooms and offices are lined throughout with glazed bricks—also dado in corridors—and paved with wood block flooring.

The service, luggage, and passenger lifts have been erected by the Otis Elevator Company, with all the latest improvements. The visitors' hall, main staircase balustrade, dining room chimney piece, &c., have been executed in marble by Messrs. Burke & Co, from the designs of the architect. The marble mosaic floors are by Burke and Mainzer & Co.

The carton-pierre enrichments to large and small dining rooms, ball room (Renaissance), drawing room (Louis XV.), billiard room (Spanish Renaissance), were executed by Messrs. G. Jackson & Sons, from the architect's drawings.

The locks were specially made by Mr. J.

Gibbons, every key differing, with a master key for each floor, and a grand master key for the whole building.

The fastenings throughout and the wrought-iron balustrades to all staircases, &c., were executed by Messrs. Richardson & Co.

The electric-light fittings were specially designed and manufactured by Messrs. Osler, under the architect's direction.

The stained glass, and some decorative painting, has been done by Messrs. Campbell, Smith & Co. Two subject panels in the lounge were modelled and painted by Messrs. Moria & Jenkins, and represent "The Arrival of the Princess," and "The Dance."

The whole of the furnishing and equipment of the hotel has been specially designed and executed by Messrs. Smice & Cobay, and the decorations were carried out by them under the directions of the architect.

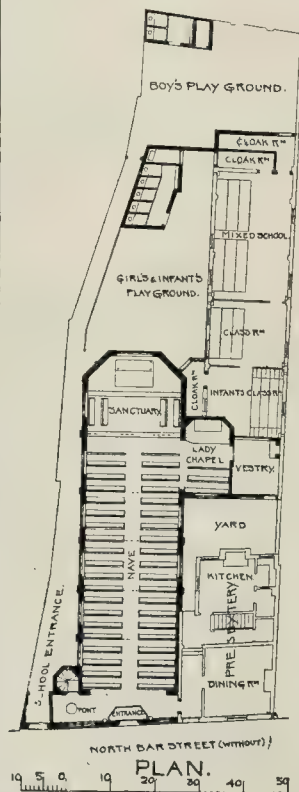
The hotel contains over 250 bed and sitting-rooms, and on the ground floor, arrival entrance and hall, visitors' entrance hall and lounge, entrance to ball-room and suite. Two dining-rooms, reception-room, drawing, reading, smoking, and billiard rooms, and the necessary service-rooms.

The foundations of the hotel were executed by Mr. H. Lovatt, of Wolverhampton, and the building has been erected and finished by Mr. W. J. Adcock, J.P., of Dover, Mr. Chedgely acting as his resident manager.

Mr. W. Woodward and Mr. J. Davies have acted as clerks of works, and the building has been designed and finished at a cost of about 150,000*l.* by the architect, Mr. Thomas W. Cutler, of London.

ST. JOHN'S CATHOLIC CHURCH, BEVERLEY.

The old school buildings which fronted New-walk have been pulled down to make



room for the new church, which will consist of a nave and sanctuary, 82 ft. long by 21 ft. wide.

On the west side of the nave is the Lady Chapel, 17 ft. long by 10 ft. wide, and by the side of this is the sacristy. The church will be lighted by eight traceried windows, filled in with tinted glass in quarries. The roof is an open traceried one of pitch pine. The organ-loft is over the main entrance. Access to it is gained by a flight of circular steps in the bell turret, in which it is contemplated having a peal of tubular bells at some future date.

The front of the church faces North Bar With out. The style of architecture is that of the fifteenth century; the traceried windows, doorways, coping-strings, &c., will be in buff terra-cotta bonded in with the best stock bricks of good red colour. There will be over the main entrance and in the apex of the gable niches, with figures of the patron saints. The church will accommodate about 300 adults. The present old chapel at the back of the site is being converted into a mixed school, according to the requirements of the Educational Department. The buildings are being carried out by Mr. G. Pape, builder, Beverley, from the designs and under the superintendence of Messrs. Smith, Brodrick, & Lowther, architects, Hull.

SKETCHES OF CORNISH TOWERS.

In view of the discussion which has taken place in regard to Liskeard church tower, Mr. Walter R. Jaggard has sent us these sketches of Cornish towers in the neighbourhood of Liskeard, which may be of some interest as illustrating the special character of the church-towers of the district. Mr. Jaggard writes—

"The towers of Padstow and St. Merryn belong to the same type as that of Liskeard; they are bold and sturdy examples, although the first loses some of its boldness from being hidden away behind the quaint old port of Padstow. St. Merryn stands on a hill, but was in a very dilapidated condition when I was there last in 1894. St. Endellion and St. Issey, near the slate quarries of Delabole, are more elaborate examples than the last. St. Minver is a large and well-kept parish church, and is conspicuous in that its tower is surmounted by a graceful spire, an unusual feature in this part of Cornwall. The church at Little Petherick is of Cornish. It is a very quaint but still another departure, and is a very quaint bit of architecture. It is situated on a hill-side, hidden by trees, in the midst of a pretty little village."

"There is a good deal of variety in the churches and towers in this neighbourhood, but the majority are simple, bold, square masses of masonry, with small and few windows, partaking of the natural characteristics both of the country and its people."

INFLUENCE OF MATERIALS ON ARCHITECTURE.

THE illustrations on this sheet have reference to the first and second parts of Mr. Banister Fletcher's paper, published in this and last week's issue. They include an example of Egyptian pylons as derived from the mud wall; of the tombs at Beni-Hassan as a stone reminiscence of the wooden beam; and the Temple at Edfou, as an example of derivation from the reed column. Examples of Egyptian, Assyrian, and Greek sculpture are added, and the Amphitheatres at Rome and Verona as types of Roman building.

These are of course all familiar to most of our readers, but it is convenient to put them in a collective form for reference along with the paper.

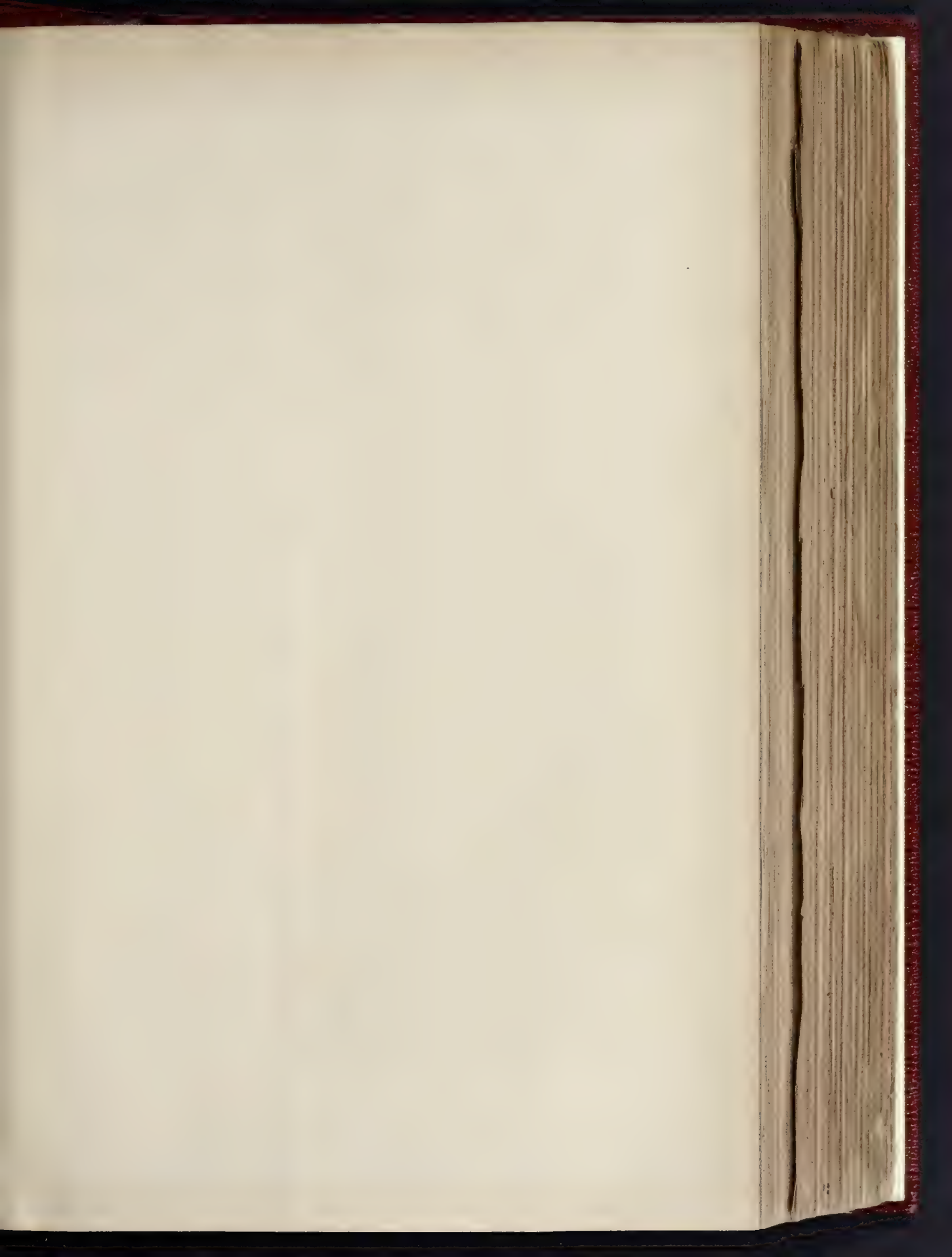
The Student's Column.

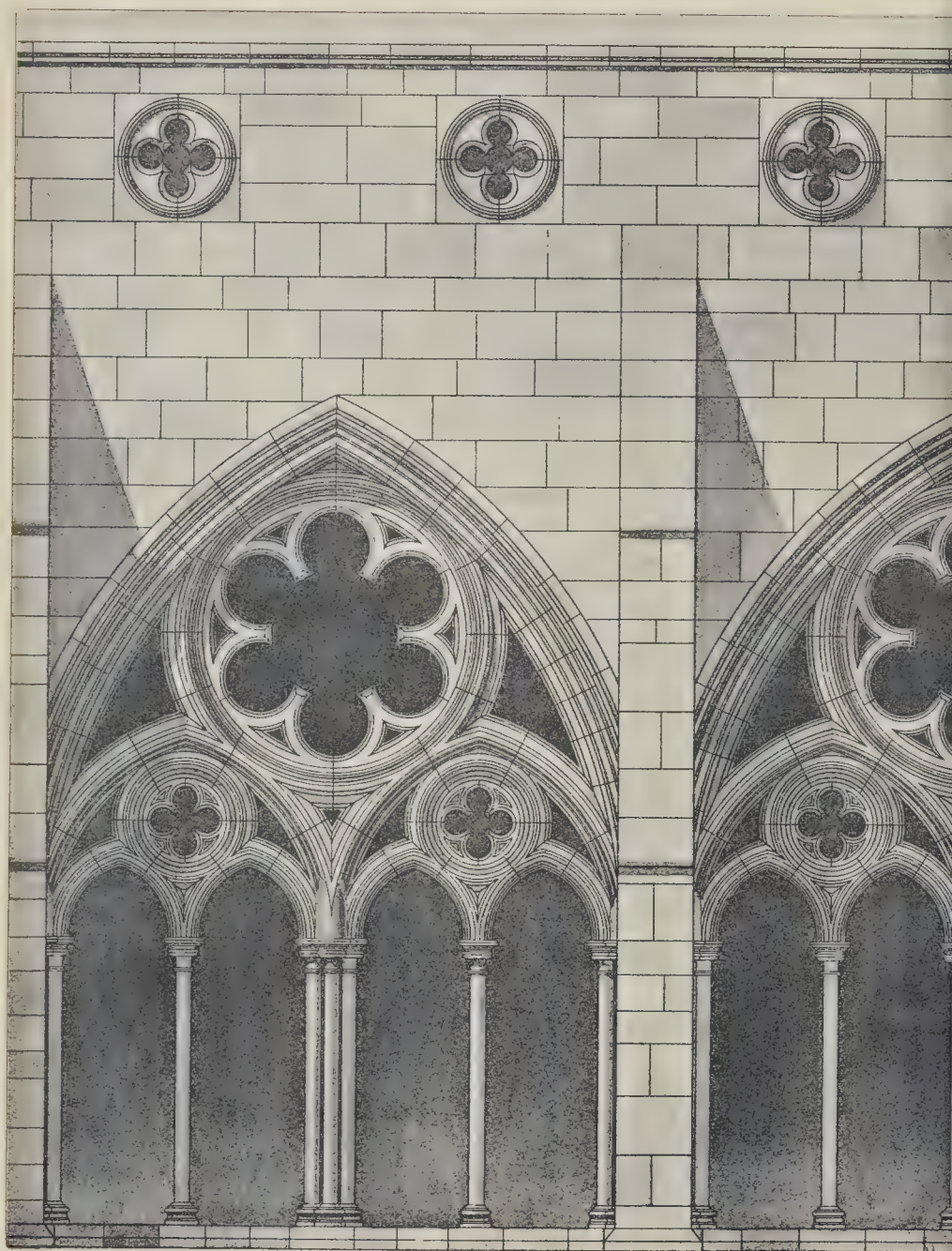
QUANTITIES AND QUANTITY-TAKING.

CHAPTER II.—GENERAL RULES FOR MEASURING.

T may be well, before proceeding to a consideration of the modes of taking the measurements in particular trades, to consider a few general rules that will apply throughout, and also to take note of the forms generally employed in writing the dimensions, for, as will no doubt have been seen by Chapter I., method is a great factor in arriving at such results as are therein set forth as the goal to be striven for by the student.

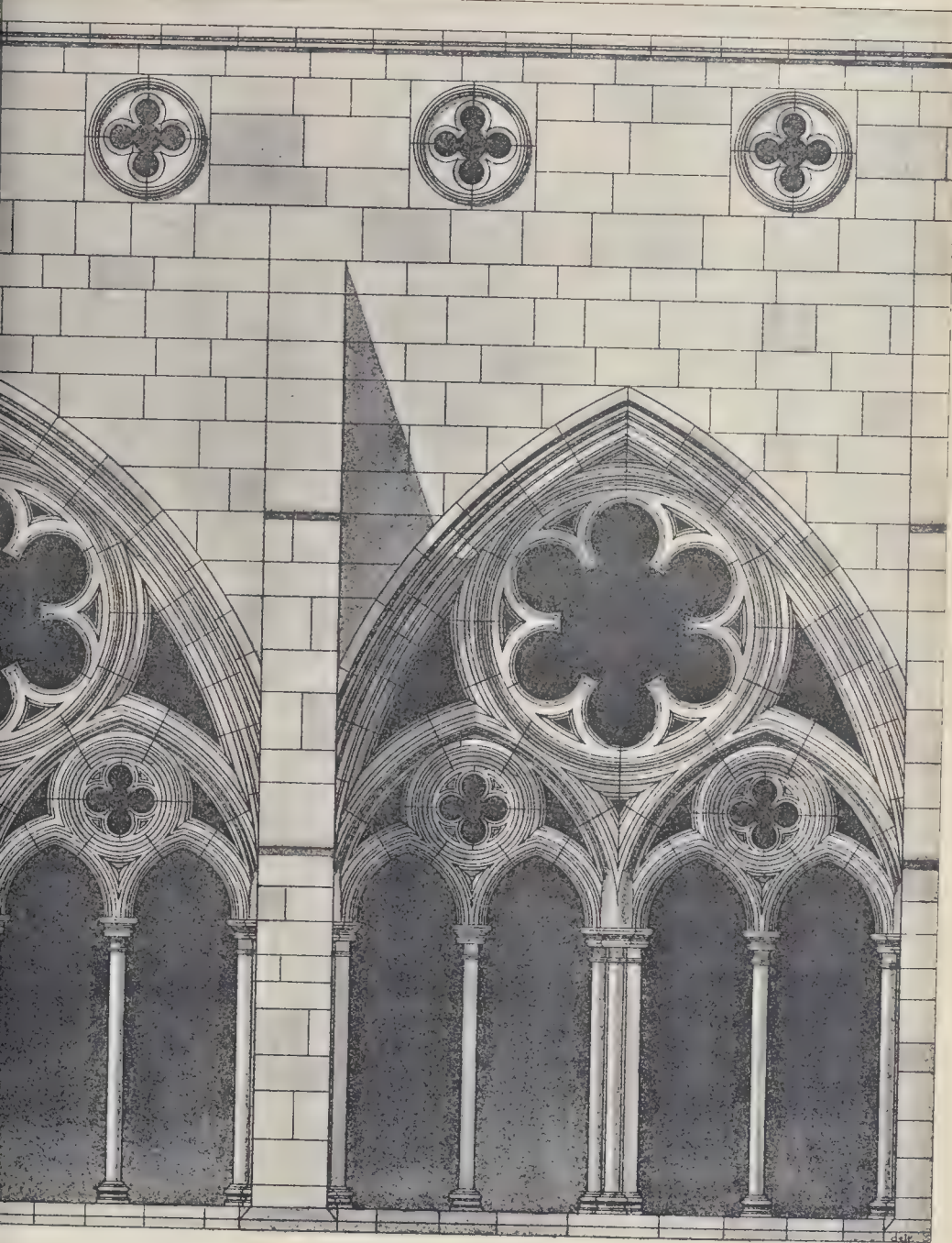
In the first place, there is one general rule that obtains throughout all measuring, and that is the order of booking the dimensions. In the case of superficial dimensions, such as floors or





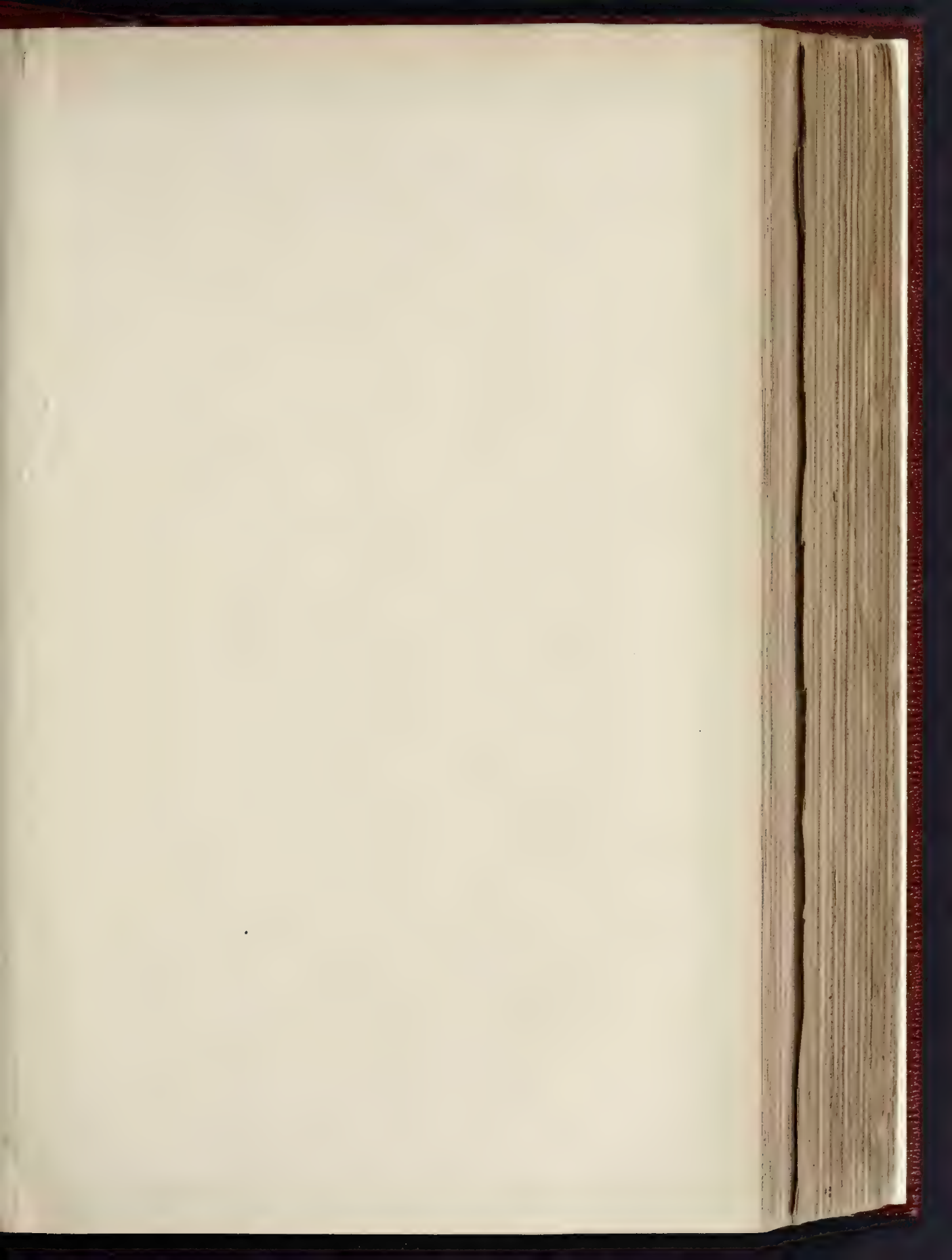
INK PHOTO SPENCE & CO. 485 EAST WARENE STREET, FETTER LANE, E.C.

THE CLOISTERS, SALISBURY: THREE BAYS



George O. Scorer.

MEASURED AND DRAWN BY MR. GEORGE O. SCORER



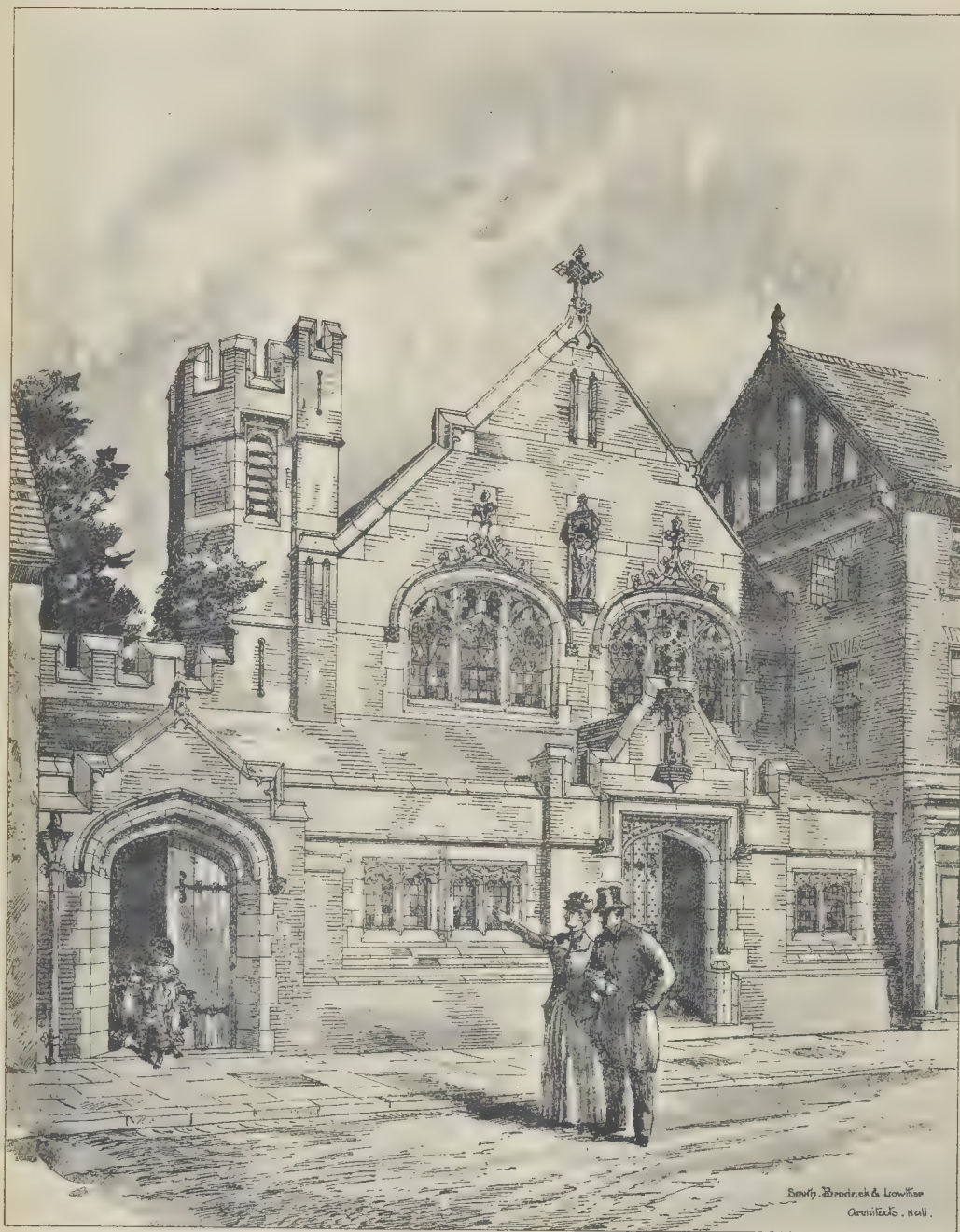


HOTEL METROPOLE, FOLKESTONE

JULY 31, 1897.

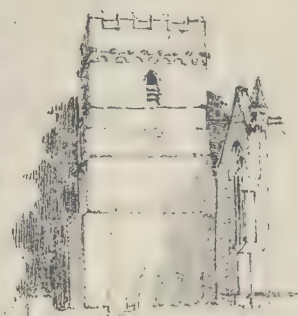


T. W. CUTLER, F.R.I.B.A., ARCHITECT



PROPOSED CATHOLIC CHURCH, BEVERLEY.—MESSRS. SMITH, BRODRICK & LUTHER, ARCHITECTS.

SOME CHURCH TOWERS
IN NORTH WEST OXFORD



• WALTER F. JAGGARD • 1895/4
• Delf. • July • 1897.



Roman Architecture: interior of the Coliseum



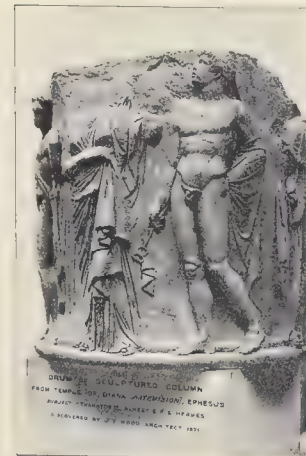
Roman Architecture the Amphitheatre, Verona



Egyptian Walls Reminiscence of the Mud type



Tomb at Beni-Hassan Reminiscence of Timber entablature



Greek Marble Sculpture



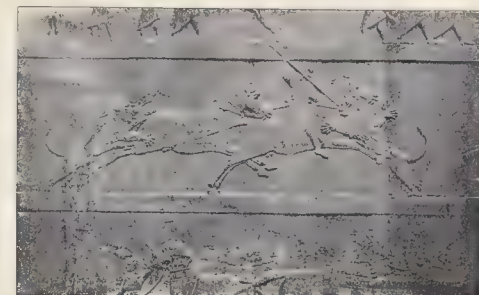
Assyrian Sculpture: monolithic man-headed lion



Temple at Edfou: Early Reed and Lotus Capitals translated into granite.



Egyptian Sphinx: a granite monolith.



Assyrian Sculpture: continuous wall treatment in alabaster slabs

plastering, or in anything that is billed as a superficial item, the first dimension booked is always the length, and the second the width or height. In the case of cubes, the first dimension is the length; the second the width, and the third the depth or thickness; so that in looking through the dimensions afterwards the surveyor can always see at a glance, by referring to the drawings, the item to which a particular dimension refers. The importance of this will be readily understood, say, in the case of stonework. If the dimensions are not written in some such order as that mentioned it would mean that each would have to be tested as a speculation; whereas, knowing that the length is the first dimension booked minimises this difficulty by limiting the test to the one dimension first.

Therefore, 4.0
3.0
2.6 would mean that the particular item here booked was 4 ft. wide on the face, 3 ft. from front to back, and 2 ft. 6 in. deep.

All dimensions are written as shown in the example given in Chapter I., with the number of times that the item will repeat. If, however, the surveyor finds, after completing a series of dimensions, that—say on another floor—he has still others identical with these, he resorts to a system of addition known as "dotting on." Example:—

4	3.0	2 in. 4-panel moulded
2	7.0	both sides door
		first floor
		2 added for second floor*

which would mean that the item was multiplied by 6 (the 2 and 4 of first column, added together).

Occasionally it is the surveyor's good fortune, after completing a series and "timing" his dimension, to find another series of exactly the same description and number; he then goes still a little further with the "timing." As a variation we will take the case of stonework:—

2	4	5.0	Box ground stone sill.
	2	1.2	Ground floor front.
		1.0	2 added for end elevation.
			2cd. for first floor.*

In this case the dimension is multiplied by 12. If, however, the second floor contained the same number and description 1 is dotted on to the 2 as follows:—

2	4	5.0	Box Ground stone sill.
1	2	1.2	Ground floor front.
		1.0	2 added for end elevation.
			2cd. for first floor.*
			Also second floor.

when the dimension is multiplied by 18.

(In the foregoing examples one dimension only is taken out of a series or group, as being sufficient to illustrate the principle.)

This "dotting-on" and "timing," judiciously used, is a great saver of time in taking off, but should only be resorted to when the whole or nearly the whole of the dimensions in a series or group can be dealt with. If there is any material variation in any of the dimensions or descriptions of many items in a group it is far better to write the whole down again than to go in for piecemeal adding on, as in the case of this piecemeal addition the trouble of tracing one's dimensions at a later date is much increased, and the little time saved at the outset is frequently lost over and over again in the event of some alteration, necessitated possibly by some change in the idea of the architect during the progress of the work. This change of ideas is by no means uncommon, as many surveyors can testify to their cost. The same trouble arises again when it is necessary to omit an item complete at the settling of the accounts.

The question of "collections" or "wastes" as they are called is a very vexed one, some surveyors taking a very strong view that "collections" should be made wherever possible, others taking just as strong a view that they should be avoided. Where, however, collections are made, care should be taken to make full notes as to the origin of the various dimensions.

These collections are written at the extreme right hand of the description column of the dimensions thus:—

Drawing-room N. 14.6	
E. 7.9	
	9
	4.6
	9
	7.9
S. 14.6	
W. 20.0	
Dining-room N. 16.6	
E. 14.6	
S. 7.0	
	3.0
	9.6
W. 17.6	
	138.6
	11 x 1½ moulded skirting.

The dimensions making the collection are termed "wastes."

These wastes should be checked both as regards the casting, and the writing of the dimension by the person squaring the dimensions, and to enable this to be done the "taker off" should be careful to write his "wastes" so distinctly that there shall be no difficulty in tracing the dimensions in their proper positions.

When measuring a triangle, such as a gable, although it is obvious that the area is half that of a complete rectangle containing the triangle, it is better to write the dimension the full length and height, and in the "timing" column to halve it rather than to halve the width or height before booking.

Example:	
3½	10.0
	6.0
	30.0
Would be preferable rather than	
	10.0
	3.0
	30.0

Which, although correct in result, does not show at a glance that the dimension is for a triangle.

In booking a dimension to arrive at the area of a circle, such as a ceiling or floor in a circular hall, say 10 ft. diameter, it would appear in this form:—

10' 0"	Lath, plaster, float and set ceiling.
--------	---------------------------------------

If a semicircle it would be written thus:—

10' 0"	Lath, plaster, float, and set ceiling.
--------	--

In these examples, the first would be multiplied by itself, thus 10 ft. x 10 ft. = 100 ft. sup., this again being multiplied by .7854, giving the result 78.54 ft. or 78 ft. 6 in.

In the second example, the operation would be similar, but the result halved.

In the case of a cube which is circular on plan, e.g., the digging for a circular cesspool in which the dimension for the sake of example is 10 ft. diameter and 9 ft. deep, it would be written thus:—

10' 0"	Excavating and carting away.
9' 0"	

The working out would be similar to that described for the circle, and the result multiplied by 9 ft. giving the result—706.86 ft., or 706 ft. 10 in.

In practice it is frequently the rule to multiply the result of the square of the dimensions by 0.785 in., thus giving approximately the same result as multiplying by .7854; but in the case of a large number of circles, or in circles of large diameter, it is

better to adhere to the more correct method of the decimal.

It is a good plan, in the event of the surveyor having to settle some point of detail or construction not shown upon the drawings, to make a slight sketch on the margin of his dimensions showing what he has taken. This will be found of great assistance when again referring to the dimensions, as without some such record it is somewhat difficult often at a later date to trace the idea in his mind at the time of taking off.

A point that is frequently lost sight of both by the architect and quantity surveyor is the difference between "p.c." (prime cost) and "l.p." (list price). One frequently sees in bills a sum stated for a certain article at "list price," with no intimation as to the name of the maker or merchant supplying that article, thus giving the parties tendering no clue as to the amount of discount likely to be obtained. It is therefore well to bear in mind that in cases where no maker or merchant's name is specified, the sum provided should be prime cost, *i.e.*, net.

Occasionally it happens that in some items, such as underpinning, it is almost impossible—owing to the difficulty of access—to measure exactly what will be required. In these cases the items should be billed as "provisional" and the items thus billed should be entered in the specification in the same form as in the bill of quantities. Where the bills of quantities form part of the contract this precaution is not necessary, as the whole of the quantities are practically provisional.

Do not endeavour to save trouble in writing descriptions by taking your dimensions "full" to cover the increased cost of particular items, but make the descriptions so thoroughly explain the whole of the work involved. It is often well in cases of this kind to allow the item to appear as a number, with all attendant labours, rather than as a measurement.

The writer in the foregoing preliminary notes has endeavoured to impress upon the student of quantity surveying the absolute necessity of doing his work thoroughly and honestly, and in such a way that it will be a credit to himself and a benefit to his client and to the builder, and he would on behalf of the student of quantity surveying appeal to the architectural student to make his drawings and specifications explain thoroughly his intentions, leaving nothing to the imagination. He will then produce work that will redound to his credit as a business man, keeping down the cost to within reasonable limits by not leaving it to the surveyor to take those unfortunate "covering items," which mean something to cover the cost, whereas if the intention of the architect was clear, it is more than probable that something less costly than what had been included in the "covering item" was what was required. Another point it will be well for the architect to consider, and this will be to his own advantage as well as to that of the surveyor, and that is figuring the drawings, and here again there is a system that will save infinite trouble in the future, viz.: to first of all settle the total outside dimension and work the internal dimensions to this total. One would then not have to contend with those discrepancies that are so frequently found, and form such an element of uncertainty in taking the dimensions.

One final appeal to the architect. In figuring the sizes of openings, please make it distinctly understood whether the dimensions are the sizes of the joinery or between the brickwork. They ought, of course, always to be the latter, but experience shows that the caution is not entirely unnecessary.

Erratum.—In the last number, page 75, line 9, in place of "otherwise" read "and thus."

OBITUARY.

MR. GEORGE ELKINGTON.—We have to record the death of the senior member of the firm of Geo. Elkington & Son, which took place at Worthing on the 23rd inst. Mr. Elkington was in business as an architect and surveyor from 1847 to 1895, for the last twenty years of that time in partnership with his son, as "Geo. Elkington & Son." From 1854 to 1895 he was a Fellow of the Royal Institute of British Architects. He also held for many years the appointment of Surveyor to the Vestry of Bermondsey under the Metropolitan Local Management Act, and was a member of the Court and Past Master of the Coopers' Company. Amongst other works carried out during his partnership with his son (who now carries on the business) were the Bermondsey Town Hall, Rotherhithe Public Baths,

* These entries are merely memoranda as to the reason for the added figures in the first or "timing" column.

interest in connexion with Sanitation will be arranged for those attending the Congress. The Local Hon. Secretaries are Dr. Spottiswoode Cameron (Medical Officer of Health for the City), Mr. A. E. Pearson, and Mr. W. Spinks.

THE LONDON MANUAL.—This, which is published at 125, Fleet-street, is a useful manual (for 1897-8) giving information as to the County Council of London and its various departments and work, and other information as to the Corporation of the City of London, the School Board for London, Lighting, Rating, Asylums, County and Sessions' Courts, Vestries and District Boards, &c., with various statistics as to "Greater London," &c.

CITY AND GUILDS OF LONDON INSTITUTE.—At a meeting of the Council of the City and Guilds of London Institute, held on the 26th inst., the Diploma of "Associate of the City and Guilds of London Institute" was conferred on the following matriculated students, who have this year successfully completed a full course of instruction at the City and Guilds Central Technical College:—*Civil and Mechanical Engineering:* H. W. Hanbury (Siemen's Medal), J. E. Cornish, W. P. Unwin, H. D. Drury, J. B. Willis, M. Jacob-Hood, J. C. Mallin, A. W. Lewis, R. S. Solomon, H. J. Williams, T. Rich, C. E. Shuttle, *Applied Physics and Electrical Engineering:* E. W. Marchant, B.Sc. (Siemen's Medal and Premium), W. L. Waters, F. S. Spier, B.Sc., F. Twyman, E. G. Brown, S. S. Grant, C. Lean, H. M. Kirkby, R. M. Sayers, W. E. Barker, W. M. Nelson, S. L. Smith, H. R. Mott, T. A. Kerr. *Applied Chemistry:* F. Silvester, G. Lessels, A. N. Crosskey, F. J. Jessop, H. J. Winch, E. R. Nind, E. W. Devas.

THE INSTITUTION OF JUNIOR ENGINEERS.—On the 17th inst. a large party of the members of this Institution visited the electric light and dust destruction undertaking of the Shoreditch Vestry, on the invitation of Mr. H. E. Kershaw, Chairman of the Electric Lighting Committee. Under his guidance, assisted by the engineer and the electrician, the visitors were shown over the entire works. At present there are installed six sets of Willars engines coupled to E.C.C. generators, space being left for additional machines; but since the recent opening of the station, orders for engines have been received to such an extent that the full capacity of the complete plant will be needed to meet the demand, and extension of premises has thus already to be contemplated. The system of dealing with the dust-bin refuse appears most complete in its details. Electricity is the motive power for the elevators, raising the stuff to the top of the cells which are fed by the Boulton-Brodie charging trucks, also actuated electrically. The most important item of the installation is Mr. Druitt Halpin's feed thermal storage arrangement, the vessel employed being a cylinder 35 ft. long by 8 ft. diameter. Steam is always being raised in the Babcock-Wilcox boilers by heat from the electric cells; the steam not required at once for the engines will be passed to the thermal storage cylinder, where it can be kept at a pressure of 200 lb. per square inch, a certain quantity of cold water being added so that when required the boilers can be fed from the storage vessel.

TOWN HALL, HAMMERSMITH.—On Thursday, July 22, the Duchess of Saxe-Coburg opened the new Hammersmith Town Hall, a description of which was given in the *Builder*, May 16, 1896. The hall, erected at a cost of 25,000*l.*, provides accommodation for the Vestry officials, as well as a council chamber, committee rooms, and a public hall, seating between 60 and 700 persons. The builders were Messrs. Wimpey & Co., of Hammersmith. The heating and ventilating arrangements were by Messrs. Kite & Co., Euston-road; the electric light fittings, Messrs. Verity, King-street, Covent Garden; the iron construction, Messrs. Lindsay, Neal, & Co., Paddington; and the construction of the roof and galleries, Mr. A. Dawney, Nine Elms. The lifts and iron doors were supplied by Messrs. Clarke, Bunnett, & Co., and the marble by Messrs. Patterson, of Manchester. The work was superintended on behalf of the Vestry by Mr. Alfred England. Mr. J. H. Richardson, of Finsbury-pavement, E.C., was the architect.

LEGAL.

THE CONVERSION OF PRIVIES INTO WATER-CLOSETS.

CASE IN THE DIVISIONAL COURT.

THE case of Wood v. the Mayor of Widnes, came before a Divisional Court of Queen's Bench, composed of Justices Lawrence and Ridley, on the 24th inst., on a case stated by two Justices of the county of Lancaster. At a petty session held at Widnes, a complaint was preferred against the appellant, the owner of certain houses Nos. 52 to 68, Terrace-road, Widnes, by the respondents under Section 36 of the Public Health Act, 1875, claiming payment of certain private improvement expenses in respect of soap water-closets fixed at the appellant's houses.

The facts were as follows:—On February 12, 1895, the respondents, the Urban Sanitary Authority for the borough of Widnes, confirmed the following resolution of the Health Committee:—"Waste-water Closet System. Resolved That in all future cases of nuisances requiring

the reconstruction of privies and ashpits, the local authority of this borough do, as far as practicable, order that such privies and ashpits be converted into the waste-water closet system, or into such other water-closet system as the local authority may from time to time approve, and that the Highway Committee be requested to take such steps for the adoption of the first-named system generally throughout the borough." On March 22, 1895, the respondents' Inspector of Nuisances served upon the appellant a notice requiring the appellant to abate a nuisance at his premises, 52 to 68, Terrace-road, by converting the privies into water-closets. On April 3 the Inspector reported that certain houses in the borough, including the appellants', were without a sufficient water-closet, earth-closet, or privy, and on April 9 the respondents confirmed a resolution of the Health Committee, that notice be served upon the appellant and other owners of the houses, requiring them to provide sufficient privy and ashpit upon the waste-water closet system approved by the Corporation. On April 23, notice was served upon the appellant in accordance with the terms of this resolution, and the notice not having been complied with, the respondents did the necessary work and then took proceedings to recover the amount, and the Justices decided that the respondents should recover the sum claimed. The question of law for the opinion of the Court was whether the resolution of February 12 was valid, or, if not, whether it invalidated the subsequent proceedings.

Their Lordships, at the conclusion of the arguments of counsel, decided that the resolution of February 12, and the subsequent proceedings thereon, were invalid, and allowed the appeal. Mr. Justice Ridley observed that it was most desirable that uniformity should prevail in those matters; still, in this case, the intention of the Act of Parliament had not been observed.

The appeal was accordingly allowed.

C. A. RUSSELL, Q.C., Mr. F. W. R. BYCROFT appeared for the appellant; and Mr. McCall, Q.C., and Mr. Bonney for the respondents.

CAPITAL AND LABOUR.

THE BUILDING TRADE IN STAFFORDSHIRE.—The building trade of the district is very good, and there is a demand for bricklayers, as the amount of property that is being built in the district is enormous, all the towns vying with each other in this direction. Joiners report trade as very good, and overtime is worked in most shops. Painters and plumbers are busy, and there is a scarcity of men. Plasterers are working overtime. At Leek the building trade keeps very good in every shop, and there are none out of work in the town. At Stafford and Crewe there is no class of building operatives out of employment. At Cheadle there is greater activity than for years past, and overtime is generally worked by all in the trade.—*Staffordshire Sentinel*.

MEETINGS.

THURSDAY, AUGUST 3.

Archæological Institute.—Opening of annual meeting, at Dorchester.

WEDNESDAY, AUGUST 4.

Builders' Foremen and Clerks of Works Institution.—Ordinary meeting, 8 p.m.

SATURDAY, AUGUST 7.

Northern Architectural Association.—Visit to Trinity Presbyterian Church, Newcastle.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 5.—By WINTERTON & SONS (at Tamworth).

Wharton, Warwick.—A freehold farm, area 98 a. 1 r. 8 p., *f. 105*l.** 6*l.* 4*l.* 0*l.*
July 6.—By WINTERTON & SONS (at Wolvey).
Wolvey (Warwick).—"Temple Farm," 78 a. 2 r. 28 p., *f. 120*l.**
"Wolvey Cottage Farm," 132 a. 1 r. 21 p., *f. 2,375*
Four enclosures, 36 a. 3 r. 99 p., *f. 2,910*
By PYKE, HORNE, & POWELLAND (at Hatherleigh).

Hatherleigh, Devon.—Rectorial tithes, commuted at 32*l.* 15*l.* 6*l.*
"Combes Farm," 41 a. 3 r., *f. 4,075*
"Strawberry Marsh," 2 a. 0 r. 18 p., *f. 1,650*
"Red House," and 14 a. 0 r. 18 p., *f. 150*
"Wadland House" and seven cottages, *f. 1,120*
Three enclosures, 6 a. 0 r. 23 p., *f. 622*
July 7.—By G. WIGLEY (at Buckingham).

Twyford, Bucks.—A freehold farm, area 99 a. 2 r. 24 p., *f. 2,850*
Enclosures of land, 26 a. 2 r. 20 p., *f. 1,210*
House, shop, twelve cottages and two building strips, *f. 593*
By W. KIVELL (at Holworthy).

Ashwater, Devon.—The Arcot Estate, 264 a. 0 r. 11 p., *f. 1,050*
July 8.—By WESTON & SONS (at Bognor).
Oving, Sussex.—Colworth, an enclosure, 7 a. 3 r. 17 p., *f. 650*
South Bersted, Sussex.—Various enclosures, *f. 340*
0 r. 5 p., *f. 640*

By ROGERS, CHAPMAN, & THOMAS.
Belgravia.—5, Gillingham-mews, *f. 1,100*
Brixton.—26, Barrington-rd., u.t. 344 yrs., *f. 290*
21 a. 8 r. 36*l.*
7 & 9, Holland-rd., u.t. 17 yrs., *f. 265*
8*l.*

Islington.—17, Arlington-st., u.t. 30 yrs., *f. 47*l.** 4*l.* 3*l.*
King's Cross.—2, Northampton-st., *f. 500*
By CHESTERTON & SONS.

Kensington.—16, Kensington-sq., *f. 4,920*
By TURTLE & APPLETON.

Victoria-pk.—Wandsworth-pk., "The Royal Horse-shoe," b.h., *f. 40*l.**
Rothbury-rd., five plots of land, *f. 1,000*
By STIMSON & SONS.

Streatham.—Amlieus-av., "Megville," *f. 1,100*
75*l.*
By C. C. & T. MOORE.

Mill End.—Ely-ter., *f. 30*l.** reversion in 864 yrs.
Shadwell.—216 & 217, High-st., area 4,300 ft., c., *f. 1,271*
3 & 5, Spital-st., u.t. 214 yrs., *f. 45*l.**
13 to 18, and 26 to 31, Cottage-st., *f. 1,075*
Cottage-st., three plots of land, area 48,800 ft., *f. 745*
1 to 10 Burford-st., u.t. 53 yrs., *f. 1,170*
By FAREBROTHER, ELLIS, CLARK & CO.

Paddington.—7, 3, & 5, Waverley-rd., u.t. 51 yrs., *f. 1,000*
61, 65, 69, 71, 73, 75, and 77, Jessop-rd., u.t. 60 yrs., *f. 1,000*
By H. J. BLISS & SONS.

Walthamstow.—47 to 65 (odd), Boston-rd., *f. 1,615*
Hackerney-rd., 109 & 111, Southgate-rd., u.t. 34 yrs., *f. 170*
15, 17, 19, and 21, Oakenden-rd., u.t. 44 yrs., *f. 2,680*
By NEWBORN, EDWARDS, & SHEPHERD.

Islington.—193 & 195, Southgate-rd., u.t. 34 yrs., *f. 725*
15, 17, 19, and 21, Oakenden-rd., u.t. 44 yrs., *f. 1,420*
204, r. 15*l.*
Twickenham.—Belmont-rd., fig. 8, 24, 26, 28, reversion in 58 yrs., *f. 210*
By WILKINSON & SON.

Paddington.—Cirencester-st., fig. 8*l.*, reversion in 58 yrs., *f. 275*
By WILKINSON & SON.

Dover, Kent.—Snargate-st., "Snargate House," *f. 1,500*
3, Riddolph-rd., *f. 170*
12, Durham-st., *f. 195*
By BAXTER, PAYNE, & LEPPER (at Bromley).

Bromley, Kent.—Sandford-rd., "Grasmere," *f. 1,680*
70*l.*
51, Beckenham-lane, *f. 880*
28, 29, and 30, Freeland-rd., *f. 1,245*
By LAWSON & SON (at Great Marlow).

Great Marlow, Bucks.—"Thames Lawn," *f. 2,190*
July 9.—By DOLMAN & PEARCE.

Stoke Newington.—49 and 51, Bethune-rd., u.t. 78 yrs., *f. 504*
By J. W. KEMSLEY.

East Ham.—Vicarage-lane, &c., a freehold building estate, area about 17 acres, *f. 2,530*
By J. W. KEMSLEY.

Shepherd's Bush.—Askew-rd., "The Travellers' Rest" n.h., *f. 1,000*
Hounslow.—100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1,000, 1,002, 1,004, 1,006, 1,008, 1,010, 1,012, 1,014, 1,016, 1,018, 1,020, 1,022, 1,024, 1,026, 1,028, 1,030, 1,032, 1,034, 1,036, 1,038, 1,040, 1,042, 1,044, 1,046, 1,048, 1,050, 1,052, 1,054, 1,056, 1,058, 1,060, 1,062, 1,064, 1,066, 1,068, 1,070, 1,072, 1,074, 1,076, 1,078, 1,080, 1,082, 1,084, 1,086, 1,088, 1,090, 1,092, 1,094, 1,096, 1,098, 1,100, 1,102, 1,104, 1,106, 1,108, 1,110, 1,112, 1,114, 1,116, 1,118, 1,120, 1,122, 1,124, 1,126, 1,128, 1,130, 1,132, 1,134, 1,136, 1,138, 1,140, 1,142, 1,144, 1,146, 1,148, 1,150, 1,152, 1,154, 1,156, 1,158, 1,160, 1,162, 1,164, 1,166, 1,168, 1,170, 1,172, 1,174, 1,176, 1,178, 1,180, 1,182, 1,184, 1,186, 1,188, 1,190, 1,192, 1,194, 1,196, 1,198, 1,200, 1,202, 1,204, 1,206, 1,208, 1,210, 1,212, 1,214, 1,216, 1,218, 1,220, 1,222, 1,224, 1,226, 1,228, 1,230, 1,232, 1,234, 1,236, 1,238, 1,240, 1,242, 1,244, 1,246, 1,248, 1,250, 1,252, 1,254, 1,256, 1,258, 1,260, 1,262, 1,264, 1,266, 1,268, 1,270, 1,272, 1,274, 1,276, 1,278, 1,280, 1,282, 1,284, 1,286, 1,288, 1,290, 1,292, 1,294, 1,296, 1,298, 1,300, 1,302, 1,304, 1,306, 1,308, 1,310, 1,312, 1,314, 1,316, 1,318, 1,320, 1,322, 1,324, 1,326, 1,328, 1,330, 1,332, 1,334, 1,336, 1,338, 1,340, 1,342, 1,344, 1,346, 1,348, 1,350, 1,352, 1,354, 1,356, 1,358, 1,360, 1,362, 1,364, 1,366, 1,368, 1,370, 1,372, 1,374, 1,376, 1,378, 1,380, 1,382, 1,384, 1,386, 1,388, 1,390, 1,392, 1,394, 1,396, 1,398, 1,400, 1,402, 1,404, 1,406, 1,408, 1,410, 1,412, 1,414, 1,416, 1,418, 1,420, 1,422, 1,424, 1,426, 1,428, 1,430, 1,432, 1,434, 1,436, 1,438, 1,440, 1,442, 1,444, 1,446, 1,448, 1,450, 1,452, 1,454, 1,456, 1,458, 1,460, 1,462, 1,464, 1,466, 1,468, 1,470, 1,472, 1,474, 1,476, 1,478, 1,480, 1,482, 1,484, 1,486, 1,488, 1,490, 1,492, 1,494, 1,496, 1,498, 1,500, 1,502, 1,504, 1,506, 1,508, 1,510, 1,512, 1,514, 1,516, 1,518, 1,520, 1,522, 1,524, 1,526, 1,528, 1,530, 1,532, 1,534, 1,536, 1,538, 1,540, 1,542, 1,544, 1,546, 1,548, 1,550, 1,552, 1,554, 1,556, 1,558, 1,560, 1,562, 1,564, 1,566, 1,568, 1,570, 1,572, 1,574, 1,576, 1,578, 1,580, 1,582, 1,584, 1,586, 1,588, 1,590, 1,592, 1,594, 1,596, 1,598, 1,600, 1,602, 1,604, 1,606, 1,608, 1,610, 1,612, 1,614, 1,616, 1,618, 1,620, 1,622, 1,624, 1,626, 1,628, 1,630, 1,632, 1,634, 1,636, 1,638, 1,640, 1,642, 1,644, 1,646, 1,648, 1,650, 1,652, 1,654, 1,656, 1,658, 1,660, 1,662, 1,664, 1,666, 1,668, 1,670, 1,672, 1,674, 1,676, 1,678, 1,680, 1,682, 1,684, 1,686, 1,688, 1,690, 1,692, 1,694, 1,696, 1,698, 1,700, 1,702, 1,704, 1,706, 1,708, 1,710, 1,712, 1,714, 1,716, 1,718, 1,720, 1,722, 1,724, 1,726, 1,728, 1,730, 1,732, 1,734, 1,736, 1,738, 1,740, 1,742, 1,744, 1,746, 1,748, 1,750, 1,752, 1,754, 1,756, 1,758, 1,760, 1,762, 1,764, 1,766, 1,768, 1,770, 1,772, 1,774, 1,776, 1,778, 1,780, 1,782, 1,784, 1,786, 1,788, 1,790, 1,792, 1,794, 1,796, 1,798, 1,800, 1,802, 1,804, 1,806, 1,808, 1,810, 1,812, 1,814, 1,816, 1,818, 1,820, 1,822, 1,824, 1,826, 1,828, 1,830, 1,832, 1,834, 1,836, 1,838, 1,840, 1,842, 1,844, 1,846, 1,848, 1,850, 1,852, 1,854, 1,856, 1,858, 1,860, 1,862, 1,864, 1,866, 1,868, 1,870, 1,872, 1,874, 1,876, 1,878, 1,880, 1,882, 1,884, 1,886, 1,888, 1,890, 1,892, 1,894, 1,896, 1,898, 1,900, 1,902, 1,904, 1,906, 1,908, 1,910, 1,912, 1,914, 1,916, 1,918, 1,920, 1,922, 1,924, 1,926, 1,928, 1,930, 1,932, 1,934, 1,936, 1,938, 1,940, 1,942, 1,944, 1,946, 1,948, 1,950, 1,952, 1,954, 1,956, 1,958, 1,960, 1,962, 1,964, 1,966, 1,968, 1,970, 1,972, 1,974, 1,976, 1,978, 1,980, 1,982, 1,984, 1,986, 1,988, 1,990, 1,992, 1,994, 1,996, 1,998, 2,000, 2,002, 2,004, 2,006, 2,008, 2,010, 2,012, 2,014, 2,016, 2,018, 2,020, 2,022, 2,024, 2,026, 2,028, 2,030, 2,032, 2,034, 2,036, 2,038, 2,040, 2,042, 2,044, 2,046, 2,048, 2,050, 2,052, 2,054, 2,056, 2,058, 2,060, 2,062, 2,064, 2,066, 2,068, 2,070, 2,072, 2,074, 2,076, 2,078, 2,080, 2,082, 2,084, 2,086, 2,088, 2,090, 2,092, 2,094, 2,096, 2,098, 2,100, 2,102, 2,104, 2,106, 2,108, 2,110, 2,112, 2,114, 2,116, 2,118, 2,120, 2,122, 2,124, 2,126, 2,128, 2,130, 2,132, 2,134, 2,136, 2,138, 2,140, 2,142, 2,144, 2,146, 2,148, 2,150, 2,152, 2,154, 2,156, 2,158, 2,160, 2,162, 2,164, 2,166, 2,168, 2,170, 2,172, 2,174, 2,1

July 12.—By Messrs. SPELMAN (at Norwich). Norwich, Norfolk.—Sproston, three plots of land, f.	£120	2,400	Antrobus-rd., six building plots, f.	£664
"The Star Cottage" and another cottage, f.	650	2,140	By J. M. WELCH (at Bishop's Stortford). Takeley, Essex.—"Jack's Green Farm," 69 a. r. r.	800
Norwood.—90, High-st., f. r. 36l.	450	2,500	31 p. f. and c.	335
Marylebone.—By G. and G. GOLDSMITH, SONS, & Co. 29, 30, and 32, Orchard-st., ut. 29l.	4,970	2,500	Two fields and two cottages, 25 a. r. 20 p. f.	900
Baywater.—67 and 69, Richmond-rd., ut. 38l.	845	1,040	High Roothing, Essex.—"Gower's Farm," 103 a. r. 10 p. f. and c.	600
Brompton.—161, 163, and 165, Lillie-rd., ut. 77l.	840	1,000	"Pennyfeather's Farm," 68 a. r. 2 p. f. and c.	975
Weston, Herts.—"Hall's Green Farm," 410 a. r. 10 p. f.	9,600	315	"Tarvatt's Farm," 21 a. r. 2 p. f.	730
Mucking, Essex.—"Butts or Old Jenkin's Farm," 87 a. or 15 p. f. and c.	4,200	875	A farm homestead and 3 a. r. 18 p. f. and c.	195
Eas 2 Tilbury, &c., Essex.—Enclosures of land, 45 a. r. 15 p. f.	1,325	105	Great Canfield, Essex.—"Hobbs's Farm," f.	600
Rainham, Kent.—Enclosures of land, 53 a. r. 12 p. f.	810	1,075	By GRAHAM, HITCHCOCK, & Co. (at Newport). Aberystwyth, Monmouth.—16 to 19, 22 and 23, Carn Cross, ut. 33 yrs., g.r. 186, 178, 64l.	374
Gillingham, Kent.—Two enclosures, 54 a. r. 18 p. f.	1,000	500	July 15.—By C. F. ADAMS & Co. St. Albans, Herts.—"The Midland Station Hotel," f. r. 150l.	10,000
By EGERTON, BREACH & GALSWORTHY. Buxted, Sussex.—"The Wilderness Farm," 200 a. or 29 p. f.	2,700	500	By FAREBROTHER, ELLIS, & Co. Wandsworth.—The Grove, &c., a freehold building estate, area 11 a. 3 r. 10 p.	25,000
Margaret Roding, &c., Essex.—"The Garnish Hall Estate," 731 a. r. 30 p. f.	5,650	170	Strand.—No. 210; and 49, Essex-st., area 1,200 ft. f.	11,200
Dagenham, &c., Essex.—"Beconree Heath" and "Eastbrook End Farms," 121 a. r. 25 p. f.	5,000	1,405	By FORTESQUE & BRANSON. Fulham.—4, Burntfields, ut. 93l. yrs., g.r. 5l. 10s., r. 36l.	310
By BUCKLAND & SONS. Wallington, Surrey.—6, Belmont-rd., and a plot of ground, ut. 250 yrs., g.r. 10l., r. 47l.	595	800	Enfield.—Chase Side, "Manor House," and 4 a. or 9 p. f.	2,000
Clifton-rd., f.g.r. 12l., reversion in 71l. yrs.	400	1,195	By HARDS & BRADLY. Stevenage, Herts.—Walkern-rd., "The Royal Oak" p-h., and 0 a. 3 r. 38 p. f.	1,300
Belmont-rd., f.g.r. 12l., reversion in 71l. yrs.	350	1,300	Deptford.—4, 5, and 8, The Stowage, ut. 21l. yrs., g.r. 40l.	710
Clifton-rd., f.g.r. 12l., reversion in 71l. yrs.	680	1,225	213, High-st., f. r. 40l.	450
July 12.—By D. B. & L. LUCAS (at Harford). Wilmington, Kent.—"Sutton Court," 3 a. and 3 r. 32 p. f.	810	1,775	59 to 69 (odd), Hyde-st., ut. 19 yrs., g.r. 10l. 7s.	300
By FAREBROTHER, ELLIS, & Co. (at Ipswich). Bentley, Suffolk.—"Clubb's Farm," 11 a. r. 10 p. f.	1,050	400	Keston, Kent.—London-rd., f.g.r. 10l., reversion in 67 yrs.	305
"The Bentley Corn Mill" and 6 a. r. 20 p. f.	520	5,550	By J. R. KEMP & Co. Regent's Pk.—77 and 79, Stanhope-st., ut. 23l. yrs., g.r. 32l.	625
Various enclosures, 100 a. r. 13 p. f.	1,680	450	By NEWBORN, EDWARDS, & SHEPHERD. Edmonton.—Lower Forest-st., "Gambia House," c. Pimlico.—1 to 4, West-st., ut. 26 yrs., g.r. 20l.	1,020
The rent charged, f. r. 12l.	2,095	1,730	Deptford.—184, High-st., ut. 41 yrs., g.r. 15l., r. 55l.	590
By OSBORN & MERCER (at Doncaster). Belton, Lincs.—Three cottages and 0 a. 2 r. 24 p. f.	328	1,300	Deptford.—184, High-st., ut. 41 yrs., g.r. 15l., r. 55l.	480
Enclosures of Land, 23 a. 2 r. 27 p. f.	535	980	Pimlico.—46, Tachbrook-st., ut. 54 yrs., g.r. 10l.	800
Haxey, &c., Lincs.—"High Barnham Farm," 280 a. 3 r. 12 p. f.	3,300	495	Chelms.—46, College-st., ut. 14l. yrs., g.r. 2l.	1,610
Three enclosures, 11 a. 2 r. 16 p. f.	3,300	4,830	Croydon.—38 and 40, Brigstock-cres., ut. 66 yrs., g.r. 8l., c.r. 40l.	305
By TUCKETT & SONS (at Alton). Alton, Hants.—Borover-rd., three enclosures, 7 a. 2 r. 24 p. f.	675	300	Camden Town.—76, St. Augustine's-rd., ut. 63l. yrs., g.r. 10l., c.r. 60l.	500
Butts Bridge, a freehold holding, 30 a. 2 r. 33 p. f.	1,450	760	By STIMSON & SONS. Camberwell.—8, Linn-rd., ut. 64l. yrs., g.r. 6l.	250
Hackney.—24 to 34 (even), Danvers-st., ut. 15l. yrs., g.r. 10l.	340	760	Forest Hill.—4 to 8, Perry-ter., ut. 83 yrs., g.r. 20l.	455
By F. M. HILBURY. Hammersmith Wingate-rd., f.g.r. 56l., ut. 46 yrs., g.r. 8l. 10s.	920	670	Anley-rd. and 3, Ridsdale-rd., ut. 73 yrs., g.r. 20l.	415
1, Wingate-rd., ut. 46 yrs., g.r. 6l., r. 38l.	440	460	Beckenham.—23 to 61 (odd), Eden-rd., ut. 77 yrs., g.r. 40l.	1,600
Peckham.—59, Cator-st., ut. 65 yrs., g.r. 4l. 4s.	165	310	Thorton Heath.—145 to 152 and 180 to 186 (even), Livingstone-rd., ut. 80 yrs., g.r. 56l.	1,100
By JONES, SON, & DAV. Totterham.—3 to 5, Harrington-st., ut. 65 yrs., g.r. 19l. 10s.	200	300	Croydon.—1 to 21, Palmerston-rd., ut. 83 yrs., g.r. 63l.	1,270
By DEBENHAM, TESSON, & Co. Stoke Newington.—97, Farleigh-rd., ut. 67 yrs., g.r. 9l., r. 50l.	430	1,780	Welling, Kent.—The Green Man, b-h., also seven cottages and a plot of land adjoining, ut. 60l. yrs., g.r. 40l.	570
Teddington.—Broad-st., "Holmfield" and "The Laurels," f. r. 60l.	970	325	Leytonstone.—4, Wellesley-rd., f. r. 21l.	300
By J. A. LUMLEY & Co. Broadstairs, Kent.—"Callis Court," and 1 of an acre, f.	1,875	495	Woodford.—Maybank-rd., "Rose Cottage," f. r. 14l. 6s.	135
By FLEURET, SONS, & ADAMS (at Masson's Hall Tavern). Woolwich.—Cross-st., with goodwill, 1 a. 1 g.r. 10l., ut. 29 yrs.	25,000	495	Bermundsey.—34, 36, and 38, Upper Grange-rd., ut. 14l. yrs., g.r. 13l. 10s., r. 50l.	455
Kensington.—Earl's Court-rd., "The Prince of Teck" p-h., a freehold rental, reversion in 32 yrs.	10,300	550	Herne Hill.—200, 202, and 204, Railton-rd., f.	1,710
By DORE, FIELDER, & MASKELYNE (at Faringdon). Farnham, Berks.—"The Home Farm," 105 a. r. 1 r. 24 p. f.	4,800	1,000	Dulwich-rd., ut. 40 yrs., g.r. 10l., r. 60l.	550
"Long Lane Farm," 69 a. r. 1 r. 39 p. f.	1,350	1,950	Peckham.—99, Peckham-rd., f. r. 64l.	960
Two enclosures of land, 17 a. 2 r. 9 p. f.	455	1,000	Chalk Farm.—46, Ferdinand-st., ut. 43 yrs., g.r. 3l. 10s.	180
Two houses, fifteen cottages, and 5 a. r. 0 p. f.	973	1,150	July 16.—By CLUNSON & JOWNSON. Baltham.—8, 20, 22, and 26, Ramsden-rd., ut. 82 yrs., g.r. 42l., r. 150l.	1,280
By W. BUSH & SONS (at Sheffield). Kirk Burton, Yorks.—A freehold farm, area 26 a. or 18 p. f.	410	1,300	By PERCIVAL HODSON. High Barnet, Herts.—Fuller-rd., "Meadowside," and 11 a. f.	1,300
Four houses and 30 a. r. 12 p. f.	830	1,350	Holloway.—24, Poole's-pk., ut. 68 yrs., g.r. 6l., r. 30l.	245
Seven enclosures, 32 a. or 5 p. f.	500	1,450	By NOTTON, TRIST, & GILBERT. Burcot, Oxon.—A freehold farm, area 140 a. or 24 p. 33 a. or 9 p. f.	7,100
By H. J. CHEFFINS (at Saffron Walden). Ashdon, Essex.—"Ashdon Farm," area 77 a. 2 r. 27 p. f.	555	2,300	Long Whittenham, Berks.—A freehold farm, area 46 a. 2 r. 29 p. f.	3,050
July 13 and 14.—By STAFFORD & ROGERS (at Eye). Eye, Suffolk.—"The Queen's Head" p-h. and "Duke of Wellington Arms" b-h., f.	2,300	355	By H. N. NEWTON & Co. Ealing.—Northfield-lane, "Niagara House," and 4 a. f.	2,800
Hoxne, Suffolk.—"The Red Lion" p-h., f.	2,150	410	By P. W. TADDER & Co. Kentish Town.—15, Queen's-cres., ut. 63 yrs., g.r. 10l., r. 45l.	455
Billingford, Norfolk.—"The Three Horse Shoes" p-h., f.	950	715	21, Maitland Pk.-rd., ut. 55 yrs., g.r. 8l., c.r. 58l., r. 42l.	390
Dickleburgh, Norfolk.—"The King's Head" p-h. f.	950	2,300	123, Prince of Wales-rd., ut. 14l. yrs., g.r. 5l., r. 40l.	145
Thorndon, Suffolk.—"The Black Horse" p-h., f.	2,000	2,700	122 and 128, Malden-rd., ut. 49 yrs., g.r. 12l., r. 80l.	800
Needham, Norfolk.—"The Fishmonger's Arms" p-h., f.	2,350	2,300	5 and 7, Wellesley-rd., ut. 49 yrs., g.r. 12l.	575
Redgrave, Suffolk.—"The Fox and Hounds" p-h., f.	1,000	2,870	Marylebone.—27, Margaret-st., ut. 6 yrs., g.r. 80l., r. 170l.	745
Luxfield, Suffolk.—"The General Woolf" p-h., f.	3,000	600	Chiddingstone, Kent.—"Little Sidelcup Farm," 8 a. f.	810
Eye, Suffolk.—Enclosures of land, 21 a. or 1 p. f.	610	760	By WEATHERHALL & GREEN. Piccadilly.—Nos. 35, 59, and 60, also 45 and 46, Old Bond-st., area 2,210 ft. f. r. 24l.	115,000
"Stanley House" and 1 r. 30 p. f.	950	5,975	Belgravia.—57, 59, and 61, Eaton-ter., ut. 24 yrs., g.r. 21l., r. 215l.	2,350
Fourteen cottages and Blacksmith's shop, f.	950	6,050	Blackfriars.—7, Boundary-row, f. r. 20l.	395
"The Bowling Green" and plot of land, 2 r. 25 p. f.	1,585	280	Hyde Pk.—29 and 31, Connaught-st., ut. 26 yrs., g.r. 15l. 4s., r. 185l.	2,295
"Hill House" and house and shop, f.	1,585	5,475	By THURGOOD & MARTIN. Lincoln's Inn Fields.—72 and 73, Great Queen-st., area 2,835 ft. f. r. 50l.	9,500
"Oak Lawn" and 59 a. r. 7 p. f.	2,000	3,600	Moorgate-st., 12, Great Swan-alley, f. r. 60l.	2,750

4.11×10^{-16}

WALSALL.—Accepted for sewerage, making up, &c., Most-road, for the Corporation. Mr. Richard Henry Middleton, architect:—
James Atkins, Walsall.....£976 3

WALTHAMSTOW.—For the erection of a pair of semi-detached villas, for Mr. John Hitchman. Mr. J. William Dunford, architect, 100C, Queen Victoria-street, E.C. 1:—
James Steed, Camden Town* £1,500
* Lowest, without basements, accepted.

WALTHAMSTOW.—For three shop-fronts, and other work, at St. James street, for Mr. George Whitehead. Mr. J. Williams Dunford, architect, 100C, Queen Victoria-street, E.C. 1:—
W. Shumrun, Clapton (accepted) £437

LONDON SCHOOL BOARD TENDERS.
At the meeting of the London School Board on Thursday, the following lists of tenders were submitted by the Works Committee:—

AMBLER-ROAD (Islington).—Heating apparatus:—
 Jenham & Waters, Ltd. £553 0 } Turner & Co. £501 10
 J. & F. May 546 0 } Grundy 480 0
 Maguire & Gatchell, Ltd. 538 12 } C. & J. S. Ellis, Ltd*. 420 0
 W. G. Cannon & Sons .. 520 0 }

BLOOMFIELD-ROAD (Plumstead).—New infants' department. &c.—

	Amount of Tender.	Extra amount required for building brick work in cement
J. Longley & Co.	£12,388	£163
W. M. Dabbs	12,237	166
Kilby & Gayford	12,159	155

E. Lawrence & Sons	12,655	157
J. Shillito & Son	11,350	157
J. & M. Patrick	10,452	94
G. E. Wallis & Sons*	9,847	120

BRACKENBURY - ROAD (Hammersmith). — Additional heat
ing —
L. Fraser & Son, £82; J. Rosser & Russell, Ltd., £54.

W. G. Cannon & Sons....	79	15	G. Davis	50	0
J. Grundy,	72	2	J. C. & J. S. Ellis, Ltd.*..	49	0
J. Wontner-Smith, Gray, & Co.	63	0			

CAVENDISH-ROAD, BALHAM.—New school.—

			required for building brickwork in cement.
Lathey Bros.	£22,394	....	£150
Holloway Bros.	21,855	....	120

J. Shillito & Son.....	20,735	....	270
E. Lawrence & Sons.....	20,726	....	268
W. Shumour	20,285	....	267
S. Hart.....	19,704	....	237
B. E. Nightingale.....	19,427	....	235

J. & M. Paterek.....	19,364	....	124
Stimpson & Co.*	19,150	....	207

W. Shurmer	Amount of Tender. £28,030	G. Munday & Sons	Amount of Tender. 27,500
------------------	------------------------------	------------------------	-----------------------------

Kilby & Gayford.....	28,633	E. Lawrence & Sons	27,651
G. S. S. Williams & Son..	28,497	Stimpson & Co.....	27,545
W. M. Dabbs.....	28,397	J. & M. Patrick.....	27,658
J. Shillitoe & Son.....	28,351	G. E. Wallis & Sons*....	26,634

EAST LAMBETH (Filint-street).—Exterior painting :—
H. I. Williams 28, 149 | J. E. Fordt

W. V. Goad..... 238 | B. E. Nightingale..... 157

EAST LAMBETH (Illderton-road). — Painting interior and

exterior:—
H. Line.....£398 | W. Brown†£350

EAST-LANE (Bermondsey Wall).—Manual Training Centre.
 &c. :-

1905-6	1906-7	1907-8	1908-9	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	2060-61	2061-62	2062-63	2063-64	2064-65	2065-66	2066-67	2067-68	2068-69	2069-70	2070-71	2071-72	2072-73	2073-74	2074-75	2075-76	2076-77	2077-78	2078-79	2079-80	2080-81	2081-82	2082-83	2083-84	2084-85	2085-86	2086-87	2087-88	2088-89	2089-90	2090-91	2091-92	2092-93	2093-94	2094-95	2095-96	2096-97	2097-98	2098-99	2099-00	2100-01	2101-02	2102-03	2103-04	2104-05	2105-06	2106-07	2107-08	2108-09	2109-10	2110-11	2111-12	2112-13	2113-14	2114-15	2115-16	2116-17	2117-18	2118-19	2119-20	2120-21	2121-22	2122-23	2123-24	2124-25	2125-26	2126-27	2127-28	2128-29	2129-30	2130-31	2131-32	2132-33	2133-34	2134-35	2135-36	2136-37	2137-38	2138-39	2139-40	2140-41	2141-42	2142-43	2143-44	2144-45	2145-46	2146-47	2147-48	2148-49	2149-50	2150-51	2151-52	2152-53	2153-54	2154-55	2155-56	2156-57	2157-58	2158-59	2159-60	2160-61	2161-62	2162-63	2163-64	2164-65	2165-66	2166-67	2167-68	2168-69	2169-70	2170-71	2171-72	2172-73	2173-74	2174-75	2175-76	2176-77	2177-78	2178-79	2179-80	2180-81	2181-82	2182-83	2183-84	2184-85	2185-86	2186-87	2187-88	2188-89	2189-90	2190-91	2191-92	2192-93	2193-94	2194-95	2195-96	2196-97	2197-98	2198-99	2199-00	2200-01	2201-02	2202-03	2203-04	2204-05	2205-06	2206-07	2207-08	2208-09	2209-10	2210-11	2211-12	2212-13	2213-14	2214-15	2215-16	2216-17	
--------	--------	--------	--------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	--

J. F. Ford.....	£2,576	18	10	.....	£47	5	6
W. Akers & Co.....	2,490	0	0	.....	42	0	0
J. & M. Patrick.....	2,477	0	0	.....	31	0	0

}. Smith & Sons.....	2,445	0	0	.....	48	0	c
}. Garrett & Son*....	2,405	0	0	.....	43	0	c.

ENNERSDALE-ROAD, LEWISHAM—New School —
Extra amount
required for
building brickwork
in cement

Lathey Bros.	£16,561 0	....	£320 0
J. Shillito & Son.....	16,554 0	....	287 0
W. M. Dabbs.....	16,500 0	....	290 0
W. Downs	16,466 0	....	345 0

E. Lawrence & Sons	16,312	0	....	287	0
J. & M. Patrick.....	16,078	0	....	172	C
J. Longley & Co.....	15,923	0	....	266	0
Kirk & Randall.....	15,920	0	....	344	0
Treasure & Son.....	15,751	10	....	206	10

FINSBURY (Gifford-street).—Interior and exterior painting:—

McCormick & Sons	\$1,136	G. S. S. Williams & Son	\$1,078
Stevens Bros.	1,080		

FINSBURY (Moreland-street).—Painting interior and exterior:—
Vigor & Co. £746 15 | A. M. Sparks £668 0
E. Lawrance & Sons† .. 670 0

FINSBURY.—St. John's-lane.		Interior painting:—
G. S. S. Williams & Son....	£23	A. M. Sparks†.....£168
Perkins & Co.....	210	F. Newton.....740
T. Nicholson.....	200	W. Brown.....120

GORDON HOUSE INDUSTRIAL HOME FOR GIRLS (Isleworth) —Boiler and hot-water supply :—

J. Esson	£550 0	Wenham & Waters,	
J. Grundy	428 10	Lin.	£315 0
Stevens & Sons	400 0	Maguire & Gatchell,	
W. G. Cannon & Sons ..	379 0	Lin.	180 10
J. Rogers & Son	372 10	T. W. Brooke	228 0

J. & F. May	335	0	G. Davis	245	c
Dargue, Griffiths, & Co., Lim.	315	0	J. Wontner-Smith, Gray, & Co.†	198	0

GREENWICH (Lewisham Bridge).—Painting interior:—
S. J. Jerrard & Sons£513 0 | C. G. Jones.....£289
H. Lency†.....289 5 |



GREENWICH (Lucas-street).—Painting interior:—
G. Summers.....£45 13 6 [C. G. Jones].....£38 0 0
W. Banks.....35 19 6 [C. S. Jones].....29 0 0

GREENWICH (Melvin-road).—Interior painting (old portion),
and interior cleaning (new portion):—
G. Summers.....£29 0 0 [G. Kemp].....£29 0 0
G. Akers & Co.....34 0 0

GREENWICH (Trudley's road).—Painting interior and exterior:—
G. Summers.....£35 0 0 [E. Proctor].....£30 0 0
W. Banks.....35 19 6 [C. S. Jones].....29 0 0

HACKNEY (Columbia-road).—Painting interior:—
Barrett & Power.....£64 0 0 [C. Whitcomb].....£35 0 0
T. Nicholson.....43 0 0

HACKNEY (Summerford-street).—Painting interior:—
C. Whitcomb.....£45 13 6

HACKNEY (Tottenham-road).—Interior painting:—
McConnell & Sons.....£20 0 0 [J. Morrison].....£20 0 0
J. Grever & Son.....9 5 1

HOMERTON ROW (Homerton, N.E.).—Heating apparatus:—
I. F. Clarke & Son.....£60 0 0 [W. G. Cannon & Sons].....£20 0 0
I. G. & J. S. Ellis, Ltd.....23 10 0 [J. C. Clarke].....47 10 0
Vaughan & Brown, Ltd.....49 0 0 [J. J. Kallaway & Co.].....30 0 0
A. H. Skinner & Co.....40 0 0 [Bates & Pearce].....35 0 0

MARYLEBONE (Amberley-road).—Interior painting:—
W. Hornett.....£38 0 0 [E. T. Foley].....£35 0 0
E. Chudley.....26 0 0 [F. T. Chichester].....29 0 0
T. Cruys.....25 0 0

MARYLEBONE (Barrow Hill-road).—Interior painting:—
G. Foley.....£24 15 0

MARYLEBONE (Bell-street).—Interior painting (new portion),
and interior cleaning (old portion):—
T. Cruys.....£40 0 0 [G. Foley].....£32 0 0
E. T. Foley.....40 0 0 [F. T. Chichester].....29 0 0
W. Hornett.....29 0 0

MARYLEBONE (Capland-street (Junior Mixed)).—Interior painting:—
T. Cruys.....£35 0 0 [G. Foley].....£32 0 0
E. T. Foley.....40 0 0 [F. T. Chichester].....29 0 0
W. Hornett.....29 0 0

MARYLEBONE (Netley-street).—Interior and exterior painting:—
E. T. Foley.....£35 0 0 [Marchant & Hirst].....£40 0 0
T. Cruys.....29 0 0 [W. Chapple].....30 0 0
W. Hornett.....29 0 0

MEDBURN STREET (J. M.).—Painting:—
G. Chase & Son.....£33 0 0 [T. Cruys].....£43 0 0
W. Hornett.....29 0 0

MELVIN ROAD (Penge).—Sanitary and drainage works:—
J. Garrett & Son.....£1,084 0 0 [G. C. Bowyer].....£1,308 0 0
E. Triggs.....1,084 0 0 [W. Akers & Co.].....1,308 0 0
H. Somerford & Son.....1,039 0 0
G. Farmer.....1,039 0 0

"MICHAEL FARADAY" (Walsworth).—Manual training centre:—

	Extra amount to be paid for building brickwork in cement.
Rice & Son.....	£1,494 0 0
C. Cox.....	1,399 0 0
W. Downs.....	1,395 0 0
H. Somerford & Son.....	1,294 0 0
D. & H. F. Higgs.....	1,311 0 0
G. S. & W. Williams & Son.....	1,293 0 0
E. Lawrence & Sons.....	1,312 0 0
J. Smith & Sons.....	1,335 0 0
J. F. Ford.....	1,160 0 0

ROYAL NORMAL COLLEGE FOR THE BLIND.—Repair, painting, &c.:—
A. Ackworth.....£1,520 0 0 [J. Garrett & Son].....£1,850 0 0
Lathey Bros.....1,520 0 0 [A. Black & Son].....1,850 0 0
Holloway Bros.....1,475 0 0 [E. F. Bullard & Co.].....1,468 0 0
Holliday & Greenwood.....1,395 0 0 [W. Poole & Son].....1,499 0 0
E. Triggs.....1,395 0 0 [W. Akers & Co.].....1,394 0 0
J. Smith & Sons.....1,390 0 0 [H. Lenny].....1,370 0 0
E. & C. Bowyer.....1,386 0 0

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HATTON GARDEN, and 23, RAY STREET,
FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, and FIT FOR IMMEDIATE USE.
Telephone, 56, 74, Holborn. Tele. Address "SNEWIN, London"

ST. JOHN'S ROAD (Hoxton).—Upper standard rooms, &c.:—
Kulby & Gayford.....£5,987 0 0 [J. & M. Patrick].....£5,711 0 0
E. B. & R. Roberts.....5,987 0 0 [J. C. Cox].....5,694 0 0
Johnson & Co.....5,987 0 0 [J. Groves].....5,694 0 0
W. M. Dabbs.....5,984 0 0 [G. S. S. Williams & Son].....5,694 0 0
T. Boyce.....5,760 0 0 [E. Lawrence & Sons].....5,497 0 0

SOUTHWARK (Magdalen-street).—Painting interior and exterior:—
H. Lisle.....£179 0 0

SOUTHWARK (Pocock-street).—Interior painting:—
Lathey Bros.....£303 0 0 [E. Triggs].....339 0 0
H. J. Williams.....324 0 0

TOWER HAMLETS (British-street).—Painting interior:—
Vigor & Co.....326 0 0 [D. Gibb & Co.].....326 0 0

TOWER HAMLETS (Trafalgar-square).—Painting interior:—
A. W. Derby.....£244 0 0 [A. W. Mallin].....£244 0 0
H. Cude.....459 0 0 [G. Wales].....491 0 0
Vigor & Co.....455 0 0 [E. Jackson & Son].....397 0 0

WEST LAMBETH (Belville-road).—Interior painting:—
E. P. Bullard & Co.....£429 0 0 [H. J. & G. Mallett].....£326 0 0
Maxwell Bros, Ltd.....340 0 0 [H. Somerford].....235 0 0

WEST LAMBETH (Jespoo-road).—Interior painting:—
Lathey Bros.....£198 0 0 [T. Hooper].....£198 0 0
H. Somerford & Son.....240 0 0 [Star & Son].....£10 0 0
H. Elarton.....240 0 0 [Maxwell Bros, Ltd.].....186 0 0
F. & R. F. Higgs.....230 0 0

WEST LAMBETH (Lollard-street).—Interior and exterior painting:—
E. Triggs.....£55 0 0 [J. F. Ford].....£59 0 0
F. R. Blaxton.....59 15 0 [D. Brittain].....508 10 6
*Recommended for acceptance.
† Accepted.

TO CORRESPONDENTS.

J. S. M. (amounts should have been stated): J. S. (ditto):
J. F. W. (ditto): "Young Builder" (cannot advise).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

He cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES, GREENHOUSES, WOODEN BUILDINGS, Bank, Office, & Shop Fittings. CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances payable to DOUGLAS FOURDRINER should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 19s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Douling Stone Co.)

Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

THE TEST OF TIME

has proved that
SZERELMEY STONE LIQUID
Absolutely waterproofs and preserves Bricks,
Stone, Cement, Stucco, Plaster, &c.

SZERELMEY & Co., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.,

Sole Agents for

THE "E.R.A." PHOTO. BLOCK CO.

4 & 5, East Harding-street, Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIN & SON, 20, Parliament-st. S.W.

"QUANTITY SURVEYORS' TABLES,"

For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

PILKINGTON & CO

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING.

ACID-RESISTING ASPHALTE.

WHITE SILICA PAVING.

SEYSSSEL ASPHALTE.

ERNEST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works.—Aberllefenny, North Wales. Midland Wharf, Bow.

Head Office and only City Address, 61, ST. MARY AXE, E.C.

SEND FOR ILLUSTRATED PRICE LIST.

The Builder.

VOL. LXXIII. NO. 244.

AUG. 7, 1897.

ILLUSTRATIONS.

Three London Street Fronts.—Mr. Beresford Pite, F.R.I.B.A., Architect	Extra-Large Ink-Photo.
Vestibule, Sheffield Town Hall.—Mr. E. W. Mountford, F.R.I.B.A., Architect	Single-Page Tone Block.
Council Chamber, Sheffield Town Hall.—Mr. E. W. Mountford, F.R.I.B.A., Architect	Single-Page Tone Block.
Illustrations of "Influence of Materials on Architecture"	Single-Page Ink-Photo.
Entablature of the Mausoleum, British Museum	Single-Page Ink-Photo.
Athelhampton House and Wolfeton House.—Drawn by Mr. R. W. Paul	Double-Page Photo-Litho.

Blocks in Text.

Illustrations in Relation to Mr. Banister Fletcher's Article on the Influence of Material on Architecture.....	Page 305	Part of Vault of Cupola, "St. Nicholas of the English"	Page 319
Sketches with the Archaeological Institute in Dorsetshire.....	307	Dog-iron for Gate, Chiveley Park: Executed by Mr. Gilbert Seale from the design of Mr. R. W. Edis	309
Church of "St. Nicholas of the English," Nicosia, Cyprus (now a grain storehouse)	309	Sketches of London Street Architecture. XVII.....	310
"St. Nicholas of the English," Nicosia, Cyprus. Plan	309	Side-Board, Mayor's Parlour, Sheffield Town Hall	312
		Illustrations in Student's Column.....	314

CONTENTS.

The Architectural Association Sketch-Book.....	301	Archaeological Societies	310	Twickenham Parish Church	313
The Influence of Material on Architecture.....	305	Three London Street Fronts	312	Salisbury Cloisters	313
Notes	304	Vestibule and Council Chamber, Sheffield Town Hall	312	Student's Column: Quantities and Quantity Taking.—III.....	313
The Archaeological Institute at Dorchester	306	Illustrations to Mr. Fletcher's Paper, "Influence of Materials on Architecture"	312	General Building News	315
The Declinal System in Engineering Measurements	308	Entablature of the Mausoleum, British Museum.....	312	Sanitary and Engineering News	315
The Medieval Art of Cyprus	309	Athelhampton House and Wolfeton House	313	Foreign	316
Dog-iron for Gate, Chiveley Park	309	The National Free Wiring Company, Limited.....	313	Miscellaneous	316
Sketches of London Street Architecture.—XVII.....	310	St. Peter's Church, Derby	313	Meetings	316
The South Kensington Prize Designs	310			Some Recent Sales of Property	317

The Architectural Association Sketch-Book.



HE continued success of the Architectural Association Sketch-Book, of which the second volume of the third series has recently appeared, is a good

criterion of the continued activity and vitality of the Association. As it proceeds, the more prominent of the old contributors, many of whom have become probably too busy in other ways to keep up this kind of contribution, drop out of the ranks, but they find worthy successors—"uno averso non deficit alter," and the old prestige of the publication seems fully maintained. The editors are now Mr. W. G. B. Lewis and Mr. John Begg. Some of the drawings are signed by initials which are not familiar to us, by rather undecipherable monograms, or by signatures which are not always very legible; but the work itself is the main point, and it is perhaps one of the merits of the Sketch-Book that the contributors seem not so anxious to get their names prominent as to do good work.

In the case of sketches which have to be reproduced in multiplied form by some one of the various processes available, the fitness of the drawing for reproduction in this manner is an element to be considered. The editors recognise this in their preface, in the course of which it is remarked that "the committee endeavours to select sketches likely to come out successfully; in the process of reproduction, however, some sketches come out badly. In the interest therefore of the subscribers, as well as for the credit of the contributors themselves, the committee necessarily reserves the right of cancelling any proof that may turn out unsatisfactorily."

We do not know that the present volume contains any plates that ought to have been cancelled on this account, but it contains some which have not been produced in a very satisfactory manner. We may probably conclude that some of the drawings included have not been made with the special object of being produced in the Sketch-Book; members who are known to sketch well are probably sometimes asked whether they have

anything to contribute, and in that case the chance must be taken as to whether the drawings will reproduce satisfactorily. But where sketches are prepared expressly for the Sketch-Book, it is quite possible to ensure that they shall reproduce well by a little consideration of the conditions favourable to that end.

As far as we have observed, only three processes are used: ordinary photo-lithography from line drawings, which is done very well by Mr. Kell; the same lithographer's process for reproducing pencil drawings and washed drawings, and Messrs. Sprague's ink-photo process for washed drawings. Photo-lithography from line drawings is of course by far the easiest process to ensure a good reproduction; the nature of the surface of the paper is here of less consequence than in other processes, and what is chiefly necessary is that lines should be clear and firm, and drawn in either a decidedly black or in a brown ink—at all events something with no touch of blue in it; and that the draughtsman should bear in mind that he cannot produce lighter or distant effects by lighter ink, but only by thinner lines. For this reason it is not very easy to produce broad effects of tone in line drawing by photo-lithography, except by a good deal of slow, minute, and careful work in shading; and a drawing which, from the partial use of lighter ink, looks very effective in the original, will be certain to prove a sad disappointment to its author when lithographed. This seems to have been recognised by the contributors, for we observe that line drawing and photo-lithography are mostly used for measured drawings rather than for sketches of effect. There is at present a growing inclination on the part of draughtsmen to avoid a great expenditure of time on drawings of effect, to get the effect quickly and by light and rapid working, especially by pencil finished in lightly washed tints and shadows; but it might be as well to endeavour to introduce from time to time one or two examples of what can be done in the way of effect by pure line shading. It is one form of artistic work, and it has certain advantages, in the clearness, certainty and strength of the effect when fully worked up, and also in the complete control which the draughtsman has over his touches. Brushwork is somewhat more difficult to control, or diffi-

cult to alter or improve if the first effect is unsatisfactory.

As soon as the processes are employed by which pencil and brushwork can be reproduced, the nature of the paper used becomes an important element in the result. For the paper itself makes a "tint," and the rougher the paper the more "tint" it produces; so that the rough paper which produces a bold effect and a great deal of depth of tone in an original drawing, in the reproduction injures the effect very much by spreading a kind of layer of dirty tone over the whole plate, greatly injuring its effect. It is thus well to remember that in these cases the most effective drawing may make the least effective lithograph. Some of the plates in the Sketch-Book are evidently from drawings that have been made on rough paper, either through ignorance of the probable result or because the drawing was not intended specially for reproducing; and this applies alike to washed drawings and to pencil. Thus Mr. Bolton's "Reja from Burgos Cathedral," a pencil drawing, has been much injured in its effect in Mr. Kell's reproduction, and we have no doubt this is mainly owing to the grain in the paper. On the other hand, Mr. Spooner's "Elevations of the Clearstory of the Presbytery at Ely," evidently a pencil drawing, comes out very well by the same process (Kell's photo-process), and we shall probably be right in thinking that this was drawn on card with a comparatively smooth surface. Mr. Balfour's washed drawing of "Higham Ferrers Bede House," in Part 3 (same process), looks misty and unsatisfactory, but this very mistiness of effect is to some extent an advantage in such a case as that of Mr. Horsley's drawing in "sanguine" of the apse at Cephalu, giving something of the softness and texture of the original medium. But it may be safely said that for pure pencil drawing, mainly in line, the smoother the paper the better, and that washed drawings on rougher paper will realise more of their original effect in reproducing (especially by ink photo) the more broad they are in execution and the more free from actual lines. Lines and wash combined do not very often succeed well; what is favourable to line is not favourable to brushwork, except in the case of decisively drawn pencil lines with a little indian ink tint, not over the whole, but to emphasise

certain portions; this method of execution, on smooth paper (on which *light* tints can be easily worked with the brush) generally produces a successful result in lithographing.

In regard to washed drawings of a broader and more fully worked description we are surprised that the editors have never yet, as far as we remember, thought of trying the system of what are called tone-blocks. Some drawings will come out better under this process than under any form of lithography, and it has a bright effect, in the contrasts of light and shade, and a freedom from the dirty look which often pervades lithographs of this type of drawing, which are certainly strong recommendations. It is true that with some of the most refined tone-block processes the possible size of the plates is rather limited; but there are very good tone-block processes which can be used on the scale of the Sketch-Book page with entire success.

In regard to the contents of the Sketch-Book, the majority of the drawings aim at recording in a picturesque manner a picturesque incident of architecture, rather than at putting on record accurate and complete measured drawings of important buildings. There are however a large set of measured drawings of Hampton Court by Mr. Maule, which are really valuable, and a considerable number of contributors give what may be called sketch elevations and sections; we do not mean without scale, but rather slightly drawn and not such as would generally be accepted as complete records of the building or feature illustrated. Sections of mouldings also are pretty numerous. It may of course be urged that the object of a "sketch-book" is sketches, and not elaborate measured drawings, but it would perhaps be as well to encourage a little the contribution of the more thorough and monumental type of measured drawings, which would give an increased value to the work as a repository of architectural illustration. As it is, the value of the book consists mainly in the representation it gives of a good many rather curious and individual architectural conceptions, some of them not much known or illustrated, and which are of interest both as illustrations of what exists and as suggestions for fresh ideas. As in most of the more recent issues, the amount of pure Gothic work illustrated is not large, and most of what there is of late date. In the restlessness of architectural taste and movement in the present day it is natural that students should look out rather for what suggests new ideas than for the kind of correct and orthodox detail of which textbooks are already full. Also, naturally, young architects will be inclined to sketch what will assist them in carrying out the kind of work which is most in favour at the moment. We seem to feel this in the very first sketch, that of Christchurch Park, Ipswich (Mr. Spooner), with its quiet windows, its picturesque outline of wavy gables all in a row, and its characteristic two-storied porch with flanking columns utterly out of proportion. Mr. Hart shows us the campanile in the Piazza Derbe at Verona, seated apparently on the roof of a house, showing that Gibbs at St. Martin's was not the first offender in this kind. Mr. Bolton's careful elevation and plans of the upper or Renaissance stage of the Giralda at Seville is of great value as show-

ing to a pretty large scale the real details of this curious piece of work, which is Renaissance "with a difference"—more of a difference than is perhaps generally suspected. The late Mr. Rimmer's measured drawings of the three-storied cloister (if one may so call it) of the monastery of Lupiana (Spain) catches the eye by the curious treatment of the segmental arches of the middle story, the arch curve divided into two lengths by a little vertical rise at the haunch; a conceit utterly unconstructive in appearance, and which it is to be hoped will *not* be copied by any one in search of new ideas. The sketch elevation of the Palace of the Marquiss de Palma at Palma, Majorca (also Mr. Rimmer's), is on the other hand not only perfectly delightful in itself, with its masses of plain wall, severely unadorned arched doorway, pilastered windows disposed unsymmetrically, and the charming feature of the traceried loggia under the eaves—but it is a kind of thing full of suggestion, without any thought of direct copying. The church of All Saints, The Leigh, Wilts, which was most reluctantly condemned to be taken down a little while ago, and rebuilt (as far as possible) on a new site, owing to the circumstances both of the condition of the structure itself and of its approaches, is commemorated by Mr. Needham Nelson in three pages of delicately executed sketches. One of the most characteristic and interesting things in the whole book is Mr. Rimmer's perspective sketch of the courtyard of St. Morell's House at Palma, with its bulgy columns and low-pitched wide segmental arches; a sketch which might also bring forth fruit as an idea for a hall and staircase. Among other characteristic works illustrated may be mentioned the Calvary and Entrance Gate to the cemetery at La Martyr, Bretagne (Mr. C. C. Brewer); the delightfully practical and picturesque little "Granary of Steeple Ashton Manor House" (Mr. R. S. Balfour) carried on beams laid across square stone pillars about seven feet high, leaving it open underneath; and Mr. Hart's detail of the pulpit at San Cesario, Rome.

Will a time come when there shall be no more old things left unsketched? Not yet, perhaps; but, without anticipating that time, we may suggest that there is a possible enlargement of the scope of the Sketch-Book which might add to its interest, even before the sketching of old things is exhausted. The *Boston Architectural Review*, from time to time alluded to in our columns, made a practice at one time of publishing schemes and designs for imaginary buildings; *projets*, as the French call them, which were often of considerable interest. We have nothing of the same kind issued among architectural students in England. Why should not the Architectural Association Sketch-Book assume the form of an alternating publication, one volume or Part devoted to sketches of ancient work, the next volume to designs and ideas for new work; not subjects suggested by the editors or committee, but such as occur to the contributors themselves; and thus continue the issue of an ancient and a modern volume or Part alternately? We should think there would be a good deal of interest in such a publication; at all events we volunteer the suggestion for the consideration of those who are concerned with the management of the Sketch-Book, wishing it in the meantime all future prosperity in any case.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.

CHAPTER V.

BY BANISTER F. FLETCHER, A.R.I.B.A.

Rome: *The Further Development of Brickwork and Concrete.*



THE science of construction acquired by the Romans descended to the Byzantines. The construction of the walls with a brick facing and concrete interior is merely an extension of the Roman system, and need not be discussed. It was employed not only for walls, but also for vaults, bridges, and aqueducts. As has been pointed out, the building procedure was developed somewhat in this direction: the general form of the building being more or less decided, the first thing necessary was to collect monolithic marble shafts, and it was necessary to have a certain knowledge where such might be quarried or otherwise obtained, before even the foundations were prepared, for the columns decided the height and points of support of the building. These columns once assured, the body of the structure was proceeded with, as a brickwork shell without further dependence on the masons, who were only required to prepare the bases, capitals, and cornices, everything else being completed as a brick "carcase." The building was thus made of vast masses of thin bricks, the mortar composing half of the aggregate; when this had settled down and dried, the walls were sheeted with their marble covering, the vaults overlaid with mosaic, and the pavement laid down. In this way the carcase was completed at once, the bricklayers not having to wait for the masons; and, further, by reserving the application of the marble until the structure was dry and solid, it was possible to bring together unyielding marble and brickwork with large mortar joints that must have settled down very considerably. The independence of masonry unequally charged was a leading idea in Byzantine construction; indeed, it is obviously necessary when the quantity of mortar is so great that the brick at times becomes secondary in height to the joints.

Brick, moreover, was the material preferred in the construction of churches; it lent itself best to all the caprices of the architect; and as the interiors were always lined with marble and mosaics, or decorated with paintings, such walls were the most suitable for the reception of these kinds of ornamentation. In countries abounding with good building stone we find the architects preferring to use brick. The forms of the bricks varied infinitely in Byzantine times, but the ordinary brick was like the Roman, an inch and a half in thickness, and was always laid upon a bed of mortar, at least half an inch in thickness. Moulds were used for the pieces forming cornices, and the shafts of columns when of this material were built of circular bricks.

In fact, brick-making was a feature of the period, and it is not surprising that the Byzantines took great pains with their fabrication when it is remembered that they were employed in their military as well as in their ecclesiastical and domestic architecture. The core of the wall was naturally of concrete, as in the Roman period, but the manner in which the bricks of the casing were arranged contributed greatly to the decoration of the

exterior of buildings. They were laid, not always horizontally, but sometimes obliquely, sometimes arranged in the form of the meander fret, sometimes in the chevron or herring-bone pattern, and in many other forms of similar design, giving great richness and variety to the façades, as may be seen in the churches of Thessalonica. Further, the universal use of brickwork made the Byzantines pay great attention to their mortar, so much so that it remains at the present day as hard as that in the best buildings of Rome itself. It was composed of chalk, sand, and brick-dust. In vaulting, porous stones, especially pumice, were used; sometimes the domes were constructed of pottery, as at St. Vitale at Ravenna, where it is formed with urns and amphore placed side by side and grouted with mortar. It may also be said that Byzantine architecture was developed by the use of brick in the frankest and fullest manner, especially in domical vaulting, and that, further, an absence of preparatory and auxiliary work is remarkable. In this respect, M. Choisy remarks that, the "greater number of their vaults rose into space without any kind of support," (i.e., without centring) by the use of large flat bricks. Choisy further proceeds to say that it is quite a distinct system, not even derived from a Roman source, but Asiatic; and that Byzantine art is the Greek spirit working in Asiatic elements, for the dome on pendentives was invented and perfected entirely in the East. In the Byzantine system of vaulting, the vault surfaces gave the conditions of the problem and the groins or angles of intersections were of secondary importance; presenting a direct contrast to the mediæval buildings of Europe.

In regard to exteriors, from the time when the architect permitted the forms of the vaults and arches to appear in the exterior decoration of the façades, the regular entablatures of the Romans were abandoned, and in the church of S. Sophia we see the fully developed Roman style. For whereas in the older buildings of Rome, the columns and entablatures could be and have been removed without causing the ruin of the building, in S. Sophia the true Greek expression of truth in construction is reverted to, its columns and capitals being not merely ornamental, but really supporting the structure. In continuation of Greek principles the capitals even assume a novel form, appropriate to their new purpose of receiving the springers of arches, the voussours of which were always square, and not set in receding planes as in so-called Gothic architecture.

As Freeman says:—"The problem was to bring the arch and column into union,—in other words, to teach the column to support the arch." This was done by shaping the block of marble which formed the capital so that a simple transition from the square block to the circle of the column was formed." There were four main types of capital used by the Byzantines, and these are found in S. Sophia (see figs. A, B, C, D, and lithograph plate).

Further, as Swainson and Lethaby say, the numerous round shafts of S. Sophia exhibit a remarkable and beautiful structural expedient, by which the necking is entirely suppressed, and bronze amulets surround the shafts under the capital and above the base. This method prevents the shafts from sliding or splitting, and retains the lead beds

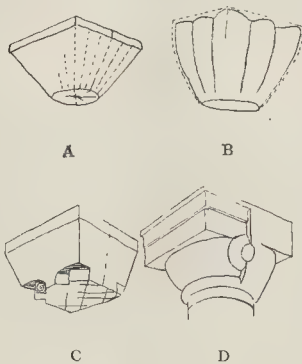
from being forced out by the weight (Choisy), for large monolithic shafts were the more apt to split, as they had to be set up contrary to the direction of the quarry strata.

In Byzantium, ornamentation and structure were intimately united.

In regard to decoration, although columns of the richest marbles were taken from old buildings, the importation and sale of decorative materials, such as rare marbles, did not in the least decline. The Theodosian code in fact encouraged this branch of trade and industry, and the mode of ornamentation by means of coloured marbles was carried to a greater extent than ever before. The quarries opened by the Romans were carefully preserved for decorative purposes, and the workmen employed in them governed by imperial decrees issued specially for their guidance.

In the Byzantine period no church was founded in which mosaic did not add its splendour to that of sculpture and precious stones. The decoration of St. Sophia and the domes and apses of all the churches of Nicea and Thessalonica show the perfection to which this art had been carried.

But, further, the use of natural stones in mosaics and inlaid pavements had been abolished, and the art of enamelling had



arrived at perfection. All the mosaics which still adorn these domes and apses are of coloured enamel, that is to say, of glass rendered opaque by oxide of tin. The invention of gilt glass for the ground of pictures in mosaic was, nevertheless, anterior to the reign of Justinian.

To sum up the influence of material, we find that from the possession and extensive use of these rich marbles, a flat treatment, with an absence of mouldings, cornices, and modillions prevailed, while externally the use of coloured bricks is seen in conjunction with stone; that mouldings were subordinate to the decorative treatment in marble mosaic; and that the simple treatment of the exteriors in flat expanses of brickwork did not leave the same scope for mouldings as in other styles. Flat splays enriched by incised or low relief ornamentation were introduced, and in general mosaic and marbles were used, in a broad way, as a complete lining to a rough carcass; architectural lines were replaced by decorative bands in the mosaic, which was worked on rounded angles. One surface melts into another as the mosaic sheet creeps from arch to pendentive up to the dome; while the gold of the background is carried into the figures, and unity of surface thus always maintained.

In Byzantine buildings, then, the logical outcome of Roman methods of construction is seen; dome and vault are here freed from the Greek trabeated system, and advanced to the dignity of a style, through the acceptance of a novel principle and the discovery of an architectural expression suited to it. The use of rough and small materials involved the constructive principle of the arch, dome, and vault, and these forms were the elements of the new style; the development of which was further extended by the influence of material in the creation of fresh and expressive details adapted to its forms.

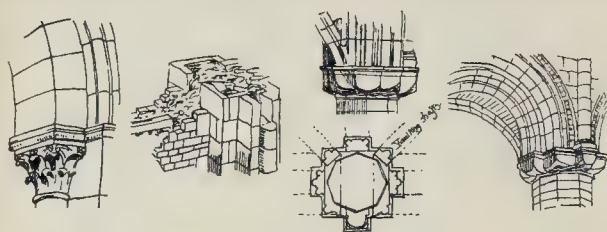
CHAPTER VI.

Romanesque: A Period of Destruction and Upheaval.

Given an ancient civilisation of vast extent, devoid of physical force, and recognisable only by the multitude of its monuments, some intact, others injured, partially destroyed, all unguarded, and most of them disused—a calamity which happens in due course to every great nation or group of peoples. Then, and in no poetical sense, but sadly prosaic in its realities, "all save the spirit of man is divine." But slowly, and with many a contortion, many a yawn, this same man throws off the sleep of ages and awakens to a sense of the treasure he possesses, of the wants he begins to understand, of the means to the ends he would attain. In his midst are ruins of vast edifices, some still standing among heaps of stones hewn and carved, of sculptured capitals and friezes, of monoliths of porphyry and marble, while his own shelter affords him little protection either in cold or sunny weather. What happened? As time went on he gathered up the smaller fragments and arranged them perhaps upon the foundations, still intact, of an ancient building, and as he gradually acquired a knowledge of the uses to which he might apply this and that fragment, he insensibly produced something that learned men of two hundred years ago dubbed Romanesque. This vividly explains the true birth of Romanesque, for it is certain that the quarry of the ruins of ancient buildings largely influenced the work done both in construction and decorative treatment, in that the new buildings were generally built from the remains of ancient Roman buildings in the vicinity, and for this reason, although extremely interesting from an archæological point of view, the buildings can hardly have, in the architect's mind at least, the value for study which a new manner in architecture, arising from new structural conditions, is certain to possess.

In Italy there were various early Christian edifices erected at Ravenna from the fifth to the seventh centuries. Ravenna was the principal city in Italy during this period, being the seat of the Exarch or representative of the Byzantine Emperor in the western part of his dominions. These buildings partake, naturally, of the elements of the then fully developed Byzantine style, in the same way as St. Mark's, Venice, the prototype of St. Front at Perigueux, was the result of the close connexion of these centres with the trade and commerce of the East.

Turning to France, we find that in Aquitania and the West of France during the eleventh and twelfth centuries the old traditional basilican plan was preferred and adhered to (except at St. Front); but the



E.—Romanesque capital to take square impost of arch-stone. F.—Romanesque walling, ashlar with rubble filling. G, H. Pier, chair aisle, Peterborough.

dome raised on pendentives became the common kind of vaulting, in conjunction with the single or aisleless nave. It should be noted, however, that the use of the Pointed arch occurred in the South of France sooner than in the North, and it is considered by some that it was derived from contact with the Saracens, who invaded this portion of France from 719-732. Further, the development of monasteries in the eleventh century gave a great impulse to civilisation and agriculture, and exercised great influence on architecture. Provence was, moreover, in the twelfth and thirteenth centuries the chief entrepot of the growing traffic from the East, and the highway by which artistic and other products of the Levant were dispersed through France and the North of Europe. Similarly, the development from Roman to Gothic art was accomplished by the ordeal of the destructive, though purifying, dissolution of the Dark Ages, whence the true spirit of Roman construction emerged, cleared to a great extent of the extraneous elements with which it had been so long encrusted. Up to the end of the twelfth century the Provençal architects had led the way, but at this period the lay architects of the North, seizing on the Provençal principle of the Pointed arch, soon developed from it the magnificent Gothic system of the perfected architecture of the thirteenth century.

Let us glance at England. After the departure of the Romans we find a wild and barbarous people whose only idea in art was naturally to use the materials which the Romans had quarried for their own purposes for the erection of their houses, baths, basilicas, &c., but as these remnants of Roman rule became scarcer, the use of wood, which was the natural building material of the time, was developed. We know from the chronicler Henry that churches were erected in this material quite up to Norman times. Now, the use of timber distinctly influenced the contemporaneous and succeeding architecture. The "long and short" work, the balustered windows, and the timber forms exhibited in such examples as Earl's Barton are properly copies in stone of a timber original* (see lithograph plate).

By the time of the Normans these timber forms had disappeared, owing to the increasing use of stone. Putting aside spasmodic efforts, the period of the tenth to the twelfth centuries is remarkable for the tentative employment of a new manner in construction and of a new material. The first is the principle of

* This, however, has been disputed by saying that these forms are the descendants of the Classic column or pilaster.

equilibrium which succeeds to that of inert stability as used by the Romans, and the second is the employment of dressed stone-work in comparatively small pieces, and connected with mortar beds of considerable thickness. This was a method not before attempted, because the materials in use up to that time had not demanded it. By this new system of employment in materials, the whole current of architecture was turned to a constructive system which should answer to its needs, and which, after many tentative experiments, was to lead to the next glorious period of our subject, in which elasticity of structure is joined to the principle of equilibrium.

NOTES.

The National Gallery.

It appears that there is at last some chance of a portion at least of the ground adjacent to the National Gallery being cleared of buildings which ought to have been removed long ago, not only as dangerous adjuncts, but because the time is not far off when the National Gallery must be enlarged, if space is to be found for further acquisitions. Mr. Balfour stated on Thursday last week, in reply to questions from Dr. Farquharson, that plans and drawings of new barracks at Millbank had now been approved, and they would at once be proceeded with, and on their completion the removal of St. George's Barracks would take place. That is one step gained. It is not promised, however, that this will involve the removal of the recruiting dépôt.

The Housing of the Wallace Collection.

It appears that the committee appointed by the Treasury to consider the subject of the housing of the Wallace collection, has practically reported in favour of purchasing and retaining Hertford House for it. The other proposals considered were (1) to remove it to a building adjoining the National Gallery, (2) to remove it to a new building to be erected on a suitable and independent site, and (3) to remove it to South Kensington. The latter proposal is directly in contradiction to the terms of the bequest, one of which was that the collection should be a special museum and the contents be always kept together, "unmixed with other objects of art." In regard to Hertford House there is no doubt a suitability, as a matter of sentiment, in retaining the collection in the house in which it was brought together, but it seems impossible that it can be as well placed for seeing there as it might be in a building specially designed, nor does it appear to us that this scheme, either, is in accordance with another condition of the

bequest, viz., "That her Majesty's Government shall agree to give a site and build thereon a special museum." It seems almost impossible to suppose that the testator in these words contemplated anything else than what their plain meaning implies; and though it may be argued, as the majority of the Committee have argued, that purchasing Hertford House is a fulfilment of the spirit if not the letter of the condition, it looks to us rather like an endeavour to do the thing cheaply. Nor is Hertford House in a very central or convenient position for the majority of the public.

The Prix de Rome Competition.

DURING the last few days the drawings of the architectural competitors for the Prix de Rome have been on view at the Ecole des Beaux-Arts. The subject given was "A votive church at a shrine of pilgrimage, in a picturesque and mountainous country;" certainly a most fascinating subject. The church was to be on a hill 50 metres above the plain, and to contain 2,000 persons. Below were to be two large establishments for thirty monks, connected with the church by two cloisters. Most of the designs are marked by a great care for regularity and symmetry, but show little imagination; the competitors seem to have been entirely under the dominion of geometrical ideas. Among the designs that of M. Blussen has a massive effect, but with a façade looking a good deal too much like a copy of that of St. John Lateran. M. Garnier's design shows some fine qualities, but the church is too small, and appears still more so by contrast with the disproportionately large tower. There is the same fault about M. Hulot's church, which is out of scale with the surroundings, though well planned. M. Duquesne is the only competitor who has risen decidedly above the general level, and to him the "Grand Prix" has been awarded. His design is really picturesque, though here again there is a good deal of imitative work, the façade of the Duomo of Florence having evidently been a source of inspiration. M. Duquesne is a pupil of M. Pascal. We may add that in the sculpture section the Grand Prix has been awarded to M. Legoffin, a pupil of M. Cavelier and of M. Barrias.

WE are promised a new Dictionary of Architecture from America. It is undertaken by Messrs. Macmillan & Co.'s New York house, under the editorship of Mr. Russell Sturgis. It is to include special articles by architects, sculptors, engineers, mural painters, and others, on their special subjects; also biographical and historical articles, criticisms of styles, practical and scientific construction, &c. The dictionary is to be largely illustrated, and in this respect no doubt it will be an advance on the English Dictionary of Architecture, and will be more popular; though we do not think it is likely in any other respect to supersede, or even come up to, that careful and trustworthy publication. Unfortunately, the English Dictionary of Architecture only exists in a limited number of copies, and there seems no probability at present of another edition.

The Tate Gallery.

A CORRESPONDENT of the Times has raised several interesting points in regard to the Tate Gallery. One of these is whether the Royal

Academy can legally house the Chantry Collection in the Tate Gallery. It would certainly appear doubtful whether they can legally place the pictures purchased out of the Chantry Bequest in the custody of third persons. It depends, of course, on the terms of the bequest, but we should think that to give the charge of the collection to other persons was a breach of trust. If these pictures can be placed at Millbank it would seem that they might equally well be handed over to the Corporation of Liverpool for custody. It cannot be said that the Royal Academy behaved well in the matter of the Gibson sculpture, and if the authorities at Burlington House are practically going to hand over the Chantry Collection to the nation, it will be regarded as a tacit giving up of their trust.

A LARGE number of public buildings of some importance are to be taken in hand this year at Berlin. The Crown Authorities are about to commence the new Royal stables near the Palace; the Military Authorities are to extend the War Office in Wilhelm-street. The architects of the buildings are respectively Herr Ihne and Herr Vetter. Under the auspices of the Military Authorities a Veterans' Home is to be taken in hand in König-street, whilst in Krupp-street some large military depots are already in progress. In New Frederick-street the Ministry of Justice will be erecting some Law Courts, under the supervision of Bau-Inspector Moennich. The School Authorities are erecting a large gymnasium in one of the suburbs for the Frederick William School, whilst the Railway Administration has recently started the entire reconstruction of the great Stettin Station, from designs by Herr Bathmann. We do not hear this year of any new churches being taken in hand, though contracts will probably be invited for several small ones in the suburbs. Some new administrative offices and a Clergy Home are, however, soon to be commenced for the Church authorities. For the Nieder Barnim Division Herr Schwechten has prepared a design for Assembly Rooms, and the Municipality are giving instructions for the commencement of a new Children's Hospital, and also for a considerable extension at their gasworks. The date for commencing the new Provincial Museum has not yet been decided. This latter building will be the only one of considerable architectural pretensions to be taken in hand during the next few months. It will be carried out from the designs of the City Architect, Herr Hoffman.

In reply to a question asked in the House on July 29, the First Commissioner of Works said he expected to get possession of a large portion of the site between Parliament-street and King-street at Michaelmas, and should then proceed with the demolition of the property. The remainder of the properties would not come into the possession of the Government for some months longer, owing to inevitable delay in arbitration.

We are quite accustomed to see iron or steel arched bridges hinged at the crown and abutments, but to treat a masonry arch in this manner would at first sight appear to be rather venturesome. In Germany, however,

several bridges were built some few years ago on this principle, one of them having an effective span of 150 ft., and the result has been quite successful, both from a constructional and from an economical point of view. A very complete description of this method of construction was contributed by Mons. G. La Rivière to the *Annales des Ponts et Chaussées* soon after the bridges were built, and is well worthy of careful perusal. The author draws attention to several curious features in the design of these bridges, but by far the most remarkable is the introduction of the three joints in the masonry ring. These joints, which really act as hinges, are placed one at the crown and one at each abutment, and prevent, of course, the line of pressure deviating very much from the centre line of the arch ring, thereby removing all ambiguity as to the actual stresses. The rise of the arches in some cases is not more than $\frac{1}{10}$ the span, and no masonry backing is employed, the roadway being supported from the arch by means of thin spandril, or cross walls. The hinged joints are made by inserting sheet lead about $\frac{3}{4}$ in. thick, extending over only the middle third of the arch stone. At first it was thought that this joint should be made by means of bearing plates and pins, much in the same way as would be done in a steel arch, but this arrangement was subsequently abandoned in favour of the sheet lead.

New Electric Traction Systems.

Two new conduit systems of electric traction, the "Lachmann" and the "Simplex," have been attracting a good deal of attention lately. The main novelty about the Lachmann system is a curious device used to diminish leakage. The high-pressure conductor in the underground conduit is covered with a hood which acts like a diving-bell, and prevents water touching it, even when the conduit is flooded. Experiments on an experimental track at Hamburg have given very satisfactory results, and a trial track is being laid at Vienna. We are inclined to question, however, whether the loss by leakage on a conduit system is so serious as to demand so complicated a remedy. The "Simplex" system will prove a formidable rival to all other conduit and surface contact systems. The high pressure conductor in the conduit consists of a flexible wire cable which rests loosely upon insulators which are placed about 10 yds. apart. Contact is made with this conductor through a slot, $\frac{3}{4}$ in. wide, by means of a rigid arm, which carries an insulated wire connected to a brass shoe which rubs along the cable. One great advantage of the method of constructing the track on this system is that when once laid down there will be practically no necessity for ever disturbing the permanent way. The average cost of a mile of single track standard gauge tramway is given as 6,000*l.* This is practically the same as the price of an overhead trolley system, and there seems no reason why it should not prove as easy to work and keep in repair. The running of the car on the experimental track laid at Prescott which contains a curve of 45 ft. radius, has been favourably commented on by experts.

The Ader Recorder.

AMONGST the practical instruments used in telephony the Ader receiver and transmitter are two of the best known. In France and

Belgium they are almost exclusively used, and they are favourably known in this country. M. Ader has recently invented a novel form of recorder for submarine telegraphy, and on June 21 he exhibited and described his instrument to the Académie des Sciences in Paris. The Kelvin syphon recorder has for thirty years been practically the only receiver for telegraphic work through long submarine cables, but if the Ader recorder is as satisfactory in everyday work as it has proved itself in experimental tests, then it ought to be a successful rival. A fine wire, on which is fixed a small mirror, is suspended in front of a powerful electromagnet. The smallest current, therefore, flowing through this wire causes it to be attracted or repelled. A beam of light is made to fall on the mirror, and is reflected on a moving strip of sensitised paper, which afterwards passes through a developing bath. A permanent record is thus made of the signals, which can then be easily read. With one of these instruments a speed of 600 signals was obtained on the Brest St. Pierre Atlantic cable. This compares with a maximum speed of 400 signals per minute with the syphon recorder. In another experiment on the Marseilles-Algiers cable (500 miles) a speed of 1,600 signals per minute was easily read. These recorders ought to enable cable companies to reduce their charges.

ONE scarcely expects to find Life in Sewers. anything very recondite about "Life in Sewers" in a paper read before a "Literary and Philosophical Society." Indeed, one wonders that any one could be found brave enough to attempt such a subject before such a society; yet this is what Mr. H. Alfred Roeschling has done at Leicester. Nearly one-half of the paper is padding of a mild engineering type, but the remainder is worth perusal, if only for the *résumé* which it contains of the tests made by Dr. Alessi, at the Hygienic Institute at Rome, on the connexion between sewer air and typhoid fever. These tests exhibited in a striking manner the deleterious effects of sewer air in predisposing animals to the pathogenic action of typhoid bacilli. This does not mean that sewer air produces typhoid fever, but that in some peculiar manner it renders those persons who breathe it more susceptible to the attack of the typhoid bacillus when this is imbibed into the system. Sewer air, indeed, is remarkably free from germs, but it is none the less a powerful factor in the spread of disease.

Municipal Report, Shanghai.

WE have received the Annual Report of the Shanghai Municipal Council to December 31, 1896. The Works Report of Mr. Mayne, the Engineer and Surveyor, mentions among other matters the completion of the new Central Electric Lighting Station, and of a Crematorium and Chapel at the Bubbling Well Cemetery; and the signing of the contract for the new Drill Hall and Markets, for which the necessary steel and iron work has been ordered from home, and the old wooden markets pulled down. Nine miles of private drainage has been laid, the main drainage of the Yangtze-poo-road completed, and a new bridge 40 ft. wide, erected over the Yangtze-poo creek. An Isolation hospital and a Fumigation Station are also among the recent works. The erection of a Refuse Destructor has been contemplated, but

has been postponed for further consideration, as it is not considered certain that the forms of refuse destructors as hitherto made will deal satisfactorily with Shanghai refuse (it is not stated why, or what is the peculiar character of the refuse). Other portions of the Report give a tolerably graphic picture of the struggles of a rather young colonial city towards a sanitary and orderly condition. Complaints are registered of the nuisance from coolies carrying night soil along Bubbling Well-road in uncovered buckets, and an order is made that they are to provide themselves with covered galvanised iron buckets of the municipal pattern, and the police are to stop all others. The traffic on the same road gives trouble; "an extra trooper" has been placed on it; 355 arrests for furious driving were made during the year, several foreign residents, it is noted, "show a very bad example to the natives" in this matter. Under the same heading, "Miscellaneous," we learn that housebuilding is on the increase, fifty foreign houses and about eleven hundred Chinese ones having been built during the year. The municipal authorities and their engineer seem to be working actively for the improvement of the city.

The contents of this house, which changed hands recently, will be dispersed by sale at auction in the current month. The pictures include paintings by Van Dyck, Teniers, Lely, and Kneller, and a portrait of Sir Anthony Browne, attributed to Holbein. Amongst the furniture are two chairs that had belonged to Cardinal Wolsey, a marquetry wardrobe dated 1691, and a clock which was once James II.'s. This fine old manor house was erected in 1525-38 by Sir Thomas Kytson, of London, merchant, who purchased the estate from the Duke of Buckingham, to whom it had been restored, on reversal of the attainder, by Henry VII. It forms an exceptionally fine example of early Tudor domestic architecture. It is built mainly of white bricks with stone dressings, the stone and lead being taken from certain religious houses round about. The principal windows, with the elaborated oriel resting on a corbel above the gateway, contain stained glass and armorial bearings.* The property passed to Thomas (Darcy), Earl Rivers, who married Mary, daughter of Sir Thomas Kytson; their daughter and heir, Penelope, brought it in marriage to her second husband, Sir John Gage, of Fittle, Sussex, in whose descendants it remained during 200 years. Of the portraits by Van Dyck, one is a likeness of Lady Penelope. In September, 1893, Hengrave Hall, with its 4,500 acres, was sold by Lord Kenmare to Mr. John Lysaght, founder and head of the firm of John Lysaght & Co., of Bristol, Wolverhampton, and Sydney, ironfounders.

It is to be hoped that the Society for Checking the Abuses of Public Advertising ("S.C.A.P.A.") has not failed to take note of the last outrage committed by that arch-advertiser Beecham. It appears that Nelson's old ship the *Foudroyant*, which, as our readers will remember, has been re-rigged and furnished as a specimen of an old line-of-battle ship, got ashore by some mischance. Beecham's agent on the spot seems

immediately to have regarded her as lawful prey, and telegraphed to his principal to know what use he should make of the opportunity, receiving a telegram in reply to "do the best he could." Accordingly this impudent fellow took painters down to the beach and defamed the hull of the grand old ship with the words, "England expects every man to do his duty in swallowing Beecham's Pills." It would be difficult to imagine a more vulgar and disgraceful outrage on good taste and good feeling than in putting to this use a speech which is one of the greatest utterances of one of England's greatest heroes. It is gratifying to find that the law, on the suit of the owners of the ship, took the view that the act was an illegal trespass, and fined Beecham 50*l*. We only wish it had been 50,000*l*.

THE ARCHÆOLOGICAL INSTITUTE AT DORCHESTER.

The annual meeting of the Archæological Institute began at Dorchester in the forenoon of Tuesday, August 3, when there was a large muster of members at the Town Hall. The chair was taken by the Mayor, wearing his handsome (modern) chain of office. He was supported by the Rev. Sir Talbot Baker, Sir Henry Howorth, M.P., Chancellor Ferguson, Professor Boyd Dawkins, Professor E. C. Clark, General Pitt-Rivers, the Venerable Archdeacon Frere, the Rev. Dr. Cox, the Rev. Canon Manning, Messrs. Hilton, Micklethwaite, Mill Stephenson, Mansel-Pleydell, and other well-known supporters of the Institute. The Mayor contented himself with a few appropriately brief and terse words of welcome, and called upon General Pitt-Rivers, as President of the meeting, to deliver his opening address.

For upwards of an hour the veteran archæologist of Dorsetshire held his listeners' close attention whilst he gave a summary of his many years of patient and assiduous investigation of the Romano-British villages and other early antiquities on his estate at Cranborne Chase, together with an account of his more recent investigation of camps of the bronze age. He prefaced, however, his local remarks by a spirited defence of the genuine artificial character of the worlded flints of the paleolithic age that he discovered a few years ago in the gravel of the Nile Valley, near Thebes, in the neighbourhood of Koorneh. Sir William Dawson has argued that the condition of these flints had been produced by natural causes, to which General Pitt-Rivers replied that Sir William had never seen them, and that if he had he was sure he would change his opinion. This criticism had appeared in a paper of the Victorian Institute, an association which General Pitt-Rivers described as "not altogether free from theological bias."

The patient work of careful record in which the General has been for so many years engaged in his systematic excavations is well known to all working archæologists through his three large quarto volumes of results, and he now proceeded to foreshadow the contents of his forthcoming fourth volume. The chief work of the last year or two has been the thorough exploration of four rectangular camps of the bronze or early Roman age. The ramparts of these camps were but slight, and were doubtless originally strengthened by wattled stockades. Their chief purpose would probably be to secure immunity from the attacks of wild animals. The occupants of these camps were a pastoral folk, and had sheep and oxen under their control. The dogs that they kept by them varied from those of retriever size to small terriers. Contrary to the recent contention of Sir John Evans, in the last and just published edition of "Stone Implements," these bronze age camp dwellers made frequent use of flint implements of various kinds, though not, of course, so frequently as their predecessors. In conclusion, he made a strong plea for greater detail and accuracy in investigations, and urged that landowners should never permit anything but scientific excavations of the many unopened barrows and camps that still existed in England.

Professor Clark proposed, and Professor Boyd Dawkins seconded, in eulogistic language, a vote of thanks to the General; whilst Sir

Henry Howorth and Judge Baylis did the same kind office for the Mayor.

An adjournment was then made to another room, where the town maces (a not very remarkable pair, dated 1728) and several early charters of the town were exhibited.

The perambulation of the town of Dorchester began at two o'clock, under the good guidance of Mr. H. J. Moule, M.A., the able author of "Old Dorset," and curator of the county museum. The members assembled at the Roman amphitheatre, just above the railway station, known as Maumbury Rings. The outlines can be easily discerned. The area is an oval about 200 ft. long, and 150 ft. broad. The sides are composed of chalk ramparts, which have now an elevation of some 30 ft. The external dimensions are, of course, much greater, and the accommodation for spectators on the graduated and sloping banks must have been very large. At the recent Jubilee demonstrations over 6,000 of the townsfolk and their friends assembled here, when it was at once seen how insignificant were those numbers as compared with those that might easily have been accommodated.

From the amphitheatre the party proceeded to the walls of the ancient Durnovaria of the Romans, or rather to walk along the shady avenues that now occupy their site, and which are thus, in the strict sense of the term, boulevards. The only fragment of the actual massive walls now *in situ* above the surface is at the top of High West-street, where a piece of walling undoubtedly Roman, 12 ft. thick by 12 ft. high, is protected from further mischief by an iron railing. An adjacent slab describes this fragment, and states that it is the property of the Town Council.

Just outside Dorchester proper is the adjacent township of Fordington, which possesses an interesting church with a good fifteenth century west country tower. Here again Mr. Moule proved himself a most able guide. The chief object of interest at the church of Fordington St. George is the stone carving over the west door, which represents the legend of St. George, at the siege of Antioch, charging the Paynim on behalf of the crusaders. One of the foe is transfixed by the saint's lance, and the rest take flight, whilst the Christian warriors are represented as kneeling in adoration behind their heavenly ally, having stuck their spears and kite-shaped shields into the ground. The whole is portrayed with considerable vigour, though the sculptor seemed incapable of imagining Saracen costume, and therefore contented himself in the representing both friend and foe in conical helmets, and in the general Norman garb so well known from its reproduction on the Bayeux tapestry. There are traces of Norman work in the south arcade, but the church is in the main fifteenth century, with an unhappy eighteenth century chancel and nineteenth century north aisle. There are a few good encaustic tiles. One or two bear the very exceptional device for such tiles of the fylfot cross. The pulpit is decidedly noteworthy, as it is a stone one of Elizabethan date bearing the regnal year 34 and the year of our Lord 1592.

The members, who now mustered a full hundred, next re-entered the town, and found their way to the church of St. Peter, the only one of the four old parish churches of Dorchester that has not been rebuilt. The church throughout is a fair example of Perpendicular work, with a handsome west tower; but here, as at Fordington, there is earlier work in the porch. The south doorway has bold mouldings of Transitional or late Norman date. There is a good Jacobean pulpit, and several remarkable monuments of seventeenth and eighteenth century dates. In the window-sills of the south choir chapel are two knightly effigies in fourteenth century armour. They are good examples, but look rather absurd in their present situation. Mr. Moule said that they had been brought to St. Peter's from the destroyed Franciscan church of Dorchester. The two effigies are generally said to be precisely similar in detail, but Mr. Mill Stephenson pointed out that the one in the south window, from the laminated solerets, was about 1350, and the one in the east window with articulated solerets was somewhat later.

The antiquarian section was opened in the evening (August 3) by Professor Boyd-Dawkins, with a paper on "The Present Phase of Prehistoric Archæology." The Professor's main argument was directed to show that the recent claims made by French antiquaries, and to some extent supported in England, as to the

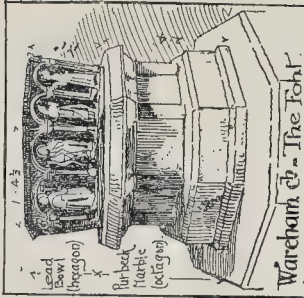
* See illustrations in the *Builder*, Aug. 23 and 30, 1894.



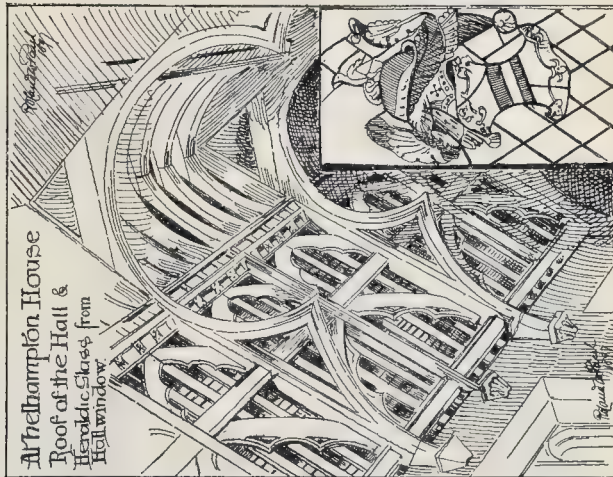
Cote d'Azur
C. J. P.



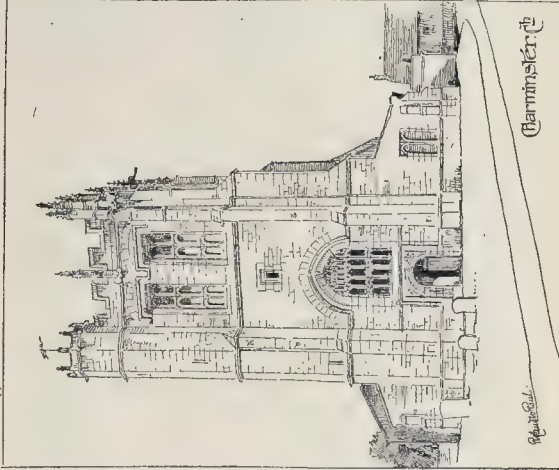
Puddletown Church
Effigy of a Knight in armor



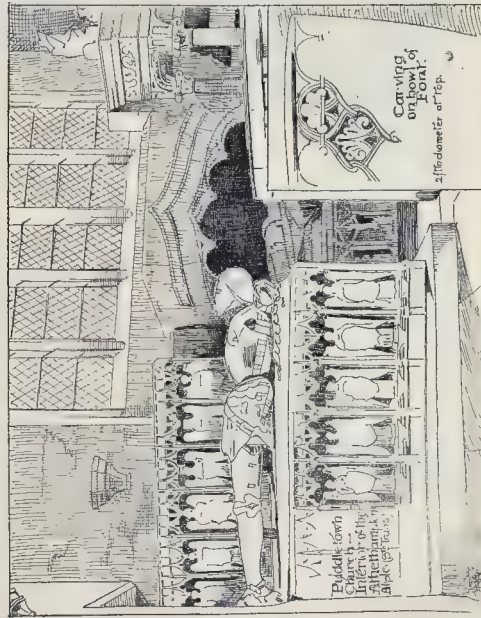
Wardham Ch. - The Font



At Meltham House
Roof of the Hall &
Heraldic Shield from
Hall window



Hamminster Ch.



Carving on the Font
2 ft. diameter at top

Sketches with the Archaeological Institute in Dorsetshire.

bridging over of the great gap between palaeolithic and neolithic man, cannot be substantiated. The assumption has been based upon discoveries in bone caves of the south of France. These discoveries were dealt with in detail, and it was argued that the separation of the strata in these caves was not proved. It was the opinion of Professor Dawkins, and he was subsequently fully supported by Sir Henry Howorth, that this missing link or bridge might eventually be discovered, but that, if so, the point of connexion would be found in southern Asia, or, possibly, even in Africa. An interesting link in his argument was that derived from animal life, when he proved, to the satisfaction at least of his audience, that the domestic animals of pastoral neolithic man did not have their origin from the earlier wild animals of Britain and the European continent, but were introduced from the farther East. The dog, for instance, was not a domesticated wolf, but partook more of the characteristics of the jackal. The Professor concluded by speaking of Dorsetshire as the El Dorado of pre-historic archaeology, abounding as it did in absolutely unexplored works of early man, and made a strong plea for the systematic excavation of such an untested puzzle as Maiden Castle.

On Wednesday, August 4, the large party proceeded by train to Wareham. The old



town occupied the complete area, about 600 yards square, which is enclosed on three sides by great earth ramparts, which are roughly rectangular in their arrangement, the fourth side being bounded by the river Frome. On these ramparts an animated but friendly discussion took place, in which the local antiquaries, Messrs. Moule, Cunningham, and Blacket, and the visiting antiquaries, Sir Henry Howorth, Professor Boyd-Dawkins, and Dr. Cox took part. The upshot was that the balance of opinion was in favour of a pre-Roman date. The interesting little church of St. Martin aroused much interest. With a single exception, it was pronounced to be undoubtedly late Saxon. Mr. Mickelthwaite said that it nearly resembled Deerhurst. The large church of St. Mary was also found well worthy of a visit. The early English lead font, the small chapels on the south side of the chancel, and a puzzling early inscription, apparently relating to a Welsh saint, aroused considerable interest.

Time was insufficient for any prolonged inquiries, for the party next proceeded in brakes to Corfe Castle. This grandly situated



fortress was admirably described by the Rev. O. L. Mansel. There was one healthy wrangle originated by Dr. Cox as to the non-Saxon date of certain herring-bone masonry, and the general opinion of the members of the Institute seemed to be decidedly against any part of the extant building being pre-Norman.

We give illustrations of some of the buildings which are included in the excursions round Dorchester, and which are of architectural interest. Athelhampton House, near Puddletown, and Wolfeton House, near Charminster, are two of the largest houses on the programme. A third, Melcombe Bingham

was illustrated in the *Builder*, October 5, 1889. Athelhampton House was the home of the Martin family, and is a house of the fifteenth century with a later wing. There is a fine oriel at the upper end of the hall, which also has a curious timber roof with trefoiled principals, and interesting heraldic glass in one of the windows. We give a general view of the house from the west, and a sketch of the hall roof, and a part of the heraldic glass. Wolfeton House is also a fifteenth or early sixteenth century house, with a later addition on the west. There is a detached gate-house with flanking towers, some elaborately ornamented windows on the south front, and interesting examples of late ceilings in the later part of the house. Work of the humbler kind occurs at Corfe and Wareham, and we give sketches of the manor or "Mansion" house at Corfe, the old iron sign of the Bankes Arms and the church tower, and the picturesque view down the village street with the castle ruins in the background. Puddletown church contains the monuments, in its south transept, of the Martins of Athelhampton House, and we give a view of the transepts and a sketch of part of an alabaster effigy with a collar of suns and roses. The font is Early and curiously ornamented. Char-



minster Church has a Late tower of sturdy proportions, ornamented with an initial T for Sir Thomas Trenchard, its builder. The Abbey of Sherborne, visited on Thursday, was described and illustrated in the *Builder*, April 3, 1897.

THE DECIMAL SYSTEM IN ENGINEERING MEASUREMENTS.

This was the title of a short paper read recently by Henry Riall Sankey, Capt. R.E. (ret.), M.Inst.C.E., at the Engineering Conference of the Institution of Civil Engineers. The paper was as follows:—

Broadly speaking, the decimal system is used in engineering in this country whenever calculations other than mere checking have to be made, or when very accurate dimensions have to be expressed; and in either case, in mechanical engineering, the decimals are generally those of the inch, its square, or its cube. The reason of this is fairly obvious. As regards calculations, decimals are, on the whole, far simpler than vulgar fractions, and they allow of the ready use of the slide rule or Tables of logarithms.

It is true that occasionally simple vulgar fractions have to be dealt with, as, for instance,



one-sixth in the case of the formula for the strength of a rectangular beam. In such cases the vulgar fraction would obviously be used; to convert to decimals would correspond to using a slide rule or a book of logarithms to multiply six by five or some such simple sum.

In the case of accurate dimensions in mechanical engineering, $\frac{1}{16}$ in. is far from being a sufficiently small dimension; hence the use of the terms bare and full, and, as for interchangeable work, such vague dimensions are very unsuitable, recourse is naturally had to the use of $\frac{1}{32}$ in. and $\frac{1}{64}$ in. The writing down of accurate dimensions is also very cumbersome, even when they can be expressed by $\frac{1}{16}$ in.

Compare, for instance, 11 in. + $\frac{1}{16}$ + $\frac{1}{32}$ + $\frac{1}{64}$ bare with its decimal equivalent 11.08 in. No doubt the same dimension may be more briefly expressed as 11.08 in., but this form is not generally used in practice, and there are obvious reasons why this should be so.

It will be observed that the decimal expression has only been carried to the second place, and this is because the uncertainty is $\frac{1}{64}$ in. "bare" is of the order of $\frac{1}{32}$ in. If the decimal expression is extended to the third place, an order of accuracy is reached, expressed by $\frac{1}{32}$ in. on the binary scale, fractions which are not practically workable.

When dimensions of no special accuracy have to be stated, the natural tendency to successively divide the unit by two gains the upper hand. Notwithstanding this tendency and the prevailing custom, it can scarcely be doubted that it would be preferable to state all such dimensions in decimals of an inch.

If decimals of an inch are adopted the system is still inconvenient, owing to there being 12 in. to the foot, 3 ft. to a yard, and so on.

It is here that the metric system has a great advantage—it is a decimal system throughout. As experience in such a matter has more value than mere theory, a statement of the results of introducing the metric system of linear measurements into the works of Messrs. Willans and Robinson may be of interest.

In the first place it is desirable to say a few words about the class of work and method of manufacture carried out at the works in question.

The Willans central-valve engine and the Niclausse water-tube boiler are manufactured each in certain definite standard sizes, and the parts required are made to gauge and template in large batches, and have to conform to fixed dimensions within specified limits of accuracy, in order that strict adherence to the interchangeable system may be maintained.

In the machining and examination of the parts, gauges and templates are used, as far as possible, to the exclusion of the measuring rule. Whether inches or millimetres are used is, therefore, not a matter of much importance.

At the marking-off table the measuring rule is, of course, more used, and the question of convenience in the unit of measurement, and its divisions, is of greater importance; the parts are, however, dealt with in batches, and the convenience or otherwise of the unit of measurement, and its divisions, tells once, only, for each dimension for the whole batch.

The circumstances that led to the adoption of metric linear measurements are not of general interest, and for reasons which need not be entered into here they were only applied to the Niclausse boiler and to certain sizes of the engine. The earlier sizes being still made to drawings figured in feet and inches; thus the two systems are concurrently at work in the same shop.

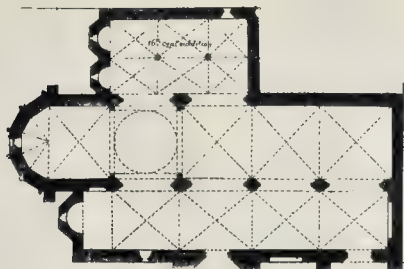
There would have been no advantage in refiguring these drawings with equivalent millimetres, and to make new parts to millimetres to interchange with old parts made to inches would be impossible without going to several places of decimals. The old gauges and templates were marked with the millimetre equivalent to the third place of decimals; but this was merely to accustom the men to sizes expressed in the new system. It may be mentioned that the men were supplied with rules marked with millimetres on one side and inches on the other.

The expense involved consisted principally in providing a complete set of gauges. New templates and jigs had also to be made, but only a portion of their cost is properly chargeable to the introduction of the new unit, as the greater number of them would have been required in any case.

The only difficulty met with has been in connection with the screw threads. Hitherto the ordinary Whitworth and gas threads have been retained; but, for reasons connected with the manufacture of the engines abroad, the body of the bolt or stud is turned larger than usual, the excess being 0.3 millimetre for $\frac{1}{2}$ in. Whitworth, and 2 millimetres for $1\frac{1}{2}$ in. Whitworth; intermediate sizes are in proportion, all being brought up to even millimetres. The bored holes are then able to take the corresponding screw cut to the standard used by the French makers of the engine, who use the thread of the Société d'Encouragement, which is slightly larger than the Whitworth, and which, it is stated, promises to become universal in France; it is now adopted by the French navy and railways.



Church of "St. Nicholas of the English," Nicosia, Cyprus
(now a grain storehouse).



"St. Nicholas of the English," Nicosia, Cyprus. Plan

The metric dimensions were introduced in May, 1893, and, after four years' working, the following is the result:—

No difficulty has been experienced in getting draughtsmen to use the new measures. No serious mistakes have been traceable to the change, and very few minor ones. The draughtsmen are practically unanimous in favour of metric measures, finding it easier to design, to check, and to read millimetre drawings. Taking all fractions into account, little more than half the number of figures formerly used are now required to express a dimension. An average case would be 3 ft. 1 $\frac{1}{2}$ in., which, on a millimetre drawing would be figured 0.49; and an extreme though possible case is 3 ft. 1 $\frac{1}{2}$ + $\frac{1}{2}$ in. bare, which becomes 0.424.

The need to use decimals of a millimetre is very infrequent, but in the case of inches the use of fractions is, of course, the rule. A cylinder, for example, might be figured 2 ft. 6 in., on an inch drawing, and 770 on a millimetre drawing; the piston body must have a certain clearance, say $\frac{1}{2}$ in. in one case, or 1 millimetre in the other, in which case it must be figured 2 ft. 5 $\frac{1}{2}$ in. on the inch drawing, whereas on the millimetre drawing the dimension becomes simply 768, and the use of fractions is wholly avoided.

The proportions between dimensions are more readily appreciated when expressed in millimetres; thus the ratio between 27 millimetres and 49 millimetres is much more easily apprehended than between 1 $\frac{1}{4}$ in. and 1 $\frac{1}{2}$ in.

A point of some importance is that the ordinary foot and inch ticks or marks are not required, and with them disappears the possibility of having 2 in. added to each 10 in., or deducted from each foot in a dimension. A case of this kind occurred in which two 13 in. flanges intended to come together were shown on different drawings; in one of them a tick was introduced after the one, and that flange was made 1 ft. 3 in.

With millimetres a cypher might possibly be put in, or omitted; but a dimension ten times too big or too small, would at once be noticed as absurd.

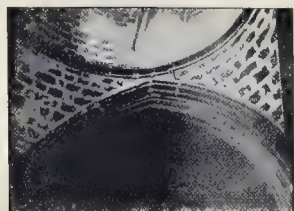
In the drawings, scales 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, and occasionally of $\frac{3}{16}$, $\frac{5}{16}$ are used. It is found that this number of scales is amply sufficient.

No mistakes have been made in marking off work to millimetres. The men preferred the old system at first, the new figures conveying little idea of size; but they are now much in favour of the millimetre, and find drawing so figured easier to read. The shop where the difficulties of the change would be most felt is that in which the tools and gauges are made; the foreman says that it was a little awkward at the outset—for about two days.

In the work's manager's opinion, the metric system would prove even more advantageous in shops where measurements are taken from the rule than where gauges are used. He considers it easier to teach men the use of the rule with the metric than with English measures.

THE MEDIAEVAL ART OF CYPRUS.

An effort is being made to institute a museum of Mediaeval art in the island, and perhaps if the subject were better known in England some influential support might be obtained for the purpose. The immense collections of fragments of sculpture, marble doorways, windows, coats of arms, sepulchral monuments (some bearing the familiar names of Berkeley, Nevill, &c.) which lie about the towns of Nicosia and Famagusta uncared for, and in imminent danger of destruction, are more than sufficient to fill an important museum of art. It seems incredible that the art-loving public of England should allow so rich and varied a collection to remain almost unnoticed and in ever-increasing danger of total destruction. At the present time, it is currently reported, the priceless remains of Famagusta are being used as a stone quarry for Port Said. The miserable natives of the island have not, of course, any compunction in destroying as much as they can of the beautiful old French and



Part of Vault of Cupola, "St. Nicholas of the English."

Venetian houses, many of which lie more or less in ruins. The splendid churches of the fourteenth and fifteenth centuries remain in fair preservation in cases where they have been converted into mosques; but as mosques they receive no attention or repairs, and only the sound construction of the middle ages insures their continuance for another century or two.

The church of "St. Nicholas of the English," in the centre of Nicosia (capital of the island) is now in the hands of the English Government, and used as a storehouse for grain. It is suggested that this most beautiful building, a veritable museum of the finest Gothic art in itself, should be converted from its present deplorable, squalid condition, into the museum in question. There was, at one time, a desire on the part of many Anglo-Cypriotes to turn it back to its original use as a church, for the use of the English residents, but since the building of a small modern church outside the town, such a project is impracticable. The building is admirably adapted for a museum, and its position in the centre of the town, close to the splendid cathedral (now a mosque) and to the other churches, would give Nicosia a sort of public building, the first of the much needed ones which the town would possess.

It is needless to point out the many advantages to the island which such a museum would confer. It would be of considerable educational

value to the natives, in addition to forming an attraction to visitors who are now beginning to include Cyprus within the regular Levantine tours.

The art and architecture of the Lusignans is second to none in point of style and interest, and certainly there is nowhere in Europe so fine and complete a collection of examples of the period as in Cyprus.

G. JEFFREY.

Jerusalem.

DOG-IRON FOR GRATE, CHIVELEY PARK.

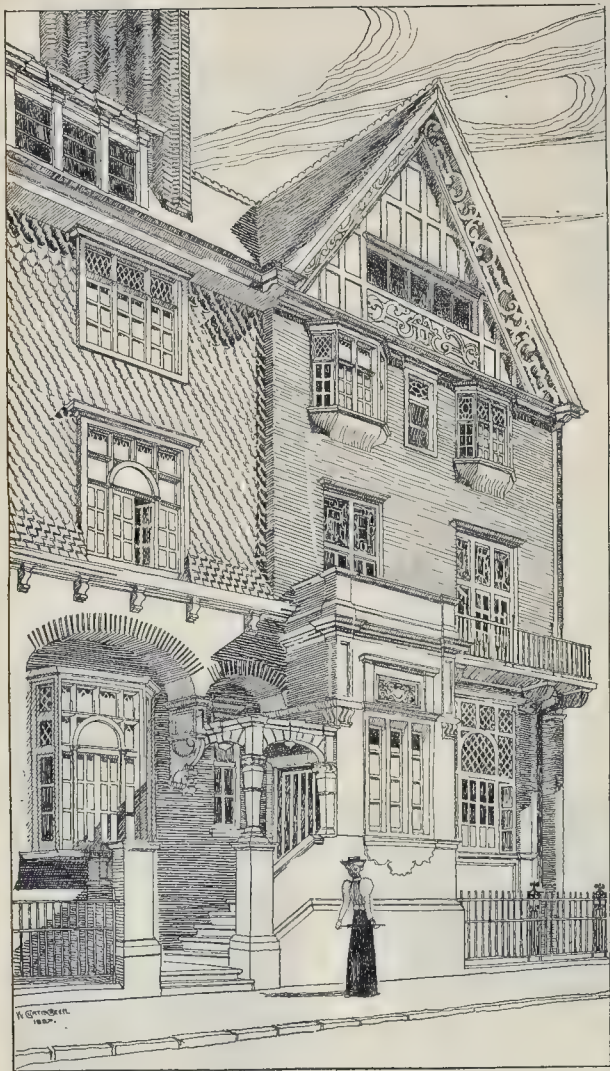
This illustration is from a photograph not of the actual metal-work, but the model for it, from which the detail can be photographed



Dog-iron for Grate, Chiveley Park. Executed by Mr. Gilbert Scale from the design of Mr. R. W. Edis.

better, probably, than it could have been from the iron. It was modelled from the design of Mr. Edis, the architect, by Mr. Gilbert Scale.

HÔTEL METROPOLE, FOLKESTONE. — Messrs. Roberts, Adlard, & Co., ask us to mention that they executed the slating on this building, which was described and illustrated in our last issue. Claridge's Asphaltic Company covered the principal flat portions of the roof.



Sketches of London Street Architecture.—XVII. The Farm House, Pont-street. Mr. C. W. Stephens, architect.

SKETCHES OF LONDON STREET ARCHITECTURE.—XVII.

This residence sketched here, and known as "The Farm House," in Pont-street, was built, in 1885, for the late Sir Herbert Stewart, whose death in the Sudan occurred, unhappily, before its completion.

It is built with red bricks and Broxley tiles, and has a frontage of 90 ft. All the reception-rooms are on the ground floor, including a spacious hall, dining-room, and drawing-room, and boudoir with panelled walls.

There is a billiard-room on second floor, with an open timbered roof. A wide oak staircase with massive carved balustrade leads from the ground-floor to the first and second floors of bedrooms.

Mr. C. W. Stephens is the architect.

TWEDDMOUTH MEMORIAL CHAPEL, INVERNESS.—On July 26 the memorial stone of this chapel adjoining the Northern Infirmary, Inverness, was laid. The building is already erected and has cost about £2,000. The architects were Messrs. Ross and Macbeth, of Inverness.

THE SOUTH KENSINGTON PRIZE DESIGNS.

The usual exhibition of the work executed during the past year by the students of the various schools of art throughout the kingdom was open last week at the South Kensington Museum, and the drawings and models were well arranged in sections.

In the section of architectural design Mr. James A. Swan sent in a design for a provincial market hall which he had previously exhibited for the Soane medalion at the Institute of Architects. We do not know if the authorities are aware of this system of "pot-hunting," of foisting one design for several medals, but we should imagine it is contrary to the spirit under which the examinations are conducted. Mr. George A. Paterson, of Glasgow, obtained a gold medal for his design for a memorial chapel in the "Greek Thomson" manner, which was published in the *Builder* of May 15 of this year, so that we need not describe it further.

Silver medals were awarded to Mr. D. M. Stoddart for his design for a "Small Art Department," and to Mr. James McKissack for

his "Museum and Art Gallery," a somewhat laboured design in the Classical style, with ornamented frieze, and badly proportioned dome.

By far the most pleasing of the premiated designs was that by Mr. William Haywood, of Birmingham, whose design for a "Fountain in marble and bronze" is original and consistent. The crisp pencil drawing was accompanied by a photograph of a plaster model, which has evidently been made as a study. It is an excellent idea for a small subject, and might in some cases be insisted on. A silver medal was also awarded to Mr. D. Stoddart for a design for a "Monument," a curious design with Gothic tendencies, treated with niches and pinnacles, and which might look better in execution than it does on paper.

Bronze medals were awarded, amongst others, to Mr. A. M. Gardner, for "An Art Department for a University," in a school Classic manner, which is an element we regret to see in many of the designs, although we could hardly expect otherwise having regard to the system under which the designs are produced; to Mr. J. Houston for a "Chapter House in the Gothic style," a badly drawn, coarse, and over-laden design, and the printing to which is so very "Gothic" that it can hardly be deciphered; and to Mr. Menart for "A Political Club," a design in good proportion, executed in pencil and Indian ink, but with an unworkable plan. Other designs, which we need not enumerate, exhibit the tendency to regard design in architecture apart from practical building and in much the same way as a wall-paper might be designed, or a picture painted.

The local personal examination in architectural design is one in which three evenings of five and a half hours each are given; on the first the rough sketch is made and the remaining two are given to working this out. The subject this year was a "Chapter House to an existing English, Colonial, or Continental Cathedral which already possesses a cloister." Sixty-six students were examined, but the result was disappointing, especially in regard to what is done at the examination of the Institute of Architects, which nearly approaches it in scope. In fact some of the designs were quite *outré* in character.

In the section of "Architectural Drawings from Measurement," the gold medal went to Mr. William Haywood, of Birmingham, for his measured drawings of the church of St. Patrick, Patrington, executed carefully in pencil, and with perspective sketch; also to the same student a gold medal was awarded for his excellent drawings of the pulpit in St. Chad's, Birmingham, a pulpit which was originally brought from Louvain by Pugin.

Amongst the measured drawings were the wrought-iron gates at Newnham Paddox, All Saints' Church, Derby, and Scraftoft Hall. Other measured drawings, too numerous to indicate, were shown, many of them lacking the "constructive" feeling which is so essential.

In the sections of modelling design there were some excellent exhibits, such as the finger plate in gesso by Mr. J. Friedenson, the wall fountain by Mr. Frank Marriott, and the frieze in low relief by Mr. C. Sheehan.

In the division of "Historic Styles of Ornament" and of "Design" there were many excellent studies which rendered the Exhibition an interesting one, quite equal to previous ones in this respect.

ARCHÆOLOGICAL SOCIETIES.

SURREY ARCHÆOLOGICAL SOCIETY.—The annual excursion of this society took place on Wednesday the 28th ult., as recently announced in the *Builder*. On that day about seventy ladies and gentlemen assembled at Epsom under the leadership of Mr. Ralph Nevill. Sir W. Vincent, who had been previously announced to act as President, was unable to attend through illness. Carriages met the party at Epsom station at 10.40 a.m., and the first drive was made to Walton-on-the-Hill church. Here the visitors were received by the Rev. H. J. Greenhill, the rector. This church was founded by John de Waltune, whose tomb on the outside wall is dated 1268. The parish registers date from 1581. There is a chained Bible on an old oak stand. The tower is modern, having been erected in 1895. The principal object of interest in the church is the very charming old leaden font, which was illustrated and described in the ninth vol. of the Society's Transactions by Mr. J. L. André.

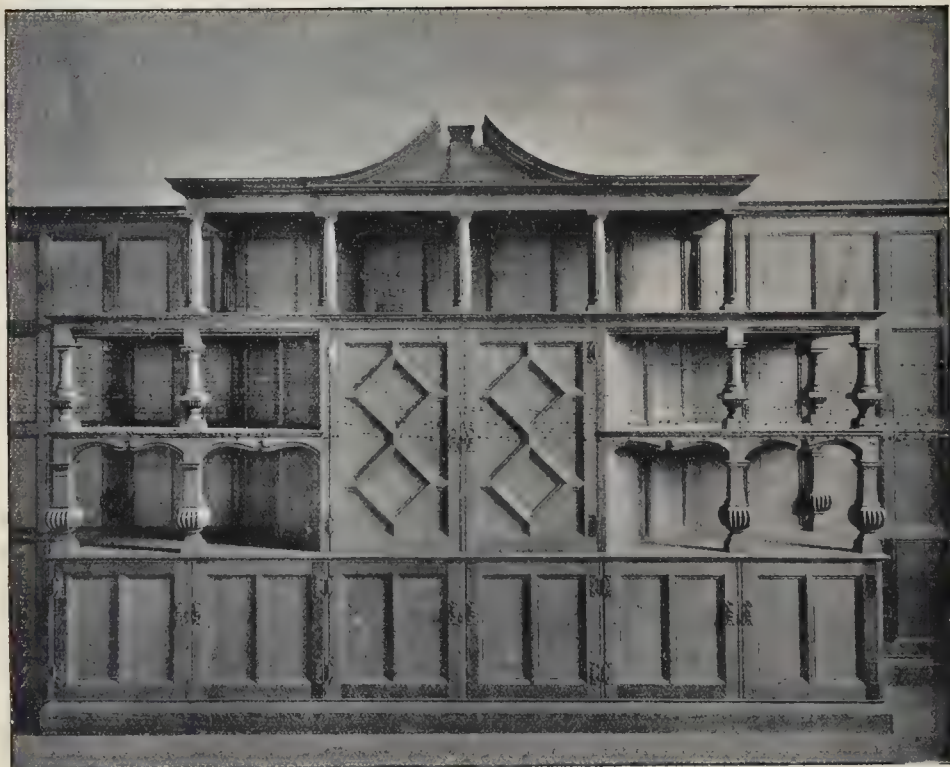
Mr. André on this occasion read a short paper on "English Lead Fonts." He said there were about twenty-five leaden fonts in England, situated in eleven counties all in the south of England, and the date of most of them appears to be towards the end of the twelfth century when the Norman Style was beginning to give place to the Early English, and to this period the elegant font at Walton is to be ascribed. There is a good example at Brookland, in Kent, but the one at Walton is considered one of the best in England. It is the only one now existing in Surrey. Mr. André called special attention to the very delicate and graceful bands of foliage work which encircle it above and below the arches and also to the spandrels. The design presents a series of nine round-headed arches enclosing as many seated figures; the effigies are of three patterns equally repeated. The contour and pose of these figures is amazingly like that shown by throned persons in Anglo-Saxon and Norman MSS., the knees wide apart, the feet close together; the drapery is also very similar to early illuminations in the dispositions of the folds and general outlines. The diameter of the font is 20 in., and the depth 14 in. John de Waltune is said to be the founder of the church, but probably he was the rebuilder, as the parish is mentioned in Domesday Book, and the font is considerably older than the date, 1268. Mr. Ralph Nevill next conducted the visitors to the site of the Roman Villa at Chussex Plain, on Walton Heath. Scarcely any traces of the Villa are now to be seen, although they were very visible in 1856, when the late Mr. W. W. Pocock prepared a plan and wrote a description of the Villa, which are published and illustrated in the second volume of the Society's Transactions. The walls of the Villa appear to have been little more than a foot in thickness, and the foundations to have been laid about 3 ft. below the present surface, the pavement found being generally 1 ft. below the turf. The excavations made extended over a space of about 40 yards square. Of the spaces within the walls several of them retained a large portion of their pavements mostly executed in red tesserae, 1½ to 2 in. square, and 1 in. thick, of a coarse material, and apparently laid without any design. The pavements were laid on solid ground, with but a slight foundation of pounded brick under, and no appearance of any flue tiles. Besides the above excavations, and at a distance of about 100 yards, masonry and large paving tiles, 14 in. long by 10 in. wide, were discovered *in situ*, and considerable quantities of molten lead in the intersices, leading to the supposition that the building had been destroyed by fire. Mr. Nevill also pointed out some Roman entrenchments and encampments which were discernible on Walton Heath. The next drive was to Banstead, where a visit was made to the church. Mr. F. A. Heygate Lambert here described the building and its history. He said it was built of stone and faced with flint, and consisted of nave and two aisles, and on each side of the chancel is a side chapel. The church was of the thirteenth century, and on the arch over the north aisle is a stone bearing the date 1627 and the letters "E. L." This church was restored by the late Mr. Street. There is an interesting window in the south aisle at the west end, one of the last made in England before the Reformation, and erected by bequest of John Wood Craft, a former vicar, whose will, dated 1465, is extant. The list of vicars dates from 1202, and the registers from 1547. There are now eight bells, two being of recent date; the other six are dated 1385, 1613, 1638, 1661, 1756, and 1791. The old bells were removed by Edward VI., who also appropriated much of the church plate.* Mr. Street discovered three lancet windows in the east window and reproduced them. The third drive was to a large mansion called "The Oaks." Mr. Ralph Nevill here related the history and associations of the house. He said it formerly belonged to the Lambert family, the first of whom was standard bearer to King Henry II., and the house was then part of the Manor of Woodmansterne. In 1533 Jeffry Lambert succeeded to The Oaks. The house remained in the Lambert family till 1788 when it was sold to the then Earl of Derby. In the grounds there is an ancient tree mentioned by Manning and Bray. General Burgoyne built the drawing-room, the brick circular towers, of excellent detail, were added by the

Earl of Derby. On June 9, 1774, a great *fete champetre* was held here—the first in England—in honour of the marriage of Lord Stanley with Lady Betty Hamilton. The ballroom, an elaborate temporary structure, is shown in large engravings, now in the dining-room, and a detailed account of it is given in the *Gentleman's Magazine* of that date. Mr. Nevill also mentioned that it was from this residence that the "Oaks Day" took its name. Garratt's Hall was next visited, and here the company was received by the owner Mr. F. Lambert, senr., and his son, Mr. F. A. Heygate Lambert. Here the ancient fireplace, bearing the date over it, 1584, and the fire-dogs removed from Shortes Hall, were shown. The fire-dogs are of large size and of Dutch manufacture. In the dining-room, which is surrounded by carved oak panels and carved oak fireplace, were laid out a large collection of old documents, pictures, prints, heraldic pedigrees, maps, swords, and other objects of local and historic interest. Mr. M. S. Giuseppe, the recently appointed Hon. Sec. here read a short paper containing a few notes on Burgh Heath and its connexion with Hubert de Burgh. The party soon after returned to Epsom, to the "King's Head Hotel." This house is mentioned by Pepys in his "Diary," under date July 14, 1667: "To Epsom by eight o'clock, to the Well, where much company; and to the Towne, to the 'King's Head,' and hear that my Lord Buckhurst and Nelly are lodged at the next house." Nell Gwynne's house next door (now a shop) is still to be seen. Many of the members lingered in the town after the company had dispersed, and several walked over to Woodcote, formerly the seat of the Baldmores, and to Durdans, the seat of Lord Rosebery.

KENT ARCHÆOLOGICAL SOCIETY.—The annual meeting of this Society took place last week, the district of Sevenoaks being visited. The two days' programme was inaugurated with the annual business meeting, which was held in the Club Hall, Sevenoaks, on the Tuesday morning, Earl Stanhope in the chair. In an exhaustive account of the meeting, the *South-Eastern Gazette* states that on leaving the Club Hall the gathering paid a visit to the parish church, where the members were welcomed by Mr. A. Laurie, churchwarden. A paper prepared by the Rector (the Rev. T. S. Curteis, M.A., F.S.A.) was read by the Rev. A. E. Brown, M.A. The church is dedicated to St. Nicholas, Bishop of Myra. It is a large structure, the length internally being 139 ft. 10 in. and the width 56 ft. The chancel occupies a space of 43 ft. and the choir 19 ft. 4 in. The church represents three consecutive periods of architecture. The nave consists of five arches dating from the later part of the thirteenth century, about 1280; the north aisle contains four two-light windows of the Decorated period, about 1320, while the easternmost part of the north aisle, the chancel, the south aisle and porch, battlements and tower are of the Perpendicular period. The difference between the external masonry of different parts of the church is very marked, and it is evident that the building has been the object of very free handling in former times, but as to the dates of the various alterations, the churchwardens' accounts give no very accurate information. An Act of Parliament was passed in 1811 for rebuilding the church, which was then in a ruinous condition. There are no details preserved as to what was done under this Act, the only entries referring to sums paid to the builders. There is evidence of the former existence of sedilia and niches, and the church at one period was almost surrounded by enormous galleries. There is one ancient record of interest, viz., the grant of a chantry to Henry de Gaud, Rector of the Church of Sevenoaks, by Boniface, Archbishop of Canterbury, in 1257. As there is apparently nothing in the church that can be referred to this remote date, Mr. Curteis holds the opinion that there was a building which was demolished to make room for the present edifice. If situated elsewhere, all traces of the old church have disappeared. A house adjoining the churchyard has within present memory been called the Chanter's House. 1450 may be the date ascribed to the font. The pulpit, an interesting piece of Caroline church furniture, was bought from the neighbouring church of Wrotham, from which it was removed. The monuments in the church are few in number, and are mostly of purely local interest. There is one of Lambard, the perambulator of Kent. This was formerly over the

grave of Lambard in the parish church of Greenwich, and was removed to Sevenoaks when the building was demolished. The parish registers go back to 1559, but contain no remarkable entries. After luncheon the party visited Knole, where a paper was read by Mr. Philip Norman, F.S.A., who briefly described the historic building and the grounds in which it stands. On Wednesday morning Kemsing Church was visited, the party being received by the vicar (the Rev. T. C. Skarratt), who described the internal features of the building, the most striking object being the rood screen. The upper part is a restoration, but the lower portion is original fourteenth century work. The screen was restored in memory of Mr. Barclay Field. The new work is very elaborate, but is strictly in harmony with the old below it. In the masonry on the north side of the chancel there is the outline of the original priest's door, by which he entered on the screen in connection with various religious ceremonies, one of these being the reading of the Gospel and the Epistle to the people in the common tongue at Easter. There is also a door which evidently led to steps communicating with the one leading to the screen, but of these steps no traces now remain. In the chancel there are some very beautiful fragments of fourteenth century glass. The church is dedicated to St. Mary, although St. Edith is the patron saint of the village, the well therein being named after her. There was once a chapel or chantry of St. Edith, but Mr. Skarratt has been unable to discover where it was. Some people have the idea that it was joined on to the east end of the church, others that it existed in the south-east corner of the churchyard, distinct from the church. There was a celebrated stone image of St. Edith, to which poor people brought their corn to be blessed, while pilgrims came there to chant or say their prayers. In one of the windows may be seen the nimbus of a crown that may have belonged to a figure of St. Edith. Mr. Skarratt, however, thinks that the figure was one of St. Mary holding the holy child. There is a very ancient brass in the building to a priest-vicar of the church, buried underneath the present prayer-desk; also a tiny little quarry consisting of three oak leaves, this being distinctive of the parish. Other objects of interest are two coffin slabs, one with a Norman abbot's staff. In old days the church was served by the abbots of Bermondsey. In a lancet window in the south wall of the church there is a representation of the Virgin crowning the holy child, this being a specimen of some of the oldest stained glass, and dating from the time of Richard I. There are traces of a very ancient fresco on the south wall, but centuries of neglect and damp and coats of very strong whitewash have sadly eaten into it. There seems to be a trace of a wheel, suggesting a figure of St. Catherine. The aisle on the north side of the church is only seven years old, but the old stone work has been replaced. There is a very ancient window, in which are seen some fragments of fourteenth-century glass. These were picked up, having dropped from a window in the east end of the building. The font is the original one, being very old. The top, however, is Jacobean. Kemsing in olden times was a very important place, being situated on the Pilgrim's-road. The date of the church is unknown, but there is undoubtedly Norman work in the building, and it is possible that a Saxon church may have existed at the place. The interesting manor-house of Yaldham was next inspected, and Mr. G. Payne read a history of the building. From this it appeared that the name of the Manor in the Hundred of Wrotham denotes its antiquity, it being Ealdham—the old dwelling—sometimes called Eldenham or Aldham. There were originally three manors—East, or Great Yaldham (now called Yaldham Manor), West, or Little Yaldham, and Yaldham St. Clere (now called only St. Clere). The latter, in Ightham parish, were formerly owned by Sir Thomas de Aldham, who was with Richard I. at the siege of Acon 1191. He is said to have built the house at Yaldham Manor, and tradition states that Richard I. stayed there on his way to the Crusades. About 1327, the then owner, Sir Thomas de Aldham, died leaving three daughters. To the second, who married Martin Peckham (a descendant of John, who had been at the siege of Acon, and Hugh, Constable of Rochester Castle in the first year of King John), he gave Great Yaldham. To the third, who married John St. Clere, he gave his house at Ightham, then called Yaldham

* The present plate in Banstead Church will be found described in the eleventh volume of the "Surrey Transactions," by the Rev. T. S. Cooper, hon. sec.



Side-board, Mayor's Parlour, Sheffield Town Hall.

St. Clere. The Peckham family possessed Yaldham Manor for about 400 years—from 1327 to 1713, and about 1733 it was bought by Mr. William Evelyn Glanville and re-united to St. Clere. The larger part of the house is said to have been burnt down in the fourteenth century, and the present hall is supposed to be the smaller one. It is 32 ft. 6 in. long by 24 ft. wide and the pantile roof rises to a height of 25 ft. Traces are to be seen of a minstrel gallery at the west end, the spaces between the beams being probably filled with lattice windows. There are signs on the rafters of the fire having been in the centre of the room. A window at the east end now gives a view of the interior. It was formerly tiled, and is said to have been used as a refuge by the pilgrims proceeding along the adjacent Pilgrims-road to Canterbury. Attached to this old house is a second ancient building, obliquely joined to it, and at a different level. The house, then in a ruinous state and used as a farmhouse, was restored about 1880 by the Rev. E. Boscawen Evelyn, and since by its present owner. Subsequently the well-known Ightham Mote was visited by the members, and a paper on the building was read by Mr. T. Oldrid Scott. Before returning to Sevenoaks the party inspected a collection of flint implements at Ivy Hatch.

SEWERAGE WORKS, CANKLOW, ROTHERHAM.—The sewerage works which have been in progress at Canklow for some time have now been completed, and were opened on July 26. Inclusive of the land, the scheme has cost 2,200*l.*, and it is laid out for dealing with a population of 4,000. On its way to the tanks the sewage passes through a box containing a powerful chemical known as "Aelite," which is used for assisting the precipitation of the sludge, and preserves the sewage from decomposition. Having passed through several tanks, the sewage leaves the last division in a fairly clear condition. This is followed by filtration in the usual way. The power for the pumping-station is derived from a colliery near by. Mr. J. Platts was the engineer.

Illustrations.

THREE LONDON STREET FRONTS.

THESE three portions of street fronts illustrating mainly the doorways and the adjacent portions of the houses, with their sculptural and ornamental treatment, formed the subjects of a frame of three drawings by the architect, Mr. Beresford Pite, which was one of the exhibits in the architectural room at the Royal Academy. They represent respectively (taking the subjects from left to right) the front entrances of 77, Welbeck-street, a doorway in Great Titchfield-street, and 82, Mortimer-street.

These have all, we believe, been reproduced at different times in our pages from photographs, but the collective illustration of them from the architect's drawings is of some special interest, particularly as it formed a prominent exhibit at the Royal Academy.

VESTIBULE AND COUNCIL CHAMBER, SHEFFIELD TOWN HALL.

We give reproductions this week of photographs from two portions of the interior of Sheffield Town Hall, which was recently formally opened on its completion; and of which, as we need hardly remind our readers, Mr. E. W. Mountford is the architect.

One shows the entrance vestibule, the walls of which are lined with Hopton Wood stone; the floors are of dove and white marble, and the columns are red cork marble. Mr. Pomeroy's carving is a great feature of this part of the building. Not only are the figures in the upper parts of the arches very good, but the spandrels are filled in with very beautiful foliated work, the various plants and flowers being selected as symbolising the same or similar virtues to those represented by the figures, or at least, as being appropriate to them. The doors are of oak, and there is a

very curious reflection of the wrought-iron gates at the opposite end of the vestibule.

The other view shows the Council Chamber, of which there is nothing to be said except that the moveable seats and tables were required by the Committee, so that upon special occasions they can be removed and the room used for other purposes. The ceiling was made from my drawings by Messrs. Jackson & Sons of Rathbone-place, W., the electroliers were made by Messrs. Singer & Sons of Frome, the furniture in the room was executed by Messrs. Johnson & Appleyard of Sheffield and Messrs. Cockayne & Co. of the same town, all from my drawings. The portrait of the Duke of Norfolk, which was in this year's Academy, shews him sitting in the Mayor's chair in this room.

The fixture in the Mayor's parlour, shewn as a separate illustration, is simply a sideboard, on which the Mayor for the time being may store anything he pleases. It was not quite finished when the photograph was taken, the four lozenge-shaped panels in the centre being carved with foliage representing the four seasons. The brass hinges and handles were made by Messrs. Singer & Sons, the thing itself being the work of the contractor, Mr. Edmund Gabbutt. E. W. MOUNTFORD.

ILLUSTRATIONS TO MR. FLETCHER'S PAPER "INFLUENCE OF MATERIALS ON ARCHITECTURE."

THESE are produced from photographs intended to illustrate points in Mr. Fletcher's essay printed on another page. The references in the essay sufficiently explain them.

ENTABLATURE OF THE MAUSOLEUM, BRITISH MUSEUM.

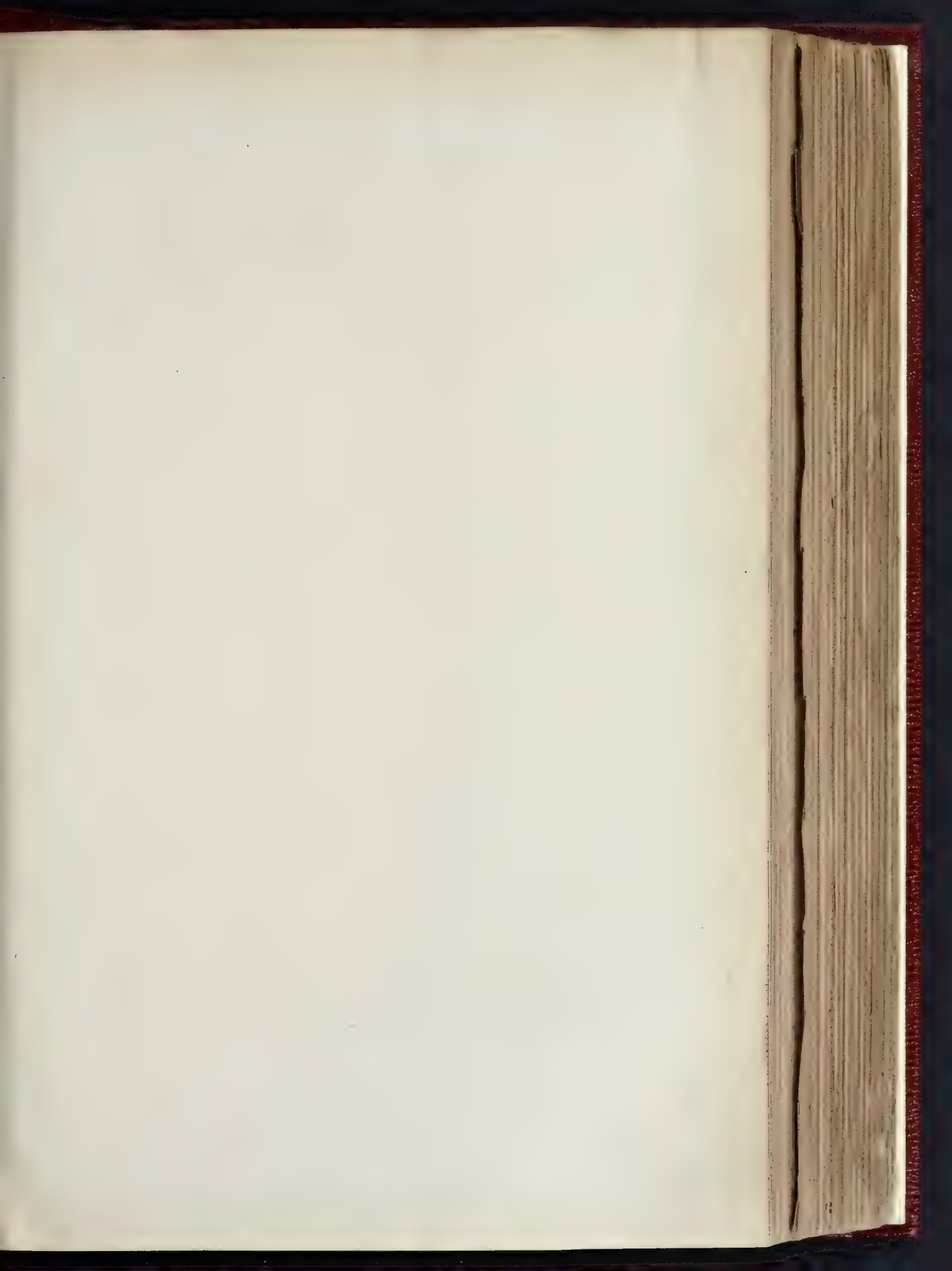
We had this sketch made some little time since of the appearance of the entablature of the Mausoleum, as it has been pieced together

GREAT TITCHFIELD SEW.
BERESFORD PITE ARCHT



Nº 82 MORTIMER ST.
BERESFORD PITE ARCHT

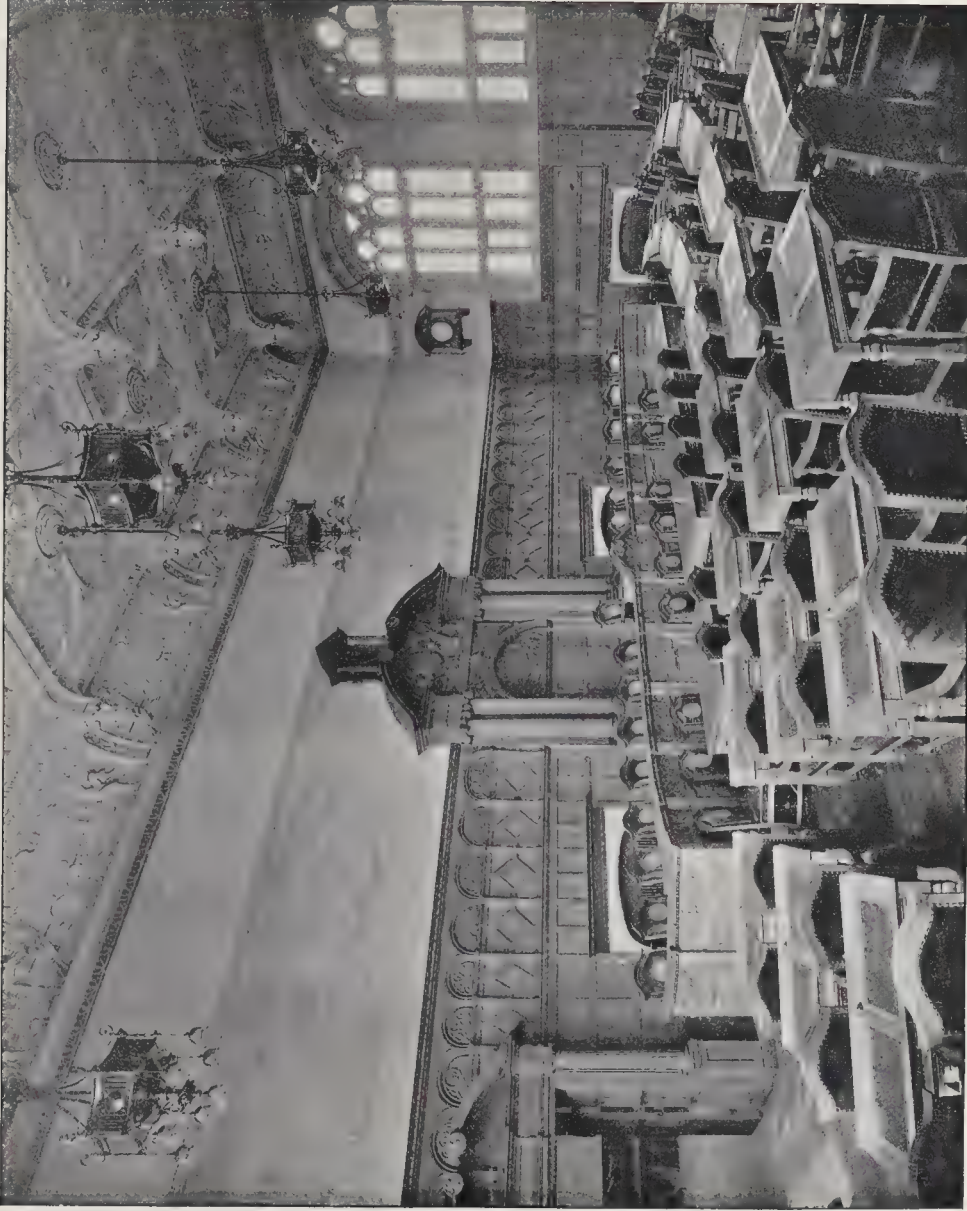




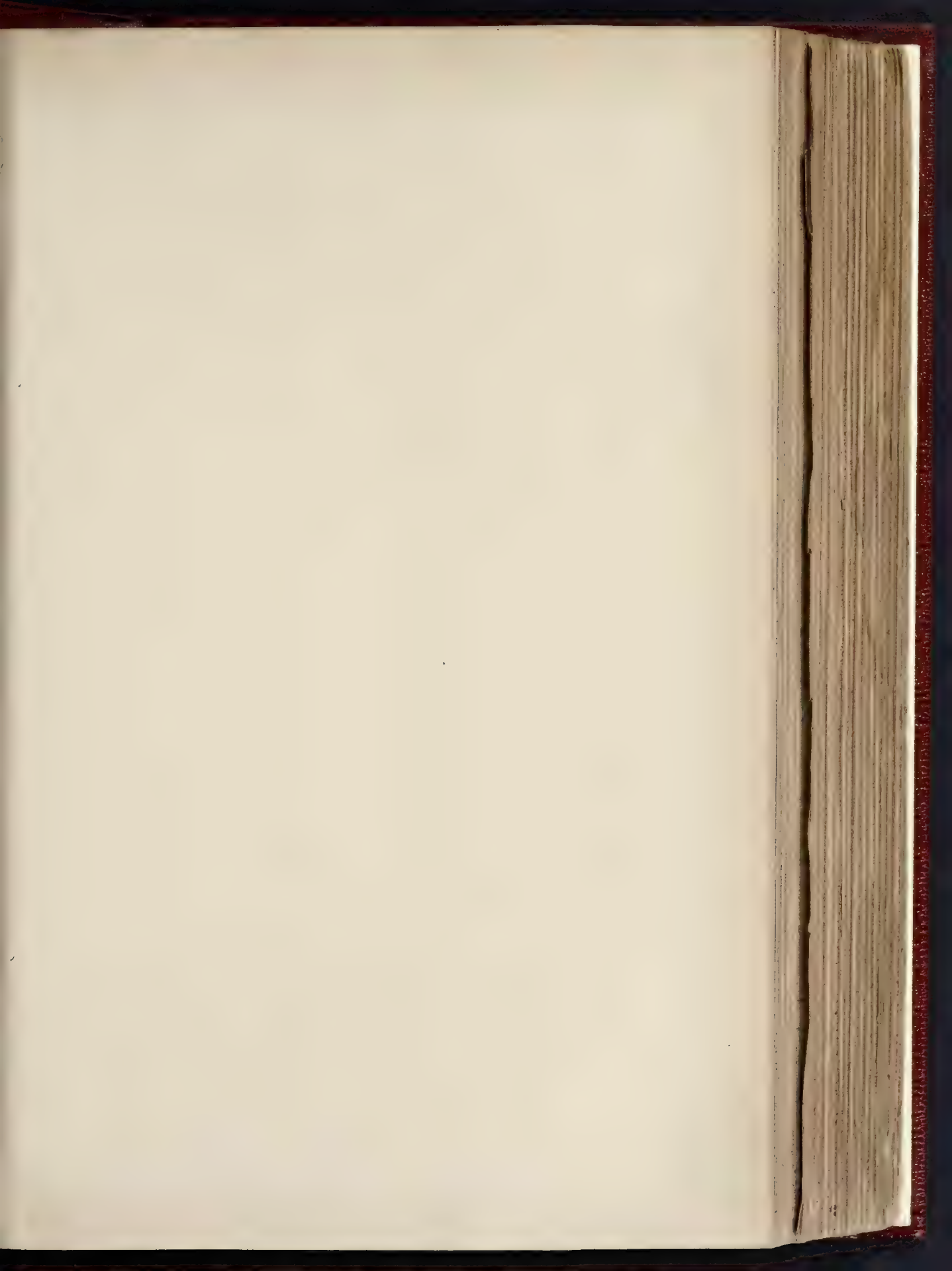
THE BUILDER, AUGUST 7, 1897.

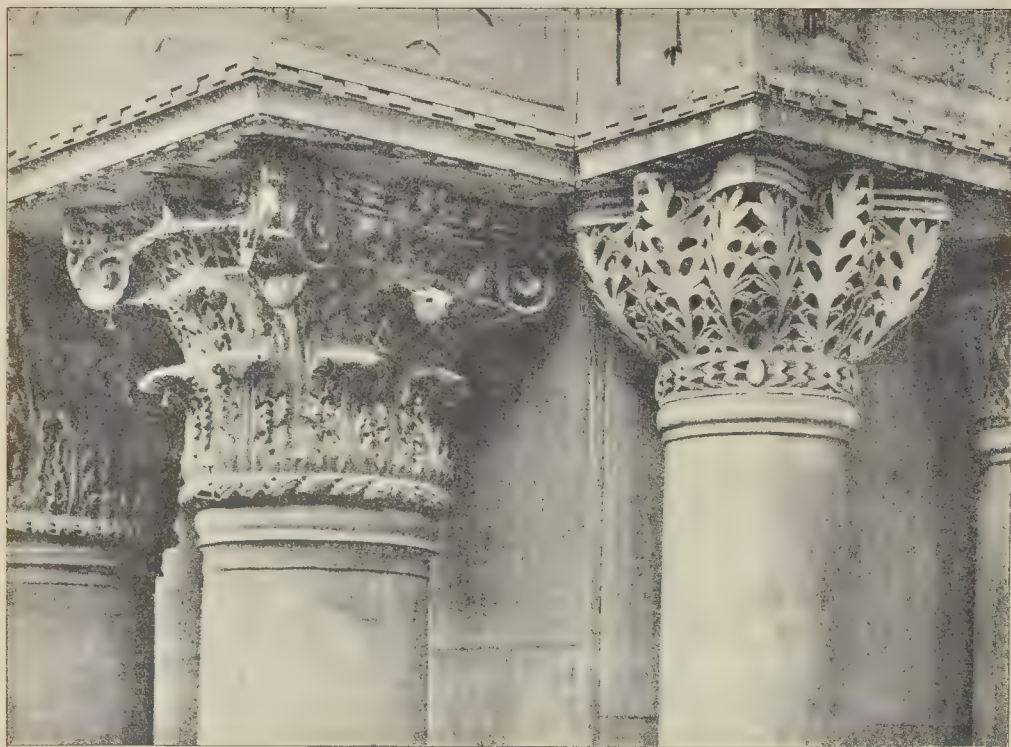


SHEFFIELD TOWN HALL: THE VESTIBULE.—MR. E. W. MOUNTFORD, F.R.I.B.A., ARCHITECT.

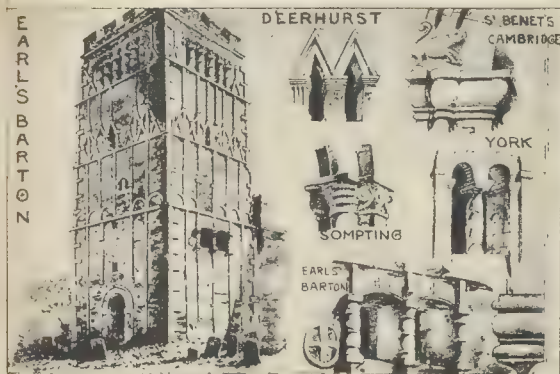


SHEFFIELD TOWN HALL: THE COUNCIL CHAMBER.—MR. E. W. MOUNTFORD, F.R.I.B.A., ARCHITECT.





Byzantine Capitals supporting arches of square section



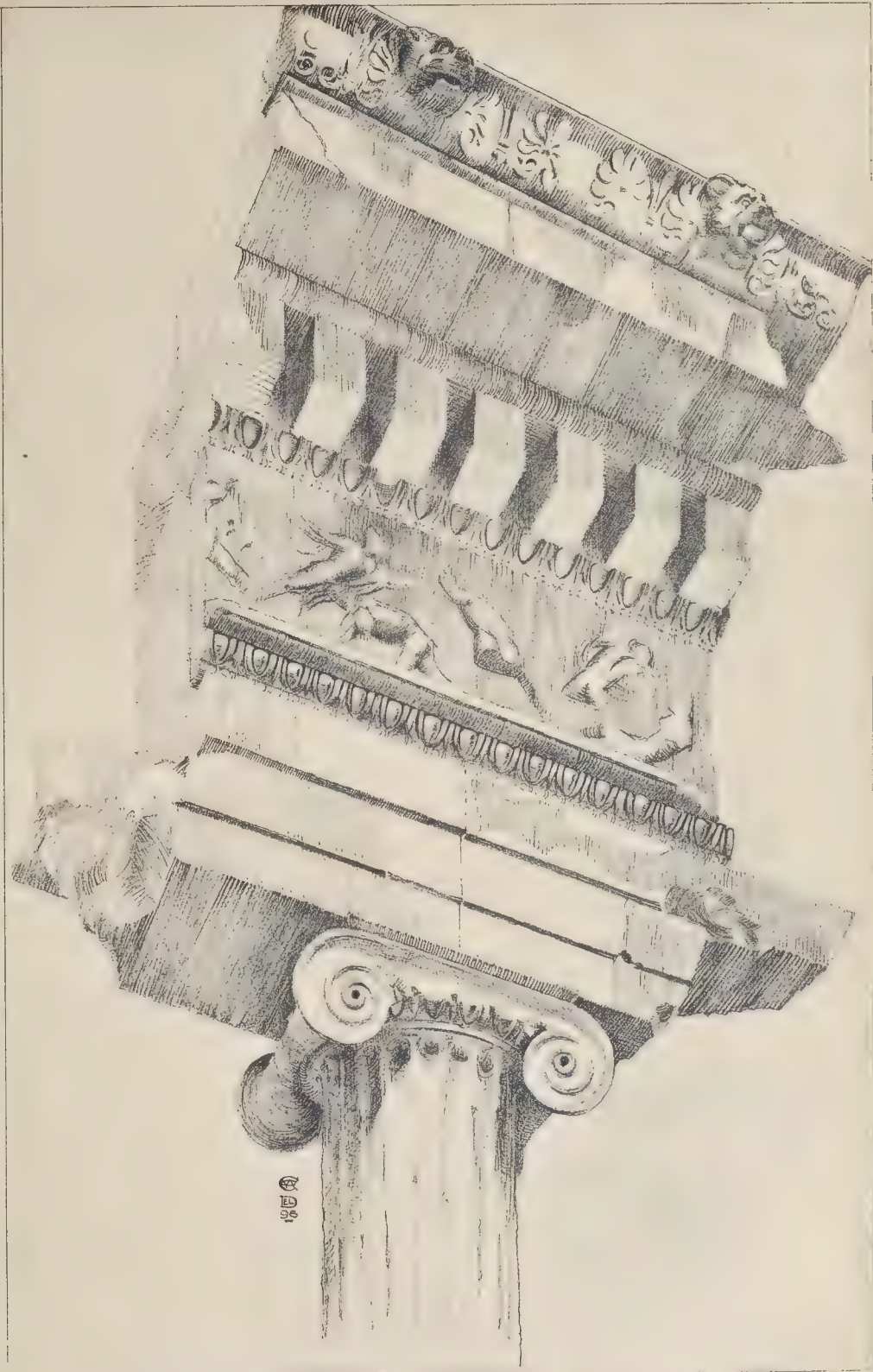
Anglo-Saxon work, shewing timber influence of earlier work.

ILLUSTRATIONS TO MR BANISTER FLETCHER'S
ESSAY

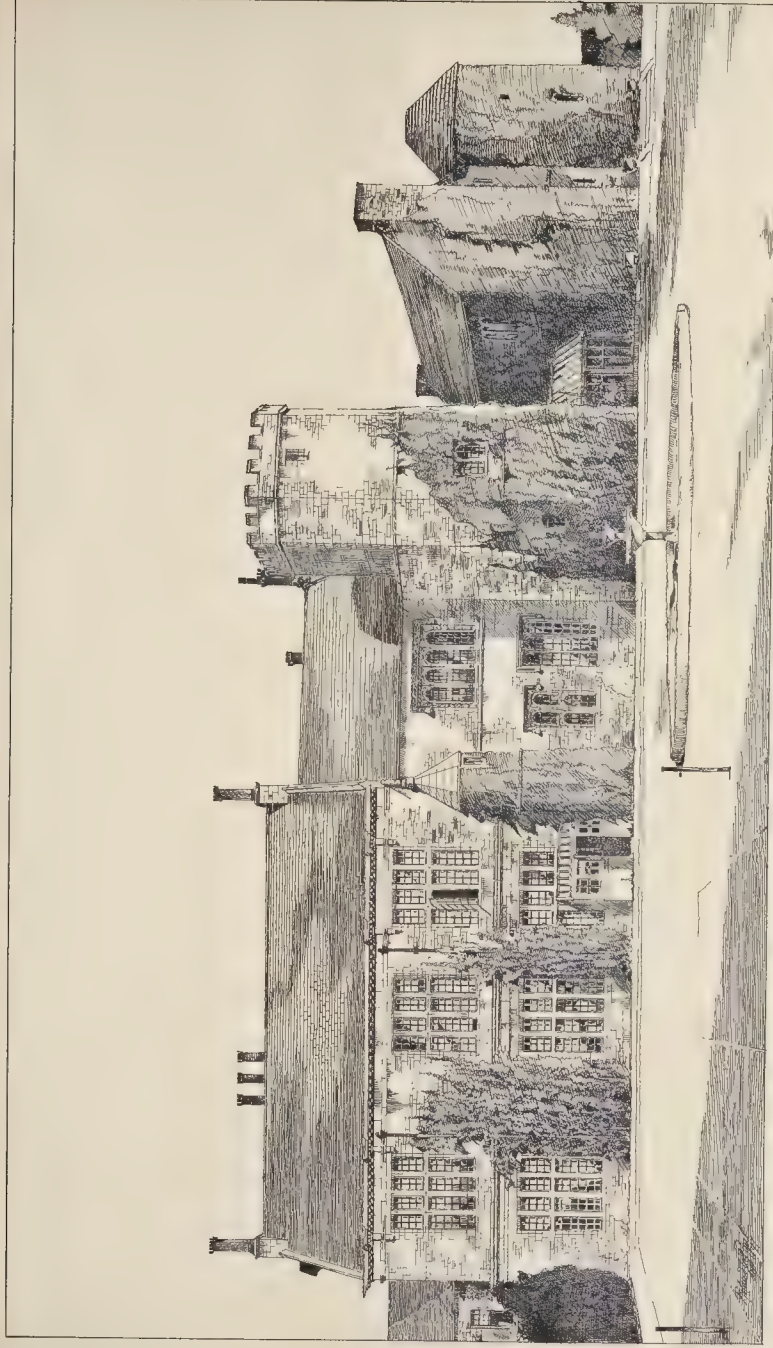
· INFLUENCE OF MATERIALS ON ARCHITECTURE. ·



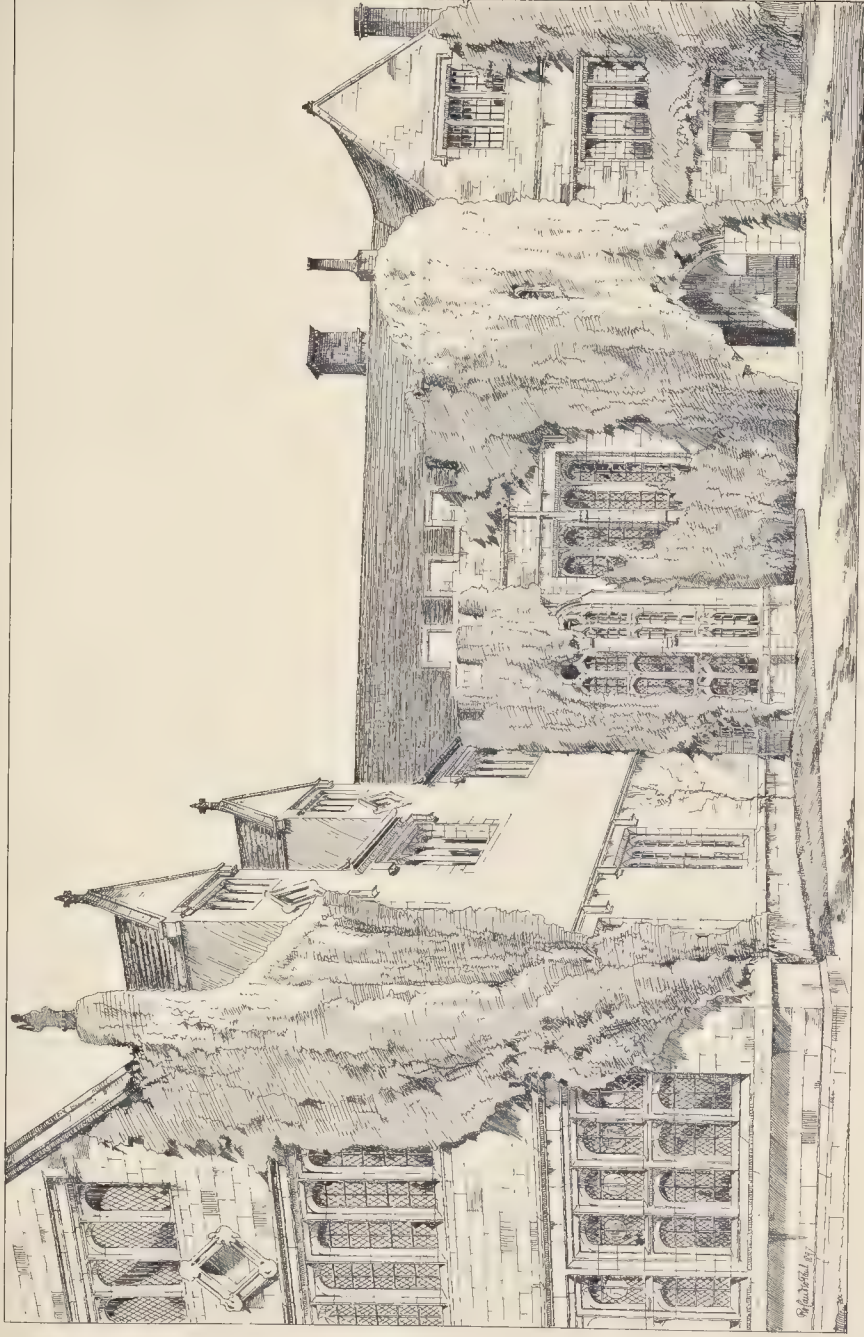
Iffley Church, Oxon.



CAPITAL AND ENTABLATURE OF THE MAUSOLEUM, AS ERECTED IN THE BRITISH MUSEUM



WOTTON HOUSE, DORSETSHIRE.



ATHELHAMPTON HOUSE, DORSETSHIRE.

ARCHAEOLOGICAL INSTITUTE EXCURSION IN DORSETSHIRE TWO OF THE HOUSES VISITED

PHOTO LITHO SPENCE & CO. 42 & 44 EAST HADFIELD STREET LONDON E.C.4.

and set up under Dr. Murray's direction in the Mausoleum Gallery at the British Museum.

The portion shown is not entirely composed of ancient work, but a portion of each feature is there in ancient marble, the remainder being fitted up by restored pieces to give the effect of the whole.

ATHELHAMPTON HOUSE AND WOLFERTON HOUSE.

THESE two houses are among the two largest and most interesting of the houses which were to be visited by the Archaeological Institute during their excursion in Dorsetshire this week.

Some remarks will be found in the general remarks on the illustrative sketches, appended to the conclusion of the first part of our account of the Dorsetshire meeting, on page 108.

The illustrations are from sketches by Mr. R. W. Paul.

Correspondence.

To the Editor of THE BUILDER.

THE NATIONAL FREE WIRING COMPANY, LIMITED.

SIR,—A prospectus has recently been issued by the above company containing certain figures, which, in my opinion, are such as to mislead architects, builders, and the lay public generally, and I therefore ask you to insert these few lines in your next issue, hoping that they may in some measure correct the misleading impressions which this prospectus conveys.

There are two ways of looking at this document. First, from the view of a possible investor, and, second, from the view of a possible customer of the company.

In the former case it will be necessary to analyse the figure of 12s. 4d., the estimated cost of installing a 16-c.p. lamp, including all wiring, fuses, and switches and fittings. This figure, I understand, has been arrived at from the experience of the systems as applied to Wallasey in Cheshire, a district composed chiefly of mills and similar class buildings, where the nature of the structure and the necessary close proximity of the lamps would allow of the wiring being carried out at a very low cost, and though doubting whether the figure of 12s. 4d. includes establishment and other charges, I am certainly of opinion that the work could not be carried out in London at anything like that figure. The following is an estimate of what, in my opinion, would be the lowest cost of the work. Wire, 4s.; casing, 1s.; fuses, rod; switch, 1s. 3d.; ceiling rose, 6d.; holder, 1s. 8d.; lamp, 1s. 4d.; shade, 6d.; labour, 5s.; total, 16s. 1d., and at even this figure the work would be of very inferior class, and quite unsuited to a decorated building. To this amount, moreover, would have to be added establishment charges and inspecting engineer's wages, as, if latter be omitted, the labour item would be larger. I am of opinion, however, that the requirements of the fire offices, more particularly as they apply to 200-volt work, would be such as to add at least 10 per cent. to the foregoing cost, for the installations being directly under the eyes of the expert engineers attached to the offices at the head-quarters in London, would be most critically and carefully inspected by them.

But assuming the figure of 12s. 4d. cost to be correct, it would require, for example, 301. 10s. 8d. to carry out an installation of fifty lamps, and for this the company would receive the sum of 21. 10s. per annum, the minimum charge being one shilling per 8-c.p. installed, and out of this handsome annual income would have to be provided depreciation, sinking fund, bad debts, directors' fees, rents, rates and taxes, and then a dividend.

A very few words will make clear the position of the customer of the company.

The estimated extra cost of the advantages of a 72-c.p. installation is to be 1d. per unit with a minimum of 1s. per 8-c.p. lamp fixed; taking the case of a 50-lamp installation, the minimum charge represents the annual consumption of 600 units which at 6d. per unit would cost the consumer 15l.

Now a private householder who might avail himself of the services of this company, would be a person who would use care in his method of regulating his lights so as to be in a position to effect every economy, and from my experience his lighting account for 50 8-c.p. should not exceed £10 per annum. The minimum rate on this amount would therefore be 1½d. per unit, or 25 per cent. on the current account—a very high rate of interest for the accommodation.

It therefore appears to me that the only class who would be likely to benefit in any way from the working of this company is the shop-keeper, whose lighting hours are necessarily long, but from experience these gentlemen would be more likely to face the first cost, and not pay a high rate on their lighting account for the accommodation.—I am, Sir, yours faithfully,

ADRIAN COLLINS,
A.M.I.C.E., Consulting Engineer.

ST. PETER'S CHURCH, DERBY.

SIR,—On my return from a brief holiday, I notice in the issue of your journal of July 17 your interesting article on Derby. Will you kindly allow me space for a few lines which may serve to correct one or two errors into which the writer has very naturally fallen with respect to St. Peter's Church, owing, doubtless, to his visit being compulsorily brief. The church is not being rebuilt, but is "undergoing restoration," or rather, the requisite repairs which have been too long delayed. The south aisle was repaired under my instructions two years ago, the repairs consisting only of the necessary replacement of the much decayed masonry of the external face of the walls, the renewal of the tracery and mullions of the windows, the partial rebuilding of the buttresses, and the resetting of the masonry of the parapet. Not a dozen stones in the interior have had to be renewed.

Unfortunately, these south aisle windows were in such a condition as to render necessary their entire renewal. They were, however, most carefully examined before any of the tracery was removed. There are old oak beams in the roofs dated variously from 1646 to 1672, and I think we may with tolerable certainty say that the south aisle was rebuilt (excepting only the south doorway and parts of the end walls) about the earlier date, and that the windows are very interesting and exceptionally good examples of this period. It is, in any case, perfectly certain that the tracery never had cusps, yet they are not unpleasing, and I think the sketch scarcely does them justice. The "remarkable distortion" to be observed in the windows of the west face of the tower, which is without doubt original, is easily explained. Formerly there was a semi-octagonal stair turret at the S.W. angle, the carved finial of which is still visible about the height of the springing of the belfry window arches, and the openings from it, now blocked up, are to be seen internally. Although the tower is 3 ft. wider from north to south than from east to west, additional space had to be found for this turret by reducing the width of the S.W. window of the belfry and by pushing both windows over towards the north. The finial above referred to gives the centre of the turret, which was apparently about 6 ft. in width externally.

Your readers may like to be reminded that in the churchyard is a rather interesting old grammar school, now used as a parochial room; and within the church a very fine carved oak chest, probably of Flemish workmanship and of the fifteenth century, and, curiously, it is almost a replica of that at Brancepeth Church, if I remember rightly, which was illustrated in your journal some time back.—Yours faithfully,
W. HAWLEY LLOYD.
Birmingham, July 29, 1897.

TWICKENHAM PARISH CHURCH.

SIR,—I see in your last issue a notice about the proposed restoration of this church, in which the "refacing of the stone tower" is spoken of. As the architect responsible, may I say that there is not the smallest intention of refacing the very picturesque tower. The walling surfaces are generally in excellent preservation, and require very little doing to them. The dressed stonework of the windows, &c., is in a bad state; but here our object will be to do as little reparation as is consistent with making the work sound.
J. OLDRID SCOTT.

SALISBURY CLOISTERS.

SIR,—The elevation of three compartments of Salisbury Cloister is very correct for one, but there are no three arches like these, as the upper circles are alternately six and five foiled; no two adjoining ones are alike.
E. L. GARBETT.

* * Mr. Garbett is quite right; we had forgotten the fact at the moment, though we find that in the view of Salisbury Cathedral from the Cloisters, made by the Editor of this journal for the "Builder Cathedral Series," and published in our issue of July 4, 1897, the alternation of sex-foil and cinque-foil heads is correctly shown. We must now ask Mr. Scorer how he came to send what professed to be a studied drawing of three bays with so serious a mistake in it. We presume that he measured one bay and repeated it to make the three. It shows a great want of observation for any one measuring on the spot to overlook so important an architectural detail.—Ed.

THEATRE ROYAL, WORTHING.—This theatre, which has been reconstructed on the site of the Old Assembly Rooms, was opened on Monday, July 26. The auditorium has seating accommodation for nearly a thousand people. On either side of the proscenium are three private boxes. Inside the main entrance the space previously occupied by the old crush room has been utilised as cloak rooms and refreshment bar. By a sliding arrangement the sloping floor of the theatre can be converted into a level surface, for balls and other social gatherings; whilst upstairs, over the main entrance, another large room, measuring 40 ft. by 20 ft., is intended for dancing or meetings. A considerable amount of detail work still remains to be done before the building is completed. The builders are Messrs. J. Blaker & Son, of Worthing; and Mr. A. T. Cooke is the architect.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER III.—MODES OF MEASUREMENT. EXCAVATOR, CONCRETE, AND DRAINS.

Removing Top Soil.

HERE it is necessary to remove only the top or vegetable soil generally to a depth of from 6 in. to 12 in., it is usual to measure this item in yards superficial, stating the depth. This is often taken when the top soil is vegetable, even when the earth below same is to be removed.

In taking the dimensions for this it is necessary to add beyond the outside dimensions of the building the projections of the footings and concrete. This will apply also to excavation, &c., described in the next clause.

Excavating to Surface, Basement, &c., per Yard Cube.—In measuring, the depth to be taken down to the underside of the bed of surface concrete, see Fig. 1.

Trench Excavation, per Yard Cube, measured the width of the concrete, to commence at the bottom of the excavation described in the last clause.

Unless shown or described to the contrary take the trench excavation and concrete of sufficient width to take one course of footings to each half brick in thickness of the walls (this is equivalent to making the bottom course twice the width of the wall and allow 6 in. projection on each side beyond the bottom course of footings. See Fig. 1.

Where there is no concrete make the same allowance as a "working space."

The trenches for external walls will be the same length as the walls, but for internal walls they will be less by the projection of footings and concrete of every wall they intersect. See Fig. 2.

In this case the deduction is 1 ft. 3 in., that being the projection for a two-brick wall.

General Notes for Excavation.—Describe excavation on the site of an old building, or wherever old foundations or anything of a foreign character is likely to be met with as "including grubbing up and removing old foundations," or "old drain and other pipes," or "roots of trees," as the case may require.

Where old buildings are to be pulled down it is usual to take the excavating from ground level, making a note in the quantities to this effect as the "housebreaker" leaves the debris up to this level, unless a special contract is made to the contrary.

If, owing to the confined situation of the work, or the excavation is inside an old building and requires "basketting" out, embody this in the description.

In taking the excavation and concrete for projections such as chimney breasts, &c., do not forget to allow beyond the width of the brickwork the spread for footings and concrete at both ends, which is generally the same as that of the wall upon which the projection occurs.

Carting away and filling in.—Take the bulk surface and basement excavation as "filling into carts and carting away," or "wheeling and depositing," as the case may be. If deposited, state within how many "runs," and whether the earth is to be spread and levelled upon the site or left in heaps, and whether the vegetable soil is to be kept separate from the remainder.

Deduct from the foregoing items of "carting" or "wheeling" the quantity required for filling in above the concrete around the foundations and describe as "throw out, return fill in, and ram around foundations." This dimension for the trenches will be the width of the trench less the thickness of brickwork as at A-A fig. 1, and in the case of bulk excavation the projection of the concrete foundation from the face of the wall as at B.

Extra Depths.—As the height of a throw is 6 ft., any depth below this requires staging at intervals of 6 ft., therefore take an item of extra value between these intervals below the first 6 ft. as "extra value for excavating below 6 ft. and not exceeding 12 ft. deep," and "ditto below 12 ft. and not exceeding 18 ft. deep," and so on, stating, in the event of varying levels around the building from what point this depth is measured.

Example: Trench 20 ft. long, 4 ft. wide

* A "run" is 20 yds.

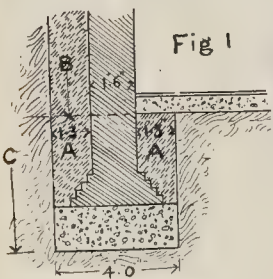


Fig 1

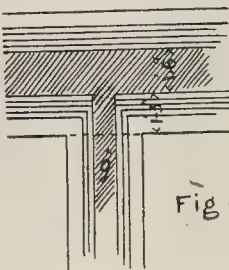


Fig 2

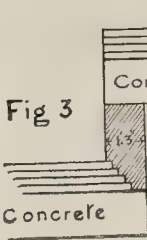


Fig 3

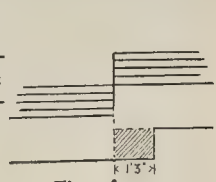


Fig 4

commencing at a depth of 7 ft. and going down to a depth of 18 ft. deep.

20.0	Excavating to (according to description).
4.0	
11.0	
20.0	Extra value on digging below 6 ft. and not exceeding 12 ft. deep.
4.0	
5.0	
20.0	Ditto, below 12 ft. and not exceeding 18 ft. deep.
4.0	
6.0	

Filling in.—Where the surface of ground to receive surface concrete requires making up, take an item of filling in in yards superficial if less than 12 in. thick, in yards cube for any greater thickness, stating whether the filling is of earth or brick rubbish.

Strutting and Planking to basement excavation is measured per foot run, giving the depth. Note. The depth must be down to the bottom of the trench (C Fig. 1), and not to the level of general excavation for basement, and the other side of the trench is also to be measured in the same way. Other trenches are taken per foot run for both sides, giving the width and depth of trenches. It is often advisable to number the strutting and planking to pier holes, giving the sizes on plan and the depth. Mention particularly if the strutting and planking is to support sides next a roadway.

Strutting and planking to trenches for pipes is generally included with the item.

Trenches for Pipes, per yard run, stating for water or gas pipes, and giving the average depth; that in roads and paths kept separate, and a note made as to this item including lighting and watching, and making good surface.

Trenches for drain-pipes are better included with the drain-pipes.

Concrete in Trenches, per yard cube.—Note. That wherever there is a jump in the concrete it will be necessary to take at the end of the concrete at the higher level a superficial item of "temporary rough boarding to sides of concrete." Similar boarding will have to be taken wherever the concrete comes above the surface of the ground. Note also that additional concrete and excavating and removing will have to be taken at jumps as in the examples figured above.

The hatched portions show the additional concrete required. In the case of Fig. 4 the length is usually taken to be the projection of the footings and the concrete combined, e.g., in the example shown, which is for a two-brick wall with four courses of footings, would be $2\frac{1}{4} \times 4 = 9$ in. + 6 in. (projection of concrete) = 1 ft. 3 in.

Surface Concrete, if under 12 in. thick, per yard superficial, describing whether to falls. Note that if the surface concrete is stepped, boarding will have to be taken as described to trench concrete but lined, stating the thickness of the concrete.

Filling in over vaulting, trimmer arches, &c., if averaging under 12 in. thick per yard superficial, if averaging over this thickness as in pockets of groining, per yard cube.

Concrete fireproof floors, per yard superficial, stating the thickness and keeping the different floor levels separate, either describing the floor levels or giving the heights above ground.

Take rough-boarded centering for these floors. It is well to give the heights of the stories they cover, to give the contractor some idea of the quantity of strutting necessary, although where there are main girders it is usual to strut the boarding up from the lower flanges of these girders.

If the soffits are plastered they may be left as found after the centering is struck, but if to be left plain or linewhitened take "cleaning off and filling in holes with fine concrete."

Note.—Boarding as described for surface concrete will be necessary to the edges next well holes, &c.

Concrete casing to girders, &c., per foot run, giving the size of the girder and the size of the concrete casing. **Note.**—rough temporary boarding, as support, to be taken to soffits and sides.

Drain pipes, per foot run, giving the sizes and description of the pipes and of the jointing, including with the description the average depth of the digging required. Note that there are other factors in arriving at the average depth than the falls of the pipes, such as the levels of the ground, and also note that where the falls of the drain pipes vary a fresh average must be commenced.

If the pipes are bedded on or covered over with concrete, measure this at per foot run, stating the size of the pipe and the minimum thickness of the casing, or give the size of the bed and covering, and do not forget to allow the extra depth of digging required for the concrete bed.

If the trench for the pipes is in the road or path state this as described for gas and water pipes.

State also how the surplus soil is disposed of after filling in and ranning as described in general excavation.

Number bends, junctions, diminishing pipes, &c., as "extra over" in pipes for &c., and note that a small junction out of a larger pipe is taken as the larger size.

Give a full description of the gullies, or, better still, give the makers' names and list prices, and include with the item the excavating and setting (describing whether brickwork or concrete) and also the connexion with drain.

Number also connexions of soil, ventilation, and rain pipes with drain, giving a full description of the method of connexion to each.

Inspection Chambers and Cesspools.—If of large size measure in detail and keep the whole of the items together under a heading. The system of measuring will be as described under their respective headings in the various trades, carefully noting the channels in bottom, the sizes, and description, both as regards material and the shape in section and on plan.

For small inspection chambers it is sometimes convenient to number the item complete, with the exception of the smiths' work (such as hand and foot irons and covers) and masons' work (such as cover stones), with a complete sketch in margin, and describing the channels and shewing the arrangement and sizes of these on a sketch plan. In this case include strutting and planking, and state how the surplus earth is disposed of, as before mentioned.

GENERAL BUILDING NEWS.

CLUB PREMISES, SOUTH SHIELDS.—On July 28 the foundation stone of a building for the South Shields Unionist Club Company was laid. The structure will be four stories in height, with a frontage of 40 ft. and a depth of 55 ft. At the street entrance to the vestibule is a high vaulted lobby, with bay windows on either side, and the

whole of the front up to the first floor windows will consist of ornamental terra-cotta work. Above this the walls will be of deep red bricks, with bay windows and dressings of buff-coloured terra-cotta. On the ground floor there will be a large entrance hall, with a broad staircase leading to the floors above. On one side of the hall there is to be a spacious reading-room, and on the other side a smoking-room 42 ft. long. To the rear will be a cloak-room and lavatories. The first floor of the building will be utilised for the billiard room. This will be an apartment 48 ft. long, L-shaped, and it is intended to place in it three tables. Above this there will be an assembly room covering the entire area of the second floor, capable of being divided into three smaller rooms by means of temporary partitions. From the buffet on the ground floor a lift is to be run up to this room. The top of the building is set apart for caretaker's quarters, consisting of kitchen, parlour, two bedrooms, pantries, &c. The whole of the basement will be utilised as cellars. The hall, cloak, and other rooms will be warmed by a system of steam coils; the whole of the principal floors will be of dark Spanish mahogany. The building throughout will be lighted by electricity. Mr. W. J. Robertson, of South Shields, is the contractor, and Mr. J. H. Morton, the architect.

BUSINESS PREMISES, BRISTOL.—A large building has recently been erected for Messrs. Durose, Sutton, & Co., auctioneers and land agents, 11, Baldwin-street, Bristol, and will shortly be ready for occupation. The premises have a frontage of about 32 ft., are in the Flemish style, and built of moulded brickwork with freestone dressings, the arches being of rubber brick. On the right hand side a pair of massive doors give entrance to a wide corridor, which leads direct to an auction mart, a lofty apartment, about 32 ft. by 24 ft., lighted from the top by a large skylight. Off the corridor are arranged the offices for principals and clerks, with strong-room, storage, &c. At the front, lighted by a large window, is the property saleroom, which is arranged for communication with the offices. The entire suite of salerooms and offices will be lighted by electricity. The upper floors are divided into suites of offices, approached by a wide staircase from the large entrance-doors on the left. The architects are Messrs. Gilling & Bond, of Alliance Chambers, Corn-street, Bristol, and the builders are Messrs. Ford & Canning, of King-street Hall, Bristol.

SCHOOLS, MOUNTPOTTINGER, IRELAND.—On Saturday, July 31, the school buildings, erected under the Hugh Henry Boyd endowment in the Ravenhill-road, Mountpottinger, were opened. They have a frontage of over 60 ft., and extend rearwards for 100 ft. The plan provides for a mixed school on the ground floor, this part of the building being divided into a main compartment, 50 ft. by 35 ft., a large class room, and two cloak rooms. On the second floor are the infant school and class-rooms. The stairway communicating with it leads to the roof, which is flat, and made of a patent preparation over-laid with a cement finish. The walls rise into a lofty parapet surmounted by iron railing above the roof, enabling the latter to be safely used as a playground. The walls are of Belfast perforated brick, whilst the sills and keystones are of Dumfries sandstone. At the rear a spacious playground is laid out. The building contractor was Mr. William Kerr, Henryville, Mountpottinger, and the architects Messrs. Young & MacKenzie, of Donegall-square, Belfast.

HOSPITAL EXTENSION, MANCHESTER.—Two of the Manchester hospitals are at the present time undergoing the process of extension. At the Royal Eye Hospital, in Oxford-street, where the accommodation for nurses and servants has for some time past proved inadequate, an additional story is being built over the central wards, which will provide excellent sleeping rooms (cubicles) for servants; while extra rooms for nurses are to be formed in the front of the main building, lighted by dormers, the whole being approached by a new staircase separate from those used by the patients. Ample bath and lavatory accommodation is provided, and large linen stores and box-rooms will further add to the comfort and convenience of the staff. Altera-

tions are also in progress at the Hospital for Consumption, at Bowdon, near Manchester. The women's wards are being enlarged to provide accommodation for some few patients who, for lack of space, have hitherto occupied rooms in the administration block, which is to be considerably remodelled, the alterations comprising the enlargement of the women's day-room, the provision of a new dispensary, and a servants' dining hall. The work at both hospitals is being carried out in accordance with plans prepared by Mr. W. Cecil Hardisty, architect, of Manchester, the contractors being Messrs. R. Neill & Sons, for the Eye Hospital, and Messrs. J. Hamilton & Son, for the Consumption Hospital.

SCHOOLS, GOLCAR, YORKS.—On July 31 new Baptist school buildings were opened in Golcar by Sir James Kilson, Bart., M.P. The new school contains thirteen classrooms, infants' schoolroom, secretary's room and library, and an assembly hall 76 ft. long by 36 ft. 6 in. wide. A reading room and a conversation room and gymnasium are also provided. The floors throughout are laid with wooden blocks on concrete. The front elevation is after the Renaissance style, built of Elland Edge pitch-faced wall stones and Crosland Hill ashlar dressings. The internal joiners' work is of pitch-pine, varnished; the roof is covered with blue Westmoreland slates. Accommodation is provided for 700 persons. The work has been executed by the following contractors, viz.:—Messrs. A. & T. Haigh, Golcar; joiner, Mr. Wm. Lockwood, Golcar; plumber, Mr. John Marsden, Huddersfield; slaters, Messrs. T. Longbottom & Sons, Huddersfield; ironwork, Messrs. G. W. Crosland & Co., Huddersfield; plastering and painting, Mr. Wilson, Armidale, Golcar; wood block flooring and concreting, Mr. John Cooke, Huddersfield; heating apparatus, Mr. F. Milan, Huddersfield; electric bells, Mr. Fred Taylor, Golcar. The architect was Mr. J. Berry, Queen-street, Huddersfield.

ADDITIONS, ST. ANNE'S SCHOOLS, BISHOP AUCKLAND.—The foundation stone of new buildings which will form part of St. Anne's Infants' and Girls' schools, Bishop Auckland, was laid on Tuesday, July 27. The extension will consist of two large rooms, divided by a sliding screen. It will be uniform in character with the present schools, and will seat about 400 children. The chief contractor is Mr. G. H. Bell, in co-operation with whom are Messrs. Hudson, joiner; Mascall, slater; Kirby, plasterer; and E. Thompson, plumber. Messrs. Moscrop & Clarke, of Darlington, are the architects.

OPERA HOUSE, CROUCH END, LONDON.—On Tuesday, July 27, the new "Queen's Opera House," at Crouch End, was opened. The building is approached from Toppish-parade by an iron and glass verandah, the entrance and vestibule being 26 ft. wide. The latter is divided into lobbies and crush-rooms. On the right are the customary ticket and managerial offices, and a corridor containing retiring and cloak rooms leading to the stalls. From the end of the corridor the boxes are approached by a fireproof staircase. The exits are so arranged that all the house can be emptied within three minutes. The balcony of the theatre is approached at the main entrance by a marble staircase. In the scheme of decoration cream and gold prevails. The orchestra is sunk below the floor level, and has accommodation for twenty musicians. The proscenium opening is 26 ft. square, and the depth of the stage 35 ft. The height from the floor to the "grid" of the stage is 50 ft., and the actual width of the stage 54 ft. A fireproof curtain is provided. There is a lounge and saloon for occupants of the ground floor, 50 ft. by 25 ft., and a smaller saloon in connection with the balcony, in addition to a smoking and several retiring-rooms. Twelve dressing-rooms are in close proximity to the stage. The decorations, upholstery, and fibrous plaster work in the theatre has been carried out by Messrs. A. K. Dean, Limited, of Birmingham. Mr. Frank Mat- chum was the architect.

NEW BOARD SCHOOL, LITTLE ILFORD.—The memorial stone of the new Board School, now being erected in the Essex-road, Little Ilford, was laid on Thursday, July 29, by the chairman of the Little Ilford School Board. These schools are designed to accommodate 1,582 children, i.e., ground floor, Infants, 582; first floor, Girls, 500; second floor, Boys, 500. The builders are Messrs. Wm. Gregor & Son, Stratford, the contract price being 14,168l. 7s. 4d. The architect is Mr. S. Jackson, of London, and Mansel Park, Essex.

PAVILION THEATRE, MORECAMBE.—An addition, known as the Victoria Pavilion, has recently been made to the buildings in the Winter Gardens, Morecambe. The façade is built of Ruabon terra-cotta, and is constructed with two large balconies from which to view the scenery of Morecambe Bay. The entrance is in faience work; the promenade, which is 15 ft. wide, runs entirely round the auditorium. The ground floor is sloped from the back to the stage. From the entrance two flights of marble stairs lead up to the first circle, where there is a smoking promenade and four tiers of seats. A second gallery, to hold 1,000 people, is above this level. The span of the roof is 118 ft. from wall to wall. This ceiling is covered with fibrous plastic work, by Dean, of Birmingham. The iron work is by the Widnes Foundry Company. The stage is 72 ft. wide, 35 ft. deep, and 60 ft. to the grid floor. The entire

building is lighted by electric light, the wiring and lamps being supplied by the Kelghley Electric Lighting Company. The builders are Messrs. S. Whitehead & Sons; and the architects Messrs. Mangnall & Littlewoods, of Manchester.

THEATRE, SWANSEA.—On July 26 the memorial stone of a new theatre at Swansea was laid. The building is in the Renaissance style; the materials used for the walls are white stone and red brick, faced with rough cast plaster. Dark red bricks are used at all angles, and terra cotta has been freely employed for the ornamental portions. The roofs and towers are covered with Swansea terne plates instead of the ordinary slates. The auditorium is in the form of a square, each side 65 ft. long, and consists of three floors, comprising ground floor stalls and pit, the dress circle, and the gallery. It is estimated that it will accommodate 2,500 people. The exits are such as to enable the whole of a crowded house to leave in two minutes. There are five of these leading directly on to the street, and for each part of the building there is an exit on each side of the auditorium. All the staircases have been constructed of fireproof materials, and "panic bolts" enable all the doors to be opened by the slightest push from the inside. The principal entrance leading to the stalls and dress circle is in Singleton-street, and will have a marble staircase and decorated walls. The floors and entrance lobby with the landings and foyer will be paved with mosaic tiles. The ceiling is treated in the florid French Renaissance style in finely modelled plastic work, the whole being relieved by massive girding. Each section of the house is provided with lavatories and convenient refreshment-rooms. The height of the stage ceiling from the cellar floor is 80 ft. The gas and electric light arrangements on the stage are controlled from a position above the artists and stage hands. Electric lighting arrangements are under the supervision of Mr. E. Wingfield Bowles. The cost of the whole building, fixtures, &c., when completed, is estimated to be close on 20,000l. The contractor for the building is Mr. D. Jenkins, of Swansea. The plastic decorations, the furniture upholstery, and the seating of the auditorium have been carried out by Messrs. A. R. Dean, Limited, of Birmingham. The upholstery, carpeting and furnishing for the lounges, passages, lobbies, and refreshment saloons have been mainly executed by Messrs. Ben Evans & Company, of Swansea. Mr. Wm. Hope is the architect.

CHURCH, CASTLETOWNROCHE, CO. CORK.—The rebuilding of the church is now approaching completion. The nave is separated from the aisles by lofty arcades, the arches 27 ft. to apices, springing from the piers, which, were found intact and sound, after the late fire; the arches have mouldings and labels, stopping on the abacus moulding of the piers. The piers supporting the arcades are square on plan, and have sunk panels on the four sides with cusped heads, stopping directly under the abacus. The sanctuary is square on plan; it is lighted by three lofty lancet windows, 20 ft. high by 2 ft. 6 in. wide, splayed on the inside with moulded string underneath, filled with stained glass. Over these windows, at a higher level, is a narrow single light window, similarly glazed. To the right and left of the sanctuary are the side altars lighted by single lancet windows, well splayed on the inside. The aisle windows are plain pointed heads of slightly different treatment, chanted on the outside and well splayed on the inside; they are glazed with lead lights of a very neat pattern. The western gable has been completely rebuilt from the ground, with two large buttresses added. There are two very lofty lancet windows in this gable, the whole being surmounted by belfry and cross. The western end of the aisle wall on either side of this gable has a plain lancet window. At the western end is an organ gallery with stairs. The high altar is composed of statuary marble, except the cluster of shafts supporting the canopy, which is of red marble. Mr. Daniel Creedon, of Fermoy, is the builder; and the stained-glass windows and lead lights were executed by Messrs. Watson & Co., of Youghal. The architect is Mr. Samuel E. Hynes, of South Mall, Cork.

EXTENSION OF BLAIRS COLLEGE, ABERDEEN.—The first section of the extension of Blairs College is now being finished. The new portion, when completed, will consist of a front block, facing towards the river, and east and west wings—forming three sides of a square, with the hollow facing southward. The section all but complete is the west wing—a building three stories high and about 150 ft. long. It is built of Aberdeen grey granite, pointed. The building is traversed along its entire length by a central corridor twelve feet wide. The ground floor is appropriated mainly to class-room purposes. A recreation-room for the students is provided at the south end, where a stage is to be erected for private theatricals, while the corresponding room at the north end is to be used as a study; the intervening space being utilised as class-rooms. On the first-floor will be the apartments for the rector and professors. The new block is estimated to cost 8,000l. Mr. Robert G. Wilson is the architect.

SCHOOLS, UPTON, TORQUAY.—On Saturday, July 24, the recently erected schools at Lower Upton were opened. The accommodation provided is for 300 children. There are three class-rooms,

the centre one being 86 ft. long, 24 ft. wide, and 24 ft. high. This room can be divided by a movable glass screen. The rooms on either side are 28 ft. long, 18 ft. wide, and 20 ft. high. The two cloak-rooms are each 21 ft. long by 18 ft. wide, and over the chief room are mistresses' and assistant teachers' rooms and offices. The general design of the building is domestic Gothic. The plinth and corner stones are of limestone from the Barton Quarries, the general building being of local brick, with Bath stone and Bracknell brick facings, and a little hanging tile in front. The roof is of Welsh slate, and there is a small bell turret. The builders were Messrs. S. & A. Trethewey, the contract price being 2,185l. Mr. E. Richards was the architect.

SCHOOLS, WESTON-SUPER-MARE.—The Board schools opened at Weston-super-Mare on July 30 are of local stone with Bath stone dressings, and covered with plain Bridgewater tiles. There are separate departments for girls, boys, and infants, with separate playgrounds. In each playground a covered play-shed is provided. The sanitary offices are fitted with Adams' improved patent syphonic multiple apparatus, with automatic flushing cisterns. Each department of the schools has two entrances for the scholars and one for the teachers. There is a central hall for each school, measuring 40 ft. by 34 ft., and 30 ft. high; and surrounding this hall are class-rooms with accommodation for sixty scholars in each. A room is set apart as a centre for cookery classes. This is approached by a separate entrance from the girls' playground. There are also a chemistry room and drawing class room, each 26 ft. by 24 ft.; separate sitting-rooms for the head master and mistress, also for the assistants of each department. Store-rooms are provided for the storage of books, &c. The walls in each room are lined with glazed tile dados, and the floor is formed with 1½ in. pitch-pine wood blocks. There are also laundry and drying rooms and a carpenter's shop. The heating of the building is by low pressure hot water, one pipe relief system. The architects are Messrs. Price and Wooler, of Weston-super-Mare.

MECHANICS' INSTITUTE READING-ROOM, NEW SWINDON.—The work of decorating this has now been completed. The style adopted is a Duresco decoration for the large ceiling, with a shaded enrichment and pale blue background of plaster work. The principals below the ceiling are relieved with gold. The whole is arranged to show the plaster work to the best advantage. The walls are panelled, being relieved with ornamental bands. The work was carried out by Messrs. A. & R. Dean, Corporation-street, Birmingham.

BLACKPOOL TOWER FIRE.—Messrs. Maxwell and Tuke, the architects of the Blackpool Tower, reporting on the condition of the buildings after the recent outbreak of fire, state that no damage had been done to the main structure or entertainment portion of the buildings, the fire having been confined to the three landings above the 380 ft. platform, where certain woodwork had been destroyed, and where the heat fused the cables, causing the two balance weights to fall.

CRICKET PAVILION, DENSTONE COLLEGE, STAFFS.—The new pavilion, erected from designs by Mr. Bertram Heywood, is now finished. It has a wide roof, with green slates, green woodwork, red brick and stone walls. In front are raised terraces, to be provided with seats; a verandah some 5 ft. wide runs on the top of these, broken in the centre by a projecting bay, which forms the main entrance. The luncheon room is large and its roof shows the rafters and ceiling woodwork, a feature being made of the arched timber trusses which support it. The brick walls are at present left bare. Opening out of this room to the right and left are the dressing room for visiting teams, and lavatory accommodation. A room for nets and other cricketing apparatus is reached externally at the eastern end, and there is also a servants' entrance to the luncheon room at the back of the building. The cost of the work is 600l. The builders are Messrs. Chamberlain, of Burton.

SANITARY AND ENGINEERING NEWS.

SWING BRIDGE, LOWESTOFT.—The new swing bridge at Lowestoft, which separates the north and south portions of the town, opened a few weeks ago, was manipulated for the first time on Saturday, July 31, by means of hydraulic machinery, in lieu of steam power and ropes. The hydraulic apparatus is set in motion by means of a gas engine, which, together with the other machinery, has been fixed under the superintendence of Mr. Scott, the G.E.R. local engineer. The actual time occupied in swinging over the river is about 55 sec.

ARTESIAN WELL AT ABERDEEN.—After carrying on boring operations for twelve months at the premises of the Bonaccord Distillery Company, Hargett, Aberdeen, the Vivian Boring Company, Whitehaven, have come upon water at a depth of 450 ft. from the surface. For a distance of 300 ft. the boring has been through granite, and though the rock was somewhat broken, the operations were necessarily very slow. The granite met with was fine-grained, and resembled that got at Rubislaw quarry, about 1½ miles off, but was of a very inferior kind as regards colour. In penetrating the granite there was used a ring 9 in. in diameter by 6 in. deep, set round with twelve diamonds, the

ring being screwed into a tube about 12 ft. long. We understand this is the stiffest job the employees of the company have yet had. A pulsometer is now being fitted in, which will throw from 8,000 to 10,000 gallons of water per hour into a tank on the top of the mill loft at the distillery.

ENGINEERING TRADES.—According to Messrs. Matheson & Grant's half-yearly Engineering Trades Report, during the last twelve months every branch of the Engineering Trades has been busily engaged, and this activity still, with a few exceptions, continues, but signs are not wanting that the pressure on manufacturers is relaxing. The strike of the operative Engineers, now in progress, for an eight-hours day will be the more unfortunate if it continues and extends on an ebbing tide. In iron and steel manufacture the number of furnaces in blast has been increased during the past year, and with this enlarged production pig-iron has not maintained its price, though current rates—which are largely due to speculative dealings—must not be taken as an absolute measure of trade. Pig iron from Alabama still arrives and is found to be of good quality, but this import depends greatly on American makers having superfluous stocks to dispose of, and on low ballast freight rates being available. Steel makers have all been widely adopted and have continued so. American competition is still threatened; billets are being sent to this country on consignment; and the present low price of steel rails in the United States brings the possibility of delivery in Europe very near. A purchase of American rails for one of the Indian railways is announced, and it is, of course, the more widely adopted and have in Great Britain, that this new competition is likely to develop. It yet remains to be seen how far American makers will be able or willing to conform to such conditions of test and quality as are demanded by British Engineers. Mechanical Engineers, Iron-founders, and Machine-tool makers include so great a variety of trades, that no general statement can apply, but, broadly, all are busy at fairly remunerative prices. There has been a lull in the great demand for mining machinery, partly owing to the uncertainties in South Africa. Electric haulage in mines and on tramways, and electrical transmission of power for machines and cranes in factories, are becoming more widely adopted and have the greater effect on the industries concerned, because Great Britain has much leeway to make up as compared with other countries. Gas engines are taking a more important position, partly due to the facility with which those of larger power than formerly can be constructed, and partly also to improvements in the manufacture of cheap gaseous fuel. The extension of cycle-making factories seems to have reached its culminating point, both in Europe and America, and the increased output has already had the effect of reducing prices. Machine tool makers have met the increased demands upon them by new designs, giving greater working power and less friction. The application of electric motors to machine tools, and other improvements in form and method, have retained in this country a branch of engineering which is subject to serious and growing competition from American manufacturers.

In the Portland cement trade there has been a marked revival from the depression of the last three years. Besides the demand for cement in the building trades at home, the demand for export has been very brisk, China, Japan, South Africa, and other countries taking increased quantities. The works in the London district are busy, therefore, at considerably enhanced prices. In many harbours and other public works that are going on throughout the world, the cost of cement is an important item in the total expenditure, and any excessive rise in price would discourage progress with works already projected. Public works, at home and in the colonies, have lately afforded increased employment for professional engineers and contractors. Much railway work is going on. The Blackwall Tunnel has been completed, but affords such meagre accommodation for traffic as to still leave the necessity for a bridge of appropriate design. In London the deep-level underground railways are being pushed rapidly forward, and the terminal works of the Grand Central Railway from Sheffield to London are advancing so as to be ready when the line is open two years hence. In India the authorised railways are progressing, but at a rate which will probably be restricted by the recent calamities of plague and famine. In South Africa, Western Australia and British Columbia, mining enterprise is causing and justifying considerable outlay of public funds for harbour and railway accommodation.

FOREIGN.

FRANCE.—On the Daru staircase some long requisite works are being carried out. The temporary wooden stairs have given place to large steps of white marble, ornamented with a decorative balustrade. In the Salle des Etats M. Bedon, the new architect to the Louvre, is arranging a large central gallery reserved for Rubens, and fourteen small galleries which will be filled with works of the Dutch School.—An exhibition has been organised at the Natural History Museum of the collections made by M. Chaffanoy in Central Asia and Siberia.—The works at the Gare de Lyons are being actively carried on, but it is not

expected that they will be completed until 1904. The existing facade will be replaced by a central building 86 metres long by 15 metres deep, in which the "Salle des par perdus" will be formed. The principal entry of the new station will be parallel to the Boulevard Diderot and at right angles with Rue St. Antoine.—In October the new Mairie of Levallois-Perret, built on the plans of M. La Jamain, is to be opened. The building, which is to be a very sumptuous one; is to cost about two million francs.—By order of M. Roujon the Directeur des Beaux-Arts, the steps to the long-abandoned terraces in the park at St. Cloud are being put into repair.—The Municipality of Bordeaux has opened a competition for the erection of a monumental fountain in that city, on the Place Amadee-Larrieu.—The annual exhibition of the "Arts Decoratifs" will be held temporarily in a gallery in Rue des Bons Enfants, until the Pavillon Marsan at the Tuileries is prepared for them.

MISCELLANEOUS.

CHANGE OF ADDRESS.—The "Universal" Sewage Purification Company have removed to "Universal" Chambers, Albert-street, Derby.

SANITARY INSPECTORS' ASSOCIATION.—In connection with the "Hygienic Congress" at the Brussels Exhibition, the Sanitary Association have arranged to visit Belgium early in September. Their programme includes visits to and inspection of the Sanitary Works at Antwerp, Malines, Ghent, Bruges, Ostend, and Brussels. Receptions by the Burgomaster, Aldermen, and Councillors will be given to them at most of those towns. M. Balu, the Burgomaster at Brussels, has invited them to a reception at the Hotel de Ville on the evening of September 6, and has also placed the Militia Hall at their disposal for their meetings whilst in Brussels. At Ostend a reception will be given at the Hotel de Ville on the morning of September 10.

STATISTICS AS TO ELECTRIC RAILWAYS.—For the last few years the earnings of the City and South London Electric Railway have been slowly but surely increasing, and the announcement just made that the directors recommend that the full dividend of 5 per cent. should be paid on the preference shares, together with a dividend at the rate of 2 per cent. per annum upon the consolidated ordinary stock must be considered satisfactory, and as evidence that this system of travelling can be made remunerative. Electric railways, however, have not made such rapid progress as was expected, although they are now gradually gaining ground in various European countries, and, more particularly, (as observed in a former issue) in the United States. It is stated in the *Journal of the Franklin Institute* for July that during the year 1895 the total number of electric railways or tramways in Europe rose from 70 to 111, and the length of lines from 435 miles to 500 miles. The mileage of electric railways in the principal European countries is given as follows:—Germany, 252 miles; France, 82 miles; Great Britain and Ireland, 66½ miles; Austria-Hungary, 44 miles; Switzerland, 20 miles; Italy, 24½ miles; Servia, Russia, Belgium, and Spain have but from 6½ to 18½ miles, while the remaining countries have less than 5 miles each. Of these 111 lines 91 are operated on the overhead surface system, 12 on the underground system, and 8 by means of accumulators. It is estimated that the new lines projected for the present year will exceed in number and mileage those constructed during any previous year.

MEETINGS.

SATURDAY, AUGUST 7.

Northern Architectural Association.—Excursion: meet in Northumberland-road. 3 p.m.

MONDAY, AUGUST 9.

Architectural Association.—Annual excursion commences; meeting at Lancaster.

SATURDAY, AUGUST 14.

Institution of Junior Engineers.—Summer meeting, at Dublin, commences.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

17,806.—**HORTICULTURAL STRUCTURES.**—*J. F. Ficker.*—As a sequel to Patent No. 3,993 (February 24, 1894), inventor claims forming the bars so that they slope to the south at a suitable angle, whereby saving of timber results; and also, in combination with a travelling travelling structure, an independent travelling boiler, &c.

18,486.—**FLUSHING CISTERNS.**—*A. B. Everett.*—Invention consists in improvements intended primarily for use with flushing cisterns of Patents No. 22,348 (November 19, 1894) and No. 9,330 (May 11, 1895), and embraces a flushing cistern in which the after-flush syphon is provided with means for keeping its inlet end closed so long as the water in the main compartment of cistern is at the normal level, and a flushing cistern provided with means for controlling the after-flush.

3,109.—**DOOR-RELEASING AND OPENING APPLIANCES.**—*P. C. Kunkel.*—Invention consists in an automatic door-opening apparatus characterised by a latch lock which is locked in the closed position by means of a wedge retaining lock and by a locking-plate adapted to slide behind the locking-plate proper and to be operated by the latch-lock.

10,697.—**CURTAIN, &c., RODS.**—*A. C. Herfort.*—Invention relates to rods—fluted, grooved, or of any desired cross section—encased in copper or other metal, and clearly defined by the use of saw sets, or similar rods.

10,773.—**SAW SETS.**—*J. Bowles and Another.*—Inventor claims in a saw set for setting teeth of self-planing saws the combination of a grooved female die, and a corresponding groover male die, both set in a vacuum so as to exhaust air contained in stone, when a solution of sulphate of zinc is introduced until stone is saturated.

12,242.—**FIREPROOF CONSTRUCTION.**—*A. R. Fordyce.*—In a metallic skeleton, which forms the foundation of floors, ceilings, partitions, &c., and supports the filling of plaster, &c., inventor claims the combination of supports, hoops mounted thereon, and auxiliary supports described and illustrated.

12,585.—**PARQUET FLOORS, &c.**—*J. W. Heaton and Others.*—In a thin or surfacing parquet floor inventors claim the combination of flooring strips, having their edges grooved and thin metal strips having tongues cut from their edges and bent down at right angles with the plane of said strips and thence outwardly parallel.

15,823.—**WATER-CLOSETS.**—*M. Abrecht and another.*—Invention has for object to provide a seat for water-closets wherein the part of the seat which the person sits on forms a roller covered with non-porous material, in such a manner that each time the closet has been used the said roller will be turned half a revolution and its lower surface will be scraped and cleaned with water, which process is for preventing contamination.

16,888.—**TOOLS FOR STONE, &c., DRESSING.**—*J. Dobbie.*—Invention consists in a handle for working several cutters, having jaws provided with one or more transverse grooves to receive corresponding ribs formed upon cutters.

16,892.—**HARDENING STONE.**—*T. R. Jones.*—Portland cement and similar materials are placed in a vacuum so as to exhaust air contained in stone, when a solution of sulphate of zinc is introduced until stone is saturated.

18,295.—**FIREPROOF CEILINGING AND FLOORS.**—*J. F. Aitken.*—Inventor produces ceilings, &c., with iron girders, characterised by the employment of a slab or flat cast consisting of artificial or natural stone, firmly connected by a suitable cement, to a supporting iron work imbedded in the joints between the several stone layers and set on edge. Various modifications are described and claimed.

19,033.—**INLET VENTILATOR.**—*A. Dube.*—In a building, such as a factory, inventor claims a ventilator consisting of a valve or flap turning on one edge, to wit, the lower horizontal, and closing the air passage, or when opened allowing of an upward discharge of air through the ventilator.

19,654.—**WASTE WATER PIPES.**—*T. Thomson and Another.*—Invention consists in a means for preventing entrance of foul air, &c., into rooms, &c., and consists in a chamber with water compartments in conjunction with a cone and trap.

19,806.—**WINDOWS.**—*S. Bastow.*—Invention has for object the construction of windows and shutters, which can be opened and secured in any position. This is effected by a combination of grooves or slots, bolts, studs, and thumb-screws.

19,906.—**ROOFS, CEILINGS, AND BUILDING BLOCKS.**—*F. Muller.*—Invention consists in a process of construction of surfaces for building purposes, characterised by an arrangement of stone blocks, wherein blocks are united by suitable cement, such as mortar, forming steps or offsets in relation to each other, so that each extends nearly halfway up the depth of next block. Inventors also employ stiffening metal bars (or angle-irons) to insure structural resistance.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 12.—16,414, J. Feenemeyer, Window Sash Fasteners.—16,415, D. Roberts, Window Sash Fastener.—16,416, H. Beien, Door Latches.—16,431, G. Brookes, Window Sash Fasteners.—16,432, A. Merritt, Window Fasteners.—16,433, J. Thompson, Fasteners.—16,437, T. Thomas, Window Fasteners.—16,467, H. Edmond, Window Frame and Sash for Cleaning, Ventilating, &c.—16,454, J. Pether, Grates or Stoves.—16,498, A. Latham, Window Sash Fasteners.

JULY 13.—16,523, J. Akam, Saws.—16,536, J. Ewen, Combined Prism Pavement and Prism Plate placed midway between Prism Pavement and Prism Plate.—16,537, J. Ewen, Combined Prism Pavement and Prism Plate for Illuminating Basements.—16,552, J. Ewen, Lighting Basements by Prism Windows, and Prism Ceiling.—16,553, J. Ewen, Lighting Basements with Primary and Secondary Prism.—16,556, C. Cordes, Attaching Sash-lines to Window Frames.—16,598, C. Holmberg, Self-heating Soldering Irons.—16,646, K. Fambler, Dismantling Drains.—16,647, J. Ewen, a Tiling Apparatus.

JULY 14.—16,674, M. Gentry and H. Grunwell, Machinery for Pressing Bricks.—16,730, H. Munslow and J. Bates, Sash Fasteners.

JULY 15.—16,742, F. Lynde, Baths, Lavatory Basins, Sinks, &c.—16,757, G. Strumpler, Rendering Folding or French Windows Rainproof.—16,760, F. Beer, joint, Edging Wood, Cement (Volcanic), and Post-board Roofing with Gravel Layer.—16,814, T. Pearson, Sash Fastener.—16,817, G. Krause, Blocking and Stopping Device for Use in Connection with Doors and Windows.

JULY 16.—16,816, W. Fieldhouse, Fireplaces.—16,863, H. Wallis, Window Sash Fastener.—16,879, J. Crawford and J. Holmes, Outbuildings.

JULY 17.—16,900, A. Thomas, Gripping Scaffolding Ladders.—16,901, J. Zude, Scaffolds.—16,939, C. Green, Blocks for Building Archives, Counter Heaths, &c.—16,947, J. Ssek, Floor Tiles, &c.—16,950, V. Fischel, Screws and Screws.—16,951, W. Thomson, Glass Tile.—16,965, A. Loewi, Flooring.

JULY 18.—17,007, J. Craven, Brick-making Machine.—17,051, F. and H. Hamill, Oil Pans.

JULY 20.—17,058, J. Shanks, Discharge Apparatus for Water Cisterns.—17,059, R. Gardner, Water Waste Preventor.—17,130, B. Carney, Siphon Tank Flush Water-closets.—17,148, A. Kidd, Window Sash Fasteners.—17,150, J. Jones, Window Sash Fasteners.

JULY 21.—17,157, J. W. and G. Barstow, Ladders.—17,265, C. Hickford and H. Bagnall, Locks.

JULY 22.—17,257, P. Jones, Syphon Flushing Cisterns for Water-closets, &c.—17,264, G. Healy, French Windows and Doors.—17,270, G. Billington, Paints, Varnish, and Similar Cases.—17,308, W. Mainzer, Hanging and Fixing Metal Window Casements.—17,334, J. Deit, Wood.

JULY 23.—17,355, R. McVitie, Attaching and Securing Sash-lines or Cord to Window Sashes, Shutters, &c.—17,356, J. C. Crawford, Sash Fasteners.—17,383, G. Ash, Shop-Window Fittings.—17,385, G. Haywood, Ventilators.—17,419, N. Ashton and J. Crompton, Hydraulic Cement.—17,422, C. O. Law, Horizontal Sawing.

JULY 24.—17,432, A. Watson, Ceiling Roses for Electric Lamps.—17,442, H. Ringel, Handles for Files and Similar Tools.

PROVISIONAL SPECIFICATIONS ACCEPTED.

13,557, A. Jordan, Chimney Top or Ventilator.—14,054, P. Liebig, Flushing Apparatus for Water Closets.—14,365, G. Warren, Mode of Drying Brick or other material in Continuous or other Kilns.—14,466, H. Pertwee, and R. Knowles, Sash Fasteners.—14,699, R. Evered, Automatic Flushing Apparatus.—14,995, P. Leonard, and W. Hall, Syphonage or Flushing Apparatus.—15,001, P. Webster, Chimney-top.—15,362, C. Charter, Alarms or Signals for use upon House Doors, &c.—15,375, A. Wise, Carriage for Lifting and Transmitting Timber.—15,502, A. Martyn and F. Goodall, Composite Sheet Material adapted for Roofing Lights and other purposes.—15,578, R. Matthews, White Lead.—15,905, J. Hanna & T. Shillington, Stables and their fittings.—15,728, E. Stiff, Taps, and their Connections.—14,862, G. Osborne, Fastener for Windows.—14,860, S. Baker and W. Hadley, Window Sash Fasteners.—15,458, J. Thomas, Window Sash Fasteners.—15,460, A. Smith, Fasteners for Sashes.—15,462, J. Veitch, Sash Fasteners.—15,559, M. Mawson, Securing Window Sashes.—15,628, S. Wathan, Window Sash Fasteners.—15,629, G. Cockings, Window Sash Fasteners.—15,631, J. Martingale, Window Sash Fasteners.—15,634, S. Seacombe, Window Sash Fasteners.—15,635, R. Miles, Senior, Water-closets, &c.—15,874, J. & W. Rawlings, Automatic Flushing Apparatus.—16,005, D. Booth, Taps for Sanitary or Drain Pipes.—16,265, E. Hugues, Cement Building Materials.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

19,479, A. McLean, Artificial Stone.—21,172, A. Kugler, Paint and other Brushes.—21,336, J. McNab, Windows and their frames.—757, W. Hewitt, Tiles and Apparatus therefor.—6,654, J. Johnson, Water Closets.—11,059, G. Gardner, Door Hangers, and supporting Window Sashes.—16,296, W. Stonehewer, Composition Sash Weight.—25,212, J. Greenwood, Chimney Tops, Ventilators, &c.—27,245, G. Low, Testing of Drains and Apparatus Therefor.—28,300, C. Mohr, and R. W. Miles, Junior, Water-closets, &c.—14,809, B. Williams, Fasteners for Windows.—15,181, G. Freeman, and W. Shoosmith, Covers for Inspection Apertures in Interceptors or other Traps, Drains, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 14.—By GRAHAM, HITCHCOX, & CO. (at Newport).
1 to 8, 12 to 15, 22, 33, 30, 31, 71, 72 and 73, King-st., u.t. 33 yrs, g.r. 38, 148. 4,775
King-st., "The Greyhounds," u.t. 21 yrs, g.r. 38, 148. 610
cottages adjoining u.t. 33 yrs, g.r. 38, 148. 610
66, 67, 68, 83, 92 and 97, King-st., u.t. 33 yrs, g.r. 38, 148. 610
26, 27 and 41 to 45, Prince-st., u.t. 33 yrs, g.r. 38, 148. 357
4 to 7, 11, 14 to 16, 30 and 48, Queen-st., u.t. 30 yrs, g.r. 28, 28. 563
61, 65, 69 and 70, King-st., u.t. 21 yrs, g.r. 38, 148. 4,775
also two cottages, u.t. 30 yrs, g.r. 38, 148. 255
King-st., &c., four building plots, f. 255
By W. DEW & SON (at Langfain).
Penmyddel, Anglesea.—A house, smithy, and 7 a. 25,800
832 a. 2 r. 21 p. f. 3,300
"Rhuddylfen Farm" (parts of), 95 a. 2 r. 38 p. f. 3,300
Pentraeth, Anglesea.—A house, smithy, and 7 a. 611
"Gwaithdy Farm," 60 a. 2 r. 21 p. f. 1,100
Two houses and 36 a. 1 r. 21 p. f. 1,100
Enclosures of land, 3 a. 2 r. 0 p. f. 251
House shop, and 2 a. 2 r. 21 p. f. 150
Rhodegiddio, &c., Anglesea.—A house and enclosures, 49 a. 1 r. 16 p. f. 1,500
Two houses and enclosures, 222 a. 1 r. 38 p. f. 4,785
House at Penycraig and o a. 3 r. 24 p. f. 550
Llantrisant, Anglesea.—House and enclosures, 180 a. 1 r. 6 p. f. 4,650
"Pant Newydd Farm," 77 a. 0 r. 9 p. f. 1,785
Two houses and enclosures, 37 a. 0 r. 39 p. f. 1,205
Nantano Farm, 49 a. 2 r. 19 p. f. 8,050
"Glan-y-Gors Farm," 160 a. 3 r. 4 p. f. 4,000
"Chwaen Hen Farm," 103 a. 1 r. 27 p. f. 2,550
"Pen-y-Bryn Farm," 92 a. 1 r. 35 p. f. 2,100
By HURDROD & CO. (at Kingston).
Kingston, Surrey.—Wood-st., three plots of building land, f. 675
Horse Fair, three plots of building land, f. 455
Thomasset, four plots of building land, f. 1,035
By STAFFORD & ROGERS (at Bangay).
Bangay, Suffolk.—"Duke Bridge Farm," 77 a. 3 r. 18 p. f. 1,130
Freehold house and cottage, r. 104. 183
Spekall, &c., Suffolk.—"White House Farm," 251 a. 0 r. 5 p. f. 1,750
By MORRIS, MARSHALL, & POOLE (at Shrewsbury).
Worthen, Salop.—"Worthen Hall Farm," 211 a. 0 r. 6 p. f. 6,000
"The Bank Farm," 178 a. 1 r. 27 p. f. 5,000
"The Bird Farm," 161 a. 0 r. 23 p. f. 720
"Worthen Corn and Mill," 23 a. 1 r. 35 p. f. 1,250
"Rose Cottage," "Woodbine Cottage," and 24 a. 2 r. 17 p. f. 1,275
Freehold house and garden, u.t. 21 yrs, g.r. 38, 148. 450
"The Kynaston Arms" Inn and 3 a. 0 r. 19 p. f. 2,070
Fourteen cottages, two tenements, and 8 a. 0 r. 12 p. f. 1,065
Various enclosures, 1 a. 1 r. 2 p. f. 430
Brockton, Salop.—House, blacksmith's shop, and 2 a. 3 r. 32 p. f. 330
Two cottages and enclosures, 4 a. 1 r. 37 p. f. 800
Rowley, Salop.—"Tittletail," 44 a. 2 r. 39 p. f. 170
"Passant's Rowley Farm," 14 a. 2 r. 29 p. f. 230
Two cottages and 1 a. 2 r. 24 p. f. 590
"New Bank Farm," 27 a. 2 r. 0 p. f. 675
"Upper Cottage," "Church Farm," and "Spring" tenements, and 16 a. 3 r. 18 p. f. 4,925
"Little Rowley Farm," 25 a. 2 r. 7 p. f. 6,350
By CHURTON, K. LORICK, & CO. (at Chester).
Puddington, Cheshire.—Three freehold farms, area 1,293 a. 2 r. 8 p. f. 4,925
"New House Farm," 27 a. 9 p. f. 6,350
"Chapel House Farm," 135 a. 2 r. 9 p. f. 5,900
Eleven cottages, school house, plantation, and 3 a. 2 r. 3 p. f. 1,245
Various enclosures, 71 a. 3 r. 16 p. f. 3,630

July 16.—By NOCK & JOSELAND (at

Rock, Worcester.—"Kiddminster." 4,830
23 p. f. f. 1,919
Kiddminster, Worcester.—Worcester-st., "The Turk's Head" p-h. and shop and four cottages adjoining, f. 1,919
By W. G. STANFIELD & CO. (at Eccleshill).
Eccleshill, Works.—"Dog Kennels Farm," 28 a. 1 r. 12 p. f. 3,065
Three blocks of land, 21 a. 0 r. 11 p. f. 3,252
A plot of land, area 6,265 yds, f. 313
By JAMES MAUDSLAY (at Longpreston).
Longpreston, &c., Yorks.—Town Head Farm and Prospect House Estate, 271 a. 2 r. 5 p. f. (in lots) 11,010
By ELWORTHY & SON (at Manea).
Manea, Cambs.—"Fodder Fen Farm" and another farm, 292 a. 2 r. 7 p. f. 7,000
Three enclosures, 31 a. 0 r. 7 p. f. 980
July 17.—By FENN & CO. (at Colchester).
Little Oakley, Essex.—An enclosure, with three tenements and a cottage, 5 a. 2 r. 26 p. f. 120
By H. J. WAY (at Newport).
Godshall, Isle of Wight.—"Bobberstone Farm," 55 a. 2 r. 25 p. f. 1,700
By MESSRS. SWEET (at Norwich).
Thornton, &c., Norfolk.—A farm, comprising 35 a. 2 r. 30 p. f. and c. 1,000
Occold, Suffolk.—"The Church Farm," 130 a. 0 r. 20 p. f. 1,655
Mattishall, Norfolk.—Nine houses and three shops, f. and c. 645
Milham, Norfolk.—"Colley Hill Farm," 133 a. 0 r. 23 p. f. and c. 210
By MORRIS, SONS, & PEARD (at Taunton).
Clayhanger, Devon.—"Wellhays Farm," 69 a. 1 r. 8 p. f. 1,225
By W. DEW & SON (at Carnarvon).
Llanrug, Carnarvon.—"Tanycoed" and "Lleian" Farms (part of), 41 a. 3 r. 30 p. f. 2,430
By SALES, SIMPSON, & SONS (at Norwich).
Fornett, Norfolk.—A freehold farm, containing 53 a. 2 r. 35 p. f. 500
Enclosures of land, 40 a. 3 r. 9 p. f. 400
July 19.—By BEAN, BURNETT, & ELDRIDGE.
City of London.—Fore-st., "The Grapes" p-h. i.g.r. 175, u.t. 201 yrs, g.r. 126, with reversion 2,410
18, 20, and 22, Fann-st., a building site, area 1,327 ft. 2, 610
Blackheath—1, Ruthin-rd., u.t. 75 yrs, g.r. 41, 108, r. 22. 220
41, 108, r. 22. 220
Fulham, Dancer-rd., i.g.r. 48, u.t. 75 yrs, g.r. 41, 108, r. 22. 220
1, Halford-rd., u.t. 75 yrs, g.r. 41, 108, r. 22. 220
By HAMPTON & SONS.
Putney Heath.—"Bristol House," and 8 a. 1 r. 12 p. f. 25,000
Guildford, Surrey.—"Morden House," and about 13 a. f. 25,000
Chiswick.—17, Brandenburg-rd., u.t. 76 yrs, g.r. 74, 108, r. 45. 2,610
By G. B. HILLIARD & SON.
Hockley, Essex.—A freehold farm, area 203 a. 1 r. 30 p. f. 1,500
Leytonstone.—Fairlop-rd., i.g.r. 5, f. reversion in 30 yrs. 125
Southminster, Essex.—A freehold farm, area 48 a. 2 r. 22 p. f. 500
Enclosure of land, with two cottages, 49 a. 0 r. 30 p. f. 550
"Ratborough Farm," 132 a. 2 r. 23 p. f. 3,580
Enclosure of land, 37 a. 2 r. 10 p. f. 720
"Bitch Hunter's Farm" and two cottages, 50 a. 3 r. 25 p. f. 1,165
Ashfield, Essex.—"Washford Farm," 54 a. 3 r. 23 p. f. 500
By THOMAS, PEYER, & MILES.
Lambeth.—Upper Marsh, "The Duke's Arms" p-h. f. r. 100. 3,500
St. Albans, Hert.—Conduits, p-h. f. r. 100. 7,250
Hart Hill, f. r. 140. 175
Great Baddow, Essex.—Lower Green, "The Labourers' Arms" b-h. c. 550
"The Admiral's Arms" p-h. f. r. 100. 1,200
Ingatstone, Essex.—"The Cricketers' Inn," f. r. 825
"The Queen's Head" b-h. f. r. 1,500
Burnham-on-Crouch, Essex.—"The Oyster Smack" Inn, f. r. 2,100
By RUMBALL & EDWARDS.
Redbourne, Herts.—"The Punch Bowl" p-h. f. r. St. Albans, Herts.—Upper Dagnall-st., "The Hope" b-h. f. r. 1,300
London-rd., "The Crystals Inn," f. r. 654
Luton, Beds.—Cumberland-st., "The Blue Lion" b-h. f. r. 454
Duke-st., "The Duke of Devonshire" b-h. f. r. 1,500
Brunswick-st., &c., a corner building site, f. 300
Hunstable, Herts.—"The Leather Bottle" b-h. f. r. 1,325
Dunstable, Beds.—Markgate, "The Bull and Butcher" b-h. f. r. 1,275
Hitchin, Herts.—Offgate, "The Bull" b-h. and two cottages, f. 450
St. Albans, Herts.—Potter's Crouch, "The Holly Bush" p-h. and two cottages, f. 1,950
By MESSRS. SPELMAN (at Norwich).
Norwich.—St. Giles-rd., "The Plantation," and 24 a. u.t. 33 yrs, g.r. 31, 108. 1,500
St. Giles-rd., "The Beches" u.t. 33 yrs, g.r. 154. 800
Heigham-grove, "The Elms" and 3 r. 20 p. f. 1,900
1 to 7, Chester-pl., and "Chester House" and "The Rectory" p-h. f. r. 8,830
Clarendon-rd., a freehold plot of land, f. 210
Heigham-grove, "Gayton House," f. 970
Post Office-st., a shop and house, u.t. 153 yrs, g.r. 41. 900
By G. F. BEARN & C. WATTS (at St. Ives).
Elworth, Cambs.—Three houses, four cottages, and 3 a. 3 r. 39 p. f. and c. 345
St. Albans, Herts.—Potter's Crouch, "The Holly Bush" p-h. and two cottages, f. 2,225
A freehold house and 3 a. 1 r. 35 p. f. 360
By NICHOLSON, GRAVES, & CO. (at Rotham).
Rowmarsh, Yorks.—"The Roundwood Colliery," 778 a., u.t. 30 to 50 yrs, r. 3,900. 15,100

July 20.—By LUCE, YOUNG, & LUCE (at Chestow).

St. Brivels, Glou.—Enclosures of land, 6 a. 0 r. 77 p. f. 6,360
West Dean, &c., Glou.—Two cottages and a r. o. p. f. 175
By R. HADDOCK.
Croydon.—110, 120, 122, 124, and 126, St. James's-rd., f. r. 210. 3,200
By NOTLEY & CO.
Greenwich.—Blackheath-rd., f.g.r. 80, reversion in 81 yrs. 2,320
Bowes Park—30 and 32, Moffat-rd., f. r. 64. 725
Barbican.—Red Lion Passage, a plot of land, area 400 ft. f. 165
By DRIVER & CO.
Datchet, Bucks.—Old Windsor-rd., the Sandale Estate, 16 a. f. 11,500
By HUMBERT, SON, & FLINT.
Soho.—33, 34, 55, and 36, Rupert-st., u.t. 64 yrs, g.r. 120, r. 48. 4,194
Archer-st., "Archer-street Chambers" and "Elkington-bldgs," u.t. 64 yrs, g.r. 120. 3,200
Lymington, Kent.—"Sibton House," and 58 a. 3 r. 72 p. f. 12,750
"The Valley Farm," 13 a. 1 r. 21 p. f. 150
A freehold cottage and 1 a. 2 r. 30 p. f. 570
Enclosures of land, 14 a. 2 r. 20 p. f. 13,040
Norbiton, Surrey.—Station-rd., &c., a freehold building estate, area 22 a. 2 r. 14 p. f. 3,663
City of London.—36 and 38, Moor-lane, and 2, 3, and 4, Roper-mkt., u.t. 65 yrs, g.r. 375. 40,000
By FLEURET, SON, & ADAMS.
Kensington.—Earls Court-rd., "The Bolton Hotel," u.t. 60 yrs, r. 600, with goodwill. 1,000
By R. SMITH & CO.
Kensington.—"The Abbey Tavern," u.t. 74 yrs, r. 254, with goodwill. 23,102
Walworth.—Brandon-st., "The Northumberland" p-h., u.t. 38 yrs, r. 105, with goodwill. 13,150
By ALFRED RICHARDS (at Tottenham).
Edmonton.—29, 29, and 31, Graham-rd., u.t. 81 yrs, g.r. 9. 130
Wood Green.—67, 69, and 71, Truro-rd., u.t. 55, 138. 525
10 p. f. 1,260
9 and 10, Dovecot Villas, u.t. 64 yrs, g.r. 127, 108, r. 100. 1,100
Tottenham.—118 to 126 (even) Clyde-rd., u.t. 75 yrs, g.r. 87, 48. 665
By W. & B. HOBBS (at Ashford).
Old Romney, Kent.—Two enclosures, 30 a. 2 r. 39 p. f. 1,000
Meridian, Kent.—"Johncock Farm," 43 a. 3 r. 11 p. f. 800
Kennington, &c., Kent.—"Fleet cottages," f. r. 380
Boughton, Kent.—Six cottages, f. r. 690
By MASON & SON (at Spalding).
Moulton, Lincs.—A freehold estate comprising 125 a. 3 r. 3 p. f. 4,250
By HEPPEY & SONS (at Leeds).
Headingley, Yorks.—Burton-cres., a freehold building site, area 6,142 yds. 1,000
July 21.—By BAXTER, PAVNE, & LEPPER.
Swanley, Kent.—1 and 2, Beaumont-vill., u.t. 30 yrs, g.r. 70. 250
Bexley-rd.—Five plots of building land, f. 1,000
By J. H. BULMER.
Rotherhithe.—18 and 19, Manor-lane, u.t. 53 yrs, g.r. 41, 108. 280
25, Prince-st., f. subject to 12, 95, 9d. rent charge. 310
By GENDLE & BULLFORD.
Surbiton.—2 to 6, Westfield-rd., f. r. 145. 1,495
Leyton.—Wilmot-rd., "Joseph's Villa," u.t. 72 yrs, g.r. 74, 108, r. 261. 100
By HAROLD CRUPIN.
Fimlico.—41, 43, and 45, Denbigh-st., u.t. 33 yrs, g.r. 24, r. 174. 1,575
Battersea.—20 to 27, Rowena-cres., u.t. 80 yrs, g.r. 30, r. 196. 1,115
Peckham.—54, Asylum-rd., u.t. 50 yrs, g.r. 26, 155. 315
By E. HOLSWORTH.
Tottenham.—276, High-rd., 1, 2, and 3, Bull-row, f. 1,500
By MARK LIEBL & SON.
Stratford.—38, 40, 66, 68, 70, and 72, Warwick-rd., u.t. 88 yrs, g.r. 33, r. 173. 1,000
Bromley.—19 and 20, Tiddy-st., u.t. 77 yrs, g.r. 74. 175
Plaistow.—156 to 188 and 202 to 206 (even), Grange-rd., f. 3,790
15, Station-rd., f. 455
By E. W. RICHARDSON & SON.
Finchley.—2 and 3, Long-lane, f. r. 664. 970
Strand.—10, Vere-st., f. r. 454. 750
Acton.—21, 23, 25, and 27, Berry-mead-rd., f. r. 82, 88. 700
Kingsland.—4 and 6, Essex-st., u.t. 72 yrs, g.r. 144, 158, r. 854. 540
By F. H. B. RIDDLE.
Maida Vale.—Nos. 20 and 22, u.t. 12 yrs, g.r. 137, 68, 8d., r. 107. 600
109 and 111, Portdown-rd., u.t. 74 yrs, g.r. 44, r. 1304. 1,400
Marylebone.—23, Great James-st., u.t. 252 yrs, g.r. 40, r. 954; also 2 a. 3 r. 3 p. f. 215
751 yds, g.r. 184, 188, r. 534.
By WATERER & SONS.
Leatherhead, Surrey.—1 to 7, Booth's Cottages, f. r. 724, 168. 750
Walthamstow.—132, Wood-st., c. r. 304. 350
Walton-on-Thames.—High-rd., a moiety of enclosures of land, 96 a. 0 r. 21 p. f. 1,000
Clapton.—192, 194, 196, and 198, Milfield-rd., u.t. 74 yrs, g.r. 84, reversion in 74 yrs. 245
By FORSTER & CRANFIELD.
Camden Town.—2 to 15 (odd), Torrington-av., u.t. 40 yrs, g.r. 104, r. 179. 1,130
Kennington.—149 and 150, Prince-rd., f. r. 704. 800
Anerley.—15, Station-rd., f. r. 574. 1,105
Barnet, Surrey.—A rent charge of 4d. 9d. 115
Shepreth, Cambs.—"The Plough Inn," and 1 a. 2 r. 21 p. f. 530
By FAREBROTHER, ELLIS, & CO. (at Worcester).
Eldersfield, Worcester.—Tuble rent charges of 134, 158, 721. 150

By RENDELL & SYMONS (at Newton

Abbott).

Torhryan, &c., Devon.—"Brenridge Estate,"

42 a. 0 r. 9 p., f. £1,010

Manaton, Devon.—"Holwell Estate," 272 a. 2 r.

11 p., f. 2,500

By A. DOWELL (at Edinburgh).

Ecclesmachan, &c., Linlithgow.—"The Estate of

Bangour, 775 a. 13,000

By W. DEW & SON (at Denbigh).

Denbigh.—Henall-st., "The Hand Inn" and

"Hand Cottage," area 80 a. 2 r. 1,280

By JONES FRANCIS (at Tenby).

Amroth, Pembroke.—"The Amroth Castle

Estate," 235 a. 1 r. 12 p., f. 10,360

"Long Park" (parts of), 10 a. 1 r. 28 p., f. 405

"The Moor Farm," 36 a. 1 r. 3 p., f. 405

"Rylands Hill Fields," 37 p. 3 r. 17 p., f. 380

"The Crayke Farm," 218 a. 1 r. 16 p., f. 7,000

"Penybont Farm," 81 a. 0 r. 20 p., f. 1,240

By KNAPP & FINE (at Eves).

Brede, Sussex.—Grocer's shop, beer shop, and

wheelwright's shop, and 4 a. 1 r. 24 p., f. 645

"Broad Oak House," 7 a. 3 r. 23 p., f. 211

Ewhurst, Sussex.—"Prospect Cottage,"

July 22.—By C. C. T. MOORE.

Whitechapel.—14 to 30 (even), Scarborough-st.,

u.t. 30 yrs., g.t. 334. 240. 5,310

Spitalfields.—17 and 18, Great Pearl-st., and 5 and

7, Grey Eagle-st., u.t. 27 yrs., g.t. 324. 240. 1,220

13 to 19 (odd), Little Pearl-st., and 1 to 7, Crown-

court, f. 2,065

241, 24 to 28, and 30, Great Pearl-st., 1 Half

Will-cour, and 1 to 3, Will-cour, f. 2,355

Stoke Newington.—34, Brook-rd., u.t. 81 yrs.,

g.t. 74. 105. f. 465

Walthamstow.—Woodville-rd., 3 plots of building

land, f. 105

Stepney.—59, Goud-rd., u.t. 27 yrs., g.t. 27. 61.

Silverton.—Oriental-rd., a plot of building land,

area .450 yds. 710

By H. J. BLESS & SONS.

Bethnal Green.—5 and 6, Wood-st., f. 261.

Crouch End.—166, 165, and 170, Park-rd., u.t. 69

g.t. 184. f. 194. 591

Little End.—13, 14, and 15, King-st., f. 720

Bethnal Green.—20, 22, 24, 34, 36, 38, 40, and

st., u.t. 20 yrs., g.t. 194. 105. 685

By SPARROW & SON.

Finchley.—Woodside-gate-rd., "Inglenest" and

"Essendene," f. 261. f. 1,645

Woodside-gate-rd., 3 plots of land, f. 650

By FAREBROTHER, ELLIS, & CO.

City of London.—10, Laurence Pountney-lane,

area 2,550 ft., f. 1,405. 6,135

By BARNARD, WOOD, & CO.

St. Oyston, Essex.—"Park Farm," 625 a. 1 r. 3 p., f.

Penhurst, Kent. Enclosure of land, 10 a. 0 r. 12 p.,

f. 7,300

Kennington.—Cotton-garden-rd., 1 g.t. 601.

u.t. 341 yrs., g.t. 111. 1,065

Sydenham.—Venner-rd., a plot of land, f. 450

Greenwich.—Vanbrugh Hill, a color plot of land,

f. 560

By PROTHEROE & MORRIS.

Luton.—Hartley-rd., a block of building

land, f. 1,400

Rochester Hill.—4, George-villas, f. 191. 105.

Luton.—111 to 128 (even), Cann Hall-rd.,

u.t. 87 yrs., g.t. 121. 1,090

By STIMSON & SONS.

Bourne End, Bucks.—5 and 6, Spring Gardens, f.

Cambridge-rd.—43 and 47, P. Khan-rd., and 110 to

245 (odd), Southampton-st., area about 1 a. 5,500

Peckham.—Middle-st., f.g.t. 84, reversion in 60 yrs.

Walworth.—57, Finchley-rd., u.t. 33 yrs., g.t. 41.

f. 221. 215

Cambridge.—28a, Vaughan-rd., u.t. 41 yrs., g.t.

31. c.t. 454. 380

By NEWBURY & SHEPARD.

New Southgate.—52 and 64, Holly Park-rd., u.t.

81 yrs., g.t. 124. f. 481. 370

Clapton.—177, 179, and 181, Rushmore-rd., u.t. 51

Hornerton.—47 and 49, Pedro-st., u.t. 81 yrs., g.t.

111. 450

Tottenham.—17 to 20, Manor-rd., u.t. 80 yrs., g.t.

181. 265

Canning Town.—20, 22, and 24, Trinity-st., u.t.

78 yrs., g.t. 81. 58. 400

Highbury.—Conewood-st., a freehold plot of land

New Southgate.—52 and 64, Holly Park-rd., u.t.

81 yrs., g.t. 124. f. 481. 370

By H. HENDRICKS (at Birmingham).

Birmingham.—Warwick—Bradford-st., "The

Britannia" Country, area 2,650 yds., f. 3,000

By J. H. BETHELL (at East Ham).

Manor-Pk.—Seventh-av., 88 plots of building land,

f. 3,855

By FICK & SON (at Saxmundham).

Saxmundham, Suffolk.—Three houses and shop

cottage, f. and c. 1,195

Carlton, &c., Suffolk.—A farm, containing 45 a. 3 r.

3 p., f. and c. 420

Rendham, Suffolk.—Enclosures of land, 31 a. 1 r.

15 p., f. 338

By HAWKES, RISDON & CO. (at Wellington).

Chipstable, Somerset.—"Chipstable Farm," 63 a.

3 r. 13 p., f. 1,300

By WYATT & SON (at Chichester).

Chichester, Sussex.—Southgate, "Sunnyside," f.

r. 904. 1,625

Basin-rd., an enclosure, 1 a. 1 r. 20 p., f. 470

15, Southgate, f. 1, 201. 470

23 and 24, St. Paul-rd., f. 260

Oving-rd., a freehold house and garden (at Pulborough).

By KING & CHICHESTER.

Storrington, Sussex.—High-rd., eleven building

plots, f. 375

"Yew Tree Cottage" and a 1 r. 20 p., f. 380

A cottage and two enclosures, 1 a. 0 r. 12 p., f. 370

July 23.—By C. RAWLEY CROSS & CO.

Shepherd's Bush.—175 and 177, Goldhawk-rd., u.t.

46 yrs., g.t. 84. 88. £910

Kensington.—138, 142, 144, 146, and 148, Addison-

gates, u.t. 97 yrs., g.t. 144. 105. f. 2,065

Hammermith.—1, 3, and 5, Lena-gates, u.t. 79

yrs., g.t. 211. f. 184. 1,195

7, Barb-mews, u.t. 79 yrs., g.t. 34. f. 221.

By GILES & SONS.

Clapham.—30, Orlanda-rd., u.t. 80 yrs., g.t. 61.

f. 481. 470

Wandsworth.—251, Trinity-rd., u.t. 82 yrs., g.t.

126. f. 531. 500

Balham.—8, Ormeley-rd., u.t. 82 yrs., g.t. 84. 105.

f. 401. 315

By Messrs. MELLANDER.

Graywood, Surrey.—A freehold building site,

10 a. 1 r. 1 p., f. 900

By MULLETT, BOOKER, & CO.

Hyde Park.—2, New-rd., u.t. 204 yrs., g.t.

g.t. 21. f. 214. 2,200

13, Southwick-cres., u.t. 384 yrs., g.t. 61.

By RIDER & SONS.

Notting Hill.—92 and 94, Brainley-rd., and 31,

Blechynden-st., u.t. 67 yrs., g.t. 181. 430

By EDWIN EVANS.

Balham.—49, Balham Hill, and 8 a. 1 r. 36 p., f.

Battersea.—204, New-rd., u.t. 204 yrs., g.t.

3 r. 105. 29,550

Briveton.—30, Arlington-rd., u.t. 774 yrs., g.t.

61. 105. 170

By GIPPO & CO.

Hamstead.—31, 33, and 35, Stanley Gardens, u.t.

60 yrs., g.t. 271. f. 1951. 2,950

By RUTLEY, BAKER, & VINCE.

Stockwell.—22, Tasman-rd., u.t. 78 yrs., g.t.

61. 68. f. 261. 300

Clapham.—33, Jefferies-rd., u.t. 70 yrs., g.t.

ref. 105. f. 461. 360

Palmer's Green.—1 to 12, and 21, 22, and 23, Green

Brae, and two plots of land, u.t. 82 yrs., g.t.

431. 1,000

Holloway.—12, Tremis-grove, u.t. 13 yrs., g.t.

r. 381. 400

Hornsey.—Westfield-rd., f.g.t. 121, reversion in

33 yrs. 345

Haverstock Hill.—48, Addison-rd., u.t. 94 yrs.,

g.t. 111. f. 801. 1,660

Regent's Park.—7a, Albert-st., u.t. 68 yrs., g.t.

134. f. 701. 800

Tottenham Court-rd., 12, Tottenham-rd., c. 995

By TRIST & CO.

City-rd.—Wharf-rd., "The Wharf-rd. Distil-

lery," p-h. f. 4,700

Camberwell.—Bushey Hill-rd., 1 g.t. 13 yrs.,

reversion in 84 yrs. 680

Islington.—3 and 5, Spencer-st., u.t. 20 yrs., g.t.

124. f. 914. 505

Barnsbury.—1, Thornhill-cres., u.t. 52 yrs., g.t. 84.

r. 551. 400

Islington.—8 and 17, Cloudey-sq., u.t. 4 yrs.

g.t. 164. f. 710

65 and 67, College-st., u.t. 184 yrs., g.t. 161.

f. 741. 465

By G. H. HILLIARD & SON (at Welmsford).

Dancely, Essex.—Enclosure of land, 2 a. 0 r.

16 p., c. 310

Terling, Essex.—"Rolle's Farm," 22 a. 2 r. 36 p.

f. 270

Stock, Essex.—A house and 8 a. 1 r. 13 p., f. and

c. 410

West Hanningfield, Essex.—Four freehold cot-

tages, r. 201. 165. f. 260

Gt. Baddow, Essex.—Lower-grove, a freehold

beer-house 460

Springfield, Essex.—Freehold rent-charges of

164. 105. 105. f. 415

By A. SAVILL & SON (at Epping).

Epping, Essex.—Hemal-st., "Chestnut Cottage" and

three cottages in High-st., c. 600

Rye Hill, enclosure of land, 8 a. 2 r. 13 p., c.

North Weald, Essex.—A freehold cottage 160

Magdalen Laver, Essex.—Two enclosures and two

cottages, 6 a. 2 r. 6 p., f. 295

Harlow, Essex.—Ongar-rd., two freehold, 24 a. 2 r.

7 p., c. 600

July 24.—By J. J. CUNNAH (at Festiniog).

Blanaen-Festiniog.—Merioneth, f.g.t. 121, reversion in

33 yrs. 1,150

"Brony-fel" "Tyddyn Bach Farms," 24 a. 1 r.

2 r. 17 p., f. and c. 1,150

By Messrs. SPELMAN (at Norwich).

Winterton, Norfolk.—A farm comprising 79 a. 3 r.

35 p., f. and c. 900

Six houses and a plot of land, f. 465

West Somerton, Norfolk.—An enclosure of land,

7 a. 3 r. 12 p., f. 120

Marshfield, Norfolk.—A farm comprising 56 a. 0 r.

7 p., f. and c. 620

Stanton, Norfolk.—A freehold farm, area 72 a. 1 r.

10 p., f. 515

By FENN & CO. (at Colchester).

West Mersea, Essex.—"Waldgraves and Decoy

Farm," 445 a. 2 r. 20 p., c. 740

"Burrow Hill Lands," 28 a. 3 r. 28 p., c. 210

An Oyster Laying in Salcot Creek, c. 300

Great Wigborough, Essex.—"Rouse's Farm,"

1 r. 13 p., f. and c. 540

Little Wigborough, Essex.—"New Hall Farm,"

237 a. 3 r. 8 p., f. 2,151

St. Oyston, Essex.—"Maldon Wood Farm," also a

cottage, 154 a. 0 r. 11 p., f. and c. 925

"Juggard's Farm," 23 a. 2 r. 20 p., c. 300

"Hartley Wood Farm," 76 a. 3 r. 22 p., f. 925

By BROWN & FOLKES (at Chesham).

Quinton, Bucks.—"Banbury Hill" and "Lower

Farm," 167 a. 3 r. 20 p., f. 3,850

"Cross Farm," 158 a. 1 r. 1 p., f. 6,550

By MORRIS, SONS, & CO. (at Taunton).

Dulverton, Somerset.—Various enclosures, 40 a.

3 r. 10 p., f. 1,180

Contractions used in these lists.—F.g.t. for freehold

ground-rent; l.g.t. for leasehold ground-rent; l.g.r. for

improved ground-rent; g.r. for ground-rent; r. for rent

f. for freehold; c. for copyhold; l. for leasehold; e.r. for

estimated rental; u.t. for unexpired term; p.a. for per

annum; yrs. for years; st. for street; rd. for road; sq. for

square; pl. for place; ter. for terrace; cres. for crescent;

yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, ton 8 1/2 0/0

Sequoia, U.S.A., ton 15 1/2 0/0

Ash, Canada load 2 1/2 0/0

Oak, do. do. 2 1/2 0/0

Elm,

WATFORD.—For additions to the Watford District Cottage Hospital. Mr. Charles F. Ayres, architect, Watford:—	
Andrews	£1,288
Deal	1,085
Higgs	1,125
Reed	1,070
Marshall	1,115
Watkins	1,090
Widdiford & Gough	1,067
	1,058
	1,067
	1,082

Highman 1,093 | Cambridge..... 977
* Accepted.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Two Hall and Law Courts	Cardiff Corp.	500L. 800L. + 200L.	Dec. 4

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Twenty-five Houses, Richmond-street, Bridlington Quay	W. Battle	J. Barnshaw, Archt. Wellington-road, Bridlington Quay	Aug. 10
Additions, &c. to House, Boston View, Leven, Seas	Boston Corporation	W. H. Wheeler, C.E. Market-place	do.
Extension of Drainage at Workhouse, Leven, Seas	Do.	J. Bunals, Surv. Copford Rev. T. Jackson, S. Ashmore-road, Clifton	do.
Chapel and school, Pleasant-road, Southend	G.W.B. Co., Ltd.	O. K. Mills, Paddington-st., Burywood (Lancs) U.D.	do.
Faulbridge, near Preshouse, Glouc.	Do.	J. S. Cullum, Surv. Gillingham, King Lynn	Aug. 11
Refrigerator, near Preshouse, Glouc.	Do.	S. A. Platt, Boro. Surv. Town Hall	do.
Widening Footpaths, High-street, Southend	Do.	G. W. Rogers, C.E. Silver Street, Southend	do.
Conversion No. 48, Cowbridge-road, Cardiff	Do.	W. H. D. Caple, Archt. St. John's square, Cardiff	do.
Twenty Cottages, Glemsted, Epsom, Surrey	Do.	W. D. D. Caple, Archt. St. John's square, Cardiff	do.
Big Cottages, Church-road, Glemsted, Surrey	Do.	W. D. D. Caple, Archt. St. John's square, Cardiff	do.
Four Farms, near Fyfehill, Durham	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Dispensary and Residence, Folly Hill, Aghave	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Alterations to Business Premises, Bridge-street, Southend	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Extension of Road, Workhouse, Southend	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Church, Glemsted, near Aghave, York	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
House and Farm Buildings, The Pump, Weymouth	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Villa, High Ham, Somerset	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Asphaltic Footpaths, &c. at Brough, Yorkshire	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Latenture Granite	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Private Improvement Works, Alfred-street, &c.	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Extension, Telegraph Office, Derby	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Rectory Goods Office, Leicester	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Foundations, Marble, Epsom	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Eight Houses, Scarbro (Hastings)	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Tower and Spire, Clones Church, Ireland	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.
Quarries Granite and Gravel, Steam, Belling, &c.	Do.	J. F. D. D. Caple, Archt. St. John's square, Cardiff	do.

CONTRACTS—Continued

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
School, Catnack, Cornwall	Illogan School Board	S. Mill, Archt. Green-lane, Catnack	Aug. 14
*Tank Sewer, Brick, &c. Sewers, Iron Pipe Sewer, Wall, &c.	Shipley U.D.C.	Inverness T.C.	Aug. 16
*Cast-iron & Earthenware Pipe Sewers	Do.	W. B. Woodhead & Son, 18 Roshay, Bradford	do.
Sewering and Kerb on Ashfield-road, Morley, Yorks	Do.	W. H. Sikes, Roshay, Bradford	do.
Levelling, Paving, &c. Dartmouth-avenue, Morley	Do.	Town Hall	do.
Two Cottages, Ballyhale	G.N.R. Co. (Ireland)	T. M. M. M. Co. (Ireland)	do.
Cast Iron Pipes and Valves	Do.	J. Fraser, G.S. Inverness	Aug. 17
Main Drainage	Do.	A. J. L. Evans, G.S. Town Hall	do.
Flagging, Paving, &c.	Birkenhead Corp.	O. B. B. B. Co. (Ireland)	do.
Kerbing, Paving, &c.	Burnley Corp.	G. H. P. P. Co. (Ireland)	Aug. 18
Gravel and Flints	Kingston-on-Thames Corp.	W. G. G. G. Co. (Ireland)	do.
*Movable Floor over Swimming Bath	Haccaney Union	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Additions to Workhouse, Griffiths-town	Pontypool Union	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Road and Sewer	Radnorshire County Council	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Engine House, &c. Charlton-road	H.D.C.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Gravel Road Met	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Warning School Building	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Enlarging Wesleyan Chapel, Trindon Grange, Durham	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Extension of Electric Light Buildings	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Making up Roads	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
School, Diana Park, Glam.	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Twenty-eight Houses, &c. Hill Road, Markyrdun	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Rebuilding 'Alexandra' Inn, Chatham	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Heating and Ventilation to Schools	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Alterations to 'Golden Pines' Inn, St. Nicholas, Carlisle	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Additions to Victoria Cottage Hospital, Barnet	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
Extension, Victoria British School, Dagenham	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.
*Erecting Boys' School and Allegation to Infants School	Do.	W. A. Langmore, 7, 61 All-street, Whitechapel	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*City Engineer Assistant	Oxford Corp.	£7 per week	Aug. 10
*Assistant Surveyor	Derwent Corp.	120L. per ann. to a minimum	Aug. 17
*Headmaster, School of Artes and Crafts	London County Council	400L. per ann.	Sept. 10

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. xix. Contracts, pp. iv. vi. viii. & xix. Public Appointments, pp. xvi. & xix.

WATFORD.—For the erection of store buildings in the St. Alban's-road, for the St. Andrew's Watford Co-operative Society, Limited. Mr. C. P. Ayres, architect, Watford.

Builder.	Price.	Remarks.
Darvall	£1,500	£1,500
Brightman	2,000	2,000
General Builders, Ltd., London	2,000	2,000
Cox	2,000	2,000
Dupont	2,000	2,000
Neal	2,000	2,000
Waterman	2,000	2,000
Turner, Ltd.	2,000	2,000
Watkins	2,000	2,000
Cambridge	2,000	2,000
Need	2,000	2,000
Eames, Watford (accepted)	2,000	2,000

WATFORD.—For stripping, re-glazing, and re-lating the roof of the Clarendon Hall, for the Agricultural Hall Company, Limited. Mr. C. P. Ayres, architect, Watford.

Builder.	Price.	Remarks.
Watts	£750	£750
T. Turner, Limited	850	850

WATFORD.—For the erection of club room at 'The George' Hotel, for Messrs. M. A. Sedgwick & Co., Watford Brewery, Mr. C. P. Ayres, architect, Watford.

Builder.	Price.	Remarks.
Brightman	£1,500	£1,500
Judge	1,400	1,400

WEST HAM.—For the construction of foundations at lunatic asylum, Chadwell Heath, Ilford, for the Council. Mr. Lewis Angell, Borough Engineer, Town Hall, Stratford, E.

Builder.	Price.	Remarks.
McCormick & Son	£1,500	£1,500
T. Adams	1,500	1,500
Shillabe & Son	1,500	1,500
J. Jackson	1,500	1,500
C. Trail	1,500	1,500
G. Sharpe	1,500	1,500

WEYMOUTH.—For the erection of a residence on the Binclaves Estate, for Mr. Alfred Dumble, Messrs. Jennings & Goster, architects, Bournemouth. Quantities by the architects.

Builder.	Price.	Remarks.
C. Hevan	£1,717 18	£1,717 18
James & Son	1,698	1,698
C. Whittaker	1,644	1,644
W. Purchase	1,557	1,557

WIMBLEDON.—For granite concrete paving on the Urban District Council. Mr. C. H. Cooper, C.E.; Council Offices, Broadway, Wimbledon.

Builder.	PRICE PER YARD SUPER.			
	Granite Concrete Paving.	Hardcore.		
	3 in. thick.	3 in. thick.	4 in. thick.	4 in. thick.
The Granite Paving Co., New Kent-road, S.E.	5. d.	5. d.	5. d.	5. d.
John Rule, Argyle-square, Sunderland	3. 3	4. 0	0. 6	0. 7
Patent Impervious Stone Co., Ltd., Bingley-road, S.W.	3. 1	4. 2	1. 0	1. 3
John Mowlem & Co., Grosvenor Wharf, Westminster	3. 2	4. 0	0. 8	1. 0
W. B. Wilkinson & Co., Great George-street, Westminster, S.W.	3. 4	4. 4	0. 5	0. 8
Patent Impervious Stone Co., Ltd., Bingley-road, Millwall, E.	3. 6	4. 6	0. 6	0. 8
McCarthy & O'Connor, Mill-road, White, Cambridge	3. 11	4. 5	0. 6	0. 8
Imperial Stone Co., Ltd., East Greenwich	3. 8	5. 6	0. 4	0. 6
Stuart Granolithic Stone Co., Ltd., Regent Dock, Limehouse, E.	—	3. 11	0. 7	0. 9
Adamant Stone and Paving Co., Ltd., Palmerston Buildings, Old Broad-street, E.C.	4. 0	—	—	—
A. & W. Mansfield, Leadenhall-street, E.C.	3. 10	—	—	—

* Stuart's Patent Granolithic Stone. Ditto, 4 in. thick 5s.

WIMBLEDON.—For the execution of tar paving works for the Urban District Council. Mr. C. H. Cooper, C.E., Broadway.

Builder.	PRICE PER YARD SUPER.			
	Tar-paving 3 in. thick.	Tar-paving 4 in. thick.	Hardcore 4 in. thick.	Hardcore 6 in. thick.
	s. d.	s. d.	s. d.	s. d.
J. Ford, Coalville, near Leicester	1. 10	2. 0	0. 3	0. 4
W. B. Constable & Co., Kenilworth, N.W.	1. 1	2. 6	0. 7	0. 9
McCarthy & O'Connor, Mill-road, White, Cambridge	0. 9	2. 2	0. 8	0. 10
Edmund Lee, North-road, Wimbledon	0. 9	3. 0	0. 6	0. 8
Edmund Lee, North-road, Wimbledon	2. 1	3. 6	0. 6	0. 8

If the works were carried out as they were last year, that is, with gravel tar-paving, bottoming and limestone tar-paving topping.

		Group 1 (67 clocks)	Group 2 (86 clocks)	Group 3 (69 clocks)	Group 4 (86 clocks)	Group 5 (75 clocks)	Group 6 (83 clocks)	All Groups (405 clocks)
H. H. Marshall	per clock	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
John Meader	per annum	7 6	5 6	7 6	7 6	5 6	7 6	5 6
J. H. Monks	"	2 3	2 3	2 3	2 3	2 3	2 3	2 3
Cannery, Kuss, & Co.	"	2 0	2 0	2 0	2 0	2 0	2 0	2 0
F. A. Sainsbury	"	2 0	2 0	2 0	2 0	2 0	2 0	2 0

(A) Arm and Small Chairs.

	Arm-chairs per doz.	Small chairs per doz.
West & Collier	£2 0 0	17 10 0
Price & Son	6 0 0	15 0 0
T. Harding	5 14 0	15 0 0
T. Glaston	5 0 0	15 0 0
J. Martin	5 0 0	15 0 0
S. W. Bateman	4 10 0	12 10 0
J. Cox & Son	4 10 0	13 15 0
B. Cartwright & Son	4 10 0	13 15 4

(d) Managers' Benches.

	Per doz		Per
Wake & Dean.....	£3 12 0	E. Spencer & Co.....	£2 8 0
Foster, Cooper, & Foster.....	3 6 0	North of England School.....	2 7 0
Rice & Son.....	3 0 0	Furnishing Co., Ltd.....	2 0 0
T. Cruwys.....	3 0 0	H. Addison & Co.....	2 0 0
J. Garvie & Sons.....	3 0 0	Hillingworth, Ingham, & Co.....	2 2 0
Educational Supply Association, Ltd.....	2 10 0	W. H. Lascelles & Co.....	2 1 0
G. M. Hammer & Co.....	3 17 0	H. Bonneau.....	2 0 0
J. Martin.....	3 14 0	Bennet Furnishing Co.*.....	1 13 0

(V) Playground Notice Boards.

	Each.		E
	s. d.		s
Educational Supply Association, Limited	15 9	W. H. Lascelles & Co. ..	
Foster, Cooper, & Foster	13 6	G. M. Hammer & Co.	
J. Garvie & Sons	11 6	North of England School	
Wake & Dean	10 3	Furnishing Co., Ltd.	
Hillingworth, Ingham, & Co	9 3	Rice & Son	
		Bennet Furnishing Co.*..	

(g) Folding Steps.

	Per dozen pairs.		
G. M. Hammer & Co. ..	£17 14	J. Garvie & Sons	£11 14
North of England School Furnishing Co., Ltd.	115 5	H. Bonneau	11 5
Foster, Cooper & Foster	15 0	Illingworth, Ingham, & Co.,	11 5
Rice & Son	13 0	Winch & Sons*	11 5
J. Martin	12 0		

(h) Hat and Coat Stands and Teachers' Platforms.

(H) Hat and Coat Stands and Teachers' Platforms.			
	Hat and Coat Stands. Complete.	Teachers' Platforms. 9 ft. x 12 in. 4 ft. 7 in. x 12 in.	
Foster, Cooper, & Foster	£2 6 0	£2 17 6	
E. Spencer & Co.	3 18 0	4 5 0	
Hillingworth, Ingham, & Educational Supply Co.	3 18 0	4 5 0	
G. M. Hammer & Co.	3 7 3	3 10 0	
Wake & Dean	2 13 6	3 10 0	
North of England School Furnishing Co.	2 6 0	3 12 2	
J. Martin	2 4 6	3 14 0	
W. H. Lascelles & Co.	2 4 6	3 17 0	
Rice & Son	2 17 6	3 17 0	
H. Addison & Son	1 14 6	3 3 0	
H. Addison & Co.	1 14 6	3 10 0	
H. Bonneau	1 13 6	3 10 0	
T. Cruwys	1 18 0	3 10 0	
Bennet Furnishing Co.	1 18 0	3 10 0	

For supply of ironmongery:—

H. S. Timpon	£19 8 4	Hart, Son, Pearl & Co., Limited	£91 15 0
Robert Adams	128 0 8	C. Farway & Son	8 0 0
Carter & Aynley	110 16 9	Netfield & Sons	83 3 1
R. H. & J. Pearson, Limited	97 19 0		

For screens for ironing stoves:—

	Each.		
	s. d.		
T. Moore & Co.....	24 6	J. C. & J. S. Ellis Ltd. ..	8 9
J. F. Lawrence.....	21 6	Rowson, Drew, & Co.....	8 6
O'Brien, Thomas & Co.	12 0	C. Portway & Son	8 0
R. H. & J. Pearson, Ltd.	10 6	F. Braby & Co., Ltd.	7 6
Fryke & Palmer	8 9	H. & C. Davis & Co., Ltd. ..	7 0

For the supply of grate fronts:—

	Size A.	Size B.
Thomas O'Brien & Co.	£2 7 0 each	£2 4 0 each
The Palace Store Company	15 0 0	13 6 0
Robbins & Co.	15 0 0	15 0 0
Pletcher, Russell, & Co.	11 0 0	11 0 0
Carroll Co.	1 6 0	1 6 0
McDonald, Stevens, & Co., Ltd.	1 9 0	1 9 0
The Hope Foundry Company	1 2 0	1 2 0
The Falkirk Iron Company	1 0 0	1 0 0
The Coalbrookdale Co., Ltd.	2 0 0	2 0 0
John Grundy	1 8 0	1 8 0
Ashton & Green Iron Company	0 19 6	0 19 6
Yates, Haywood, & Co.	0 18 6	0 19 9
George Wright & Co.	0 17 6	0 19 9
Albion Iron Company	0 18 0	0 19 9

C.B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HATTON GARDEN, and 29, BAY STREET,
FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, and FIT FOR IMMEDIATE USE.
Telephone, 65, 274 Holborn. Tel. Address: "SNEWIN, London."

For repairs on schedule:—

	per cent. on schedule.
W. Hammond	17 1/2
G. Neal	17 1/2
H. Brown	17 1/2
C. Gilling	17 1/2
W. R. & A. Hyde	17 1/2
T. Cruwys	17 1/2
W. Brown	17 1/2
C. H. Seely	17 1/2
T. Hoopes	17 1/2

Marybone Division.—Groups 1 and 2.

	per cent. on schedule.
W. Chappell	25
W. Brown	25
T. Cruwys	25
H. Eady	25

For the supply of 3,125 Bentwood Chairs:—

Anderson Furniture Co., Ltd.	£545 17 6
Jacob & Josef Kohler	580 16 8
James Shoolbred & Co.	521 6 0
The Original Austrian Bentwood Furniture Co.	461 15 10
Stanley Phillips & Co.	481 15 5
Atkinson & Co.	468 15 0
Bentwood Furniture Co., Ltd.	468 15 0
Josias Eider & Sons	468 15 0
Thos. Broderick	468 15 0
B. Cohen & Sons	468 15 0
H. S. Benjamin	450 15 0
J. H. W. Martin (not Bentwood)	442 14 2
Imperial and Royal Patent Manufactory of Austrian Bentwood Furniture (delivered as required)	439 13 9

TO CORRESPONDENTS.

M. & B. H. C. (amounts should have been stated).—H. & C. (ditto).—J. L. (ditto).—A. C. (below our limit).
NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.
We cannot undertake to return rejected communications.
Letters or communications beyond our own limits which have been duplicated for other journals are NOT DESIRED.
We are compelled to decline pointing out books and giving addresses.
Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
All communications regarding literary and artistic matters should be addressed to THE EDITOR, who relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 10s. per annum. Remittances payable to DOUGLAS FOWLER, 10, 46, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, (by prepaying at the Publishing Office, 10s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J.J. ETRIDGE, Jr.

SLATE MERCHANT,
SLATER and TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Douling Stone Co.).
Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalt
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.'S

INK-PHOTO PROCESS,
4 & 5, East Harding-street,
Fetter-Lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"
For 1897, price 6d. post 7d. In leather 1/1 Post 1/1 [ADVT.]

SZERELMEY STONE LIQUID.

THE TEST OF TIME.

OVER FORTY YEARS' GENERAL EXPERIENCE
HAS PROVED THAT

SZERELMEY STONE LIQUID

ABSOLUTELY WATERPROOFS AND PRESERVES
BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.

Adopted by Governments and Public Bodies
throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE French Asphalte

COMPANY.

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND

WORKMANSHIP FOR BUILDINGS,

DAMP COURSES, AREAS, ROOFS,

WASHHOUSE AND DAIRY FLOORS,

&c., &c.

This Asphalte was chosen to be

laid at Sandringham, on the new

General Post Office, and other

important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

CYLINDERS FOR HOT-WATER CIRCULATION.

Particulars on application.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL:
6 and 8, HATTON GARDEN.

GLASGOW:
47 and 49, ST. ENOCH-SQUARE.

BRISTOL:
ASHTON GATE WORKS, CORONATION-ED

The Builder.

VOL. LXXIII. No. 2845.

AUG. 24 1897.

ILLUSTRATIONS.

New Church, Eiland, Yorkshire. -Mr. G. H. Fellowes Prynn, F.R.I.B.A., Architect	Double-Page Ink-Photo.
Examples of "Influence of Materials on Architecture" (Rouen, Coutances, Amiens, Westminster, Salisbury)	Double-Page Ink-Photo.
Sketches with the Architectural Association Excursion	Two Double-Page Photo-Lithos.

Blocks in Text.

Gothic Construction: Shallow beds with thick mortar joints	Page 135	Burwick Hall. Part of the Front	Page 138
Principles of Gothic Construction. Elasticity and Equilibrium	" 135	East Lyng, Somerset. Interior of the Church looking East	" 131
Greek Detail: Marble	" 136	The Gateway, Parham Hall, Suffolk	" 133
English Gothic Detail: Course Stone	" 136	Illustrations to "The Student's Column"	" 135

CONTENTS.

Annual Report of the Science and Art Department	123	Gateway, Parham Hall	133	Student's Column: Quantities and Quantity Taking.—IV.	135
The Influence of Material on Architecture	124	The Ancient "Manor of Paris" Garden	133	General Building News	136
Notes	125	Books: Ellis S. Armitage's "Key to English Antiquities"	133	Sanitary and Engineering News	137
The Architectural Association Excursion, Lancaster	126	G. F. Harris's "Science of Brickmaking;" W. Rider & Son's	133	Foreign	138
The Archaeological Institute at Dorchester	129	"Timber Trades Journal of Shipping Marks on Deals, Battens,	133	Miscellaneous	138
Somersetshire Archaeological Society	130	and other Wood Goods;" E. W. Fritchley's "Art of	133	Legal	139
Report of the Select Committee on Government Offices Sites	131	Tracing"	134	Meetings	139
New Church, Eiland, Yorkshire	132	Trade Catalogues	134	Recent Patents	139
Illustrations of "Influence of Materials on Architecture"	132	Salisbury Cloisters	134	Some Recent Sales of Property	139
Sketches with the Architectural Association Excursion	133	Surrey Archaeological Society	135	Tenders	141
Magazines and Reviews	137	Advertising for Hands	135	Paces Current	141

Annual Report of the Science and Art Department.



THE Forty-Fourth Annual Report of the working of the vast machine for giving elementary instruction in Art and Science to the youth of this nation has just been issued. A large portion of this formidable Blue-book of nearly 500 pages is, as usual, occupied with those vast arrays of statistics which are never looked at or referred to except perhaps by some member of Parliament wishing to make a point in his argument in an educational discussion. It is perfectly right, of course, to put these details on record; they are elements in the history of the subject. In the Science statistics there is at first sight rather a startling discrepancy between the figures in 1895 and 1896; as in 1895 the individual students examined numbered 113,398, and the papers worked 202,868; while in the following year these numbers sunk to 99,818 and 152,630 respectively. One explanation given is that from 1889 to 1895 geometrical drawing was included under the science subjects and therefore came into this table, while in 1896 it was again classified among the art subjects, and consequently is not represented in this table. On turning to the art table, however, we find that geometrical drawing only stands for 12,947 "papers worked," so the change affords only a partial explanation. The statistics of the art classes show an increase in the total work, though some subjects seem to be falling off; freehand drawing, for instance, shows 53,451 papers in 1896 as against 59,445 in the previous year. But on the science side there is a general falling off of numbers, a rather unexpected result at a time when we hear more every year about the importance of technical training. The General Report, however, of Captain Abney, the Science Director, shows that he considers this branch of the Department to be in a satisfactory condition, and he observes that the new system of payment by attendance instead of payment on results appears to have had a salutary effect.

The Reports of various examiners in the art division, as usual, afford a good deal of rather interesting comment with regard to the quality of the work in different classes, and the special failures and causes of failure. In regard to architecture the examiner, Professor Roger Smith, reports that the advanced students have not done so well as formerly, and the average students rather better. Questions as to Renaissance architecture have been less frequently attempted than any others (a fact which shows that the students of the Department are rather outside the architectural movement of the day). "The questions requiring buildings or parts of them to be drawn from memory have elicited a great many answers of which the larger portion have been satisfactory, in some cases very much so"; and it is also noted that students asked for a written description of any existing building are beginning to find out that there are other buildings in the world than the Parthenon. In Design (elementary and advanced stages) the examiners, Mr. Lewis Day and Mr. T. Erat Harrison, record that improvement is to be observed in the design of ornament, which is generally speaking, more logical than it once was: "it is now only by exception that a scroll is made to grow in two opposite directions, at both ends that is say, or that a flower is provided with two separate stalks." It is, however, they add, disappointing to find so little power of thought as to the art of design. Students are asked to state in writing the material and method of execution they proposed in their design, but "they appear to write something at hap-hazard, contrary to what the drawing indicates, and it is clear that in many cases the design was first made and then the student began to think what it was fit for." In regard to style it appears that candidates, though they are not (and we are glad to hear it) asked to design in any given style, are asked to design "as though their work were to go with a room or building of some definite architectural character," a condition under which, as the examiners quite truly observe, the greater proportion of decorative work has to be undertaken; and that the results show that the students have not the least notion how to do this. It is perhaps expecting a little too much of students, at what we suppose is the average age of

these, that they should be able to grasp the rather subtle relation between a certain architectural style or manner and an ornament which, though not a copy of anything in the supposed building or room, should yet harmonise with it. In the Report on the work for Honours in Design, the examiner, Mr. F. T. Shields, observes that it is pleasant to note that the number of designs "characterised by swinging unmeaning swirling lines about," condemned in these words in last year's Report, is diminishing. The great drawback to contend against is the rarity of the sense of beauty. In drawing from the life Mr. Yeames and Mr. Crofts find that there is a considerable increase in the number of drawings submitted, and no falling off in the majority of them in regard to execution—in fact the examiners are evidently pleased with the results, in spite of the existence of "a few outrageous drawings that can only disgrace the schools they come from." If there is not an improvement in this respect, it might be well to give the names of the schools, on another occasion, from which these bad drawings emanate; unless, indeed, such a statement would constitute "libel" in the eye of the law.

The criticisms on the general work of the schools are followed by criticisms on the works submitted in the "National Competition," on which we have already given our own comments. In regard to modelling the figure in round from life it is observed that there is a much better understanding of the construction of the figure than in former years; but on the other hand, in the case of drawing from the living figure the examiners are much disappointed, and find a considerable falling off from the work of former years, especially in the drawing of hands and feet. In regard to the painting of flowers and still life strong comments are made on the introduction of useless backgrounds of "draperies and intricate bas-reliefs." "When the foreground objects are themselves full of detail the use of draperies in the backgrounds with elaborate patterns on them is especially objectionable." In fact, it would appear that the tendency of the students is to try to show as much detail as they can cram in, instead of devoting their chief attention to the main object of the study. The designs for mosaic are characterised as "generally poor and inclined to be unpleasant in colour." In architecture, in

which the examiners were Professor Aitchison, Mr. Jackson, and Mr. J. J. Stevenson, the designs are summarised as generally creditable, though presenting no examples of remarkable excellence.

In regard to South Kensington Museum itself the first thing to be observed is that the visitors to the Museum show a considerable increase in numbers; the total (including Bethnal Green) is 1,519,506, and the increase in 1896 over 1895 123,630. The necessity for more space for the proper exhibition of objects is strongly urged, which of course is an argument for the long-deferred completion of the buildings. The principal purchases during 1896 were thirteen in number, mostly at pretty high prices, the highest being 793*l.* paid for a carved walnut-wood virginal with the arms of William, Duke of Guelderland and Count of March and Rosenberg; the work is of the sixteenth century. Is it to be understood that historical interest counts in the price of such an article? From the special mention of the arms and the titles of their owner it should seem that it does, and it may be a question whether it ought to be so. We take it that the South Kensington Museum is especially an art museum; and if so, the whole question in purchasing an article ought to be that of its artistic value; whose arms it bears, or who it belonged to, are matters which have no bearing on this question. We have not as yet seen the article referred to, but the price seems very high unless the workmanship and design are of exceptional excellence; and the impression conveyed certainly is that the historical association of the thing counted for a good deal. In that case South Kensington is overstepping its mark, and indeed we are inclined to think that prices for such things are given rather recklessly at times, and not with due regard to their purely artistic value. A good many water-colours have been bought, mostly at very moderate prices, the only large payment being 800*l.* for Sir E. Burne Jones' "Merlin and Nimue," which as things go at present is certainly not excessive, though we may doubt whether this particular work will retain this value. 100*l.* was paid for David Cox's "Chepstow Castle," and 110*l.* for a Prout, "Duomo d'Ossola;" two prices which seem rather out of proportion in relation to each other; a good Cox ought to be worth more than a good Prout. Among other details we observe that arrangements are nearly completed for the electric lighting of the Western Galleries and the Indian Section. An endeavour is being made to get rid of the smoke produced by the boilers of the electric lighting installation. With this object a process invented by Colonel Dulier has been under trial for a year or so. It consists in introducing jets of water into the flue. The quantity of smoke has been lessened, and it is hoped that it may be entirely removed by a modification of the system, which the inventor is now engaged in perfecting.

The remarks under the head of Reports of Inspectors of Schools and Classes, which run to great length, contain many points of interest, of which we can only notice one or two. In regard to "drawing in elementary schools" Mr. E. G. Baker observes that Free-hand drawing is not preceded by sufficient study of form, so that the drawing is without confidence, and the practice of drawing the whole of one side of a symmetrical

figure before commencing the other illustrates the same point. Mr. F. B. Barwell, reporting on Schools of Art generally, draws attention to the fact that in many cases the elementary teaching is started on a wrong method, and it is difficult after that to eradicate acquired habits. He instances the case of Birmingham, where all the primary teaching of drawing is under the direct supervision of the head master of the Art School, and urges that this plan ought to be followed wherever practicable. In regard to the general level of the artistic work, however, he observes:—

"I do not hesitate to affirm that, neither in any other country in Europe nor in America could so remarkable a display of students' work, with so wide a range of subjects and aim, be placed before the public as our own National Competition affords. France might beat us in the correct drawing of the human form, and in certain pictorial matters, which latter, however, are not our aim here; Germany might possibly show some pre-eminence in other directions, but taken as a whole, neither country could present so wide a display of excellent Art work by young people of both sexes, who, be it remembered, are still in their pupillage."

The Reports of the Department cover an immense variety of subjects. There is a long Report, for instance, by the Director-General of the Geological Survey, dealing in detail with the work of the staff both in office and in the field. From this it appears that considerable progress has been made during the year, especially in mapping. The area geologically surveyed amounts to 740 square miles, with 3,866 miles of boundary line. This work consisted in large measure of re-surveying districts mapped many years ago, but a portion of the staff was engaged in the centre and south of England upon a survey of the Drift (or superficial) deposits. Several new maps were issued, and a number of rock sections made. But we look in vain in this Report for any indications that the Geological Surveyors are in future to render their work of greater practical value to the public. These maps and memoirs are very interesting—the Drift maps especially—but, published on the scale of one inch to one mile, they lose nearly all their economic value, at least to the engineer and surveyor, who want not general information, but special. It is not as though particulars concerning the practical application of geology were not sought after by the public. The Director-General admits as much in the following paragraph:—"Inquiries continue to be made at this office for information in regard to the practical applications of geology." That being so, we wonder that the publications of the Survey in recent years do not contain more valuable practical observations on geological economics than are to be found at the tail ends of the larger volumes. Much of what is written by the surveyors on that head is twaddle—of no use to any one. At the same time, it must be admitted that the splendid report submitted by Sir A. Geikie is far in advance of its predecessors in regard to explaining the results obtained by the Survey from a purely philosophical aspect. A little less of this work, which might well be left to private enterprise (of which there is no lack amongst geologists), and a little more work of economic value to the public, which pays the Survey under the impression that it is getting the best value for its money—and there would not be much to quarrel about. But the Survey would have to be

re-modelled before such a radical change could be brought about. Perhaps the Director-General will be able to do more in the direction indicated after he has visited Russia, whither, we understand, he is now proceeding; the Russians have made some of the most useful "economic geological" maps in the world. He will there be able to see that it is perfectly possible to run the purely philosophical and the practical aspects of geology side by side. Will that visit influence his next year's Report?

The Report also includes a good deal of correspondence and statistics on a subject which is of world-wide practical interest, and of which more will certainly be heard, viz., the unification of astronomical, civil, and nautical time. Canada has taken a lead in this subject, and the statistics are furnished by a joint committee of the Canadian Institute and the Astronomical and Physical Society of Toronto. At present the civil day begins at midnight and ends the midnight following. The astronomical day begins at noon of the civil day and ends at the noon of the following day. The nautical day concludes at noon of the civil day, having commenced at noon of the preceding day. Thus a given date may, on the three systems together, extend into three different days. The question was put to a number of ship masters whether they were in favour of the unification of time, and commencing the day, in all three departments, at mean midnight, taking a twenty-four-hour time, and making mean noon at Greenwich the twelfth hour. Out of 243 answers received, the replies were almost unanimous in the affirmative. The question was also sent in a circular form to the astronomers at all observatories—"Is it desirable, all interests considered, that on and after the 1st day of January 1901, the astronomical day should everywhere begin at mean midnight?" Of 171 replies received, 108 were in favour of and 63 against the change; the replies are tabulated. Many of the affirmative replies are in favour of the adoption of the civil day for astronomical purposes, others object to this on the ground that the double series of twelve hours would be (as it certainly would) inconvenient for astronomers. To this the Canadian Report replies that the objection is of little weight, "as the astronomical practice of counting hours from one to twenty-four will gradually win its way into general favour in civil life." So we think; and the sooner the better.

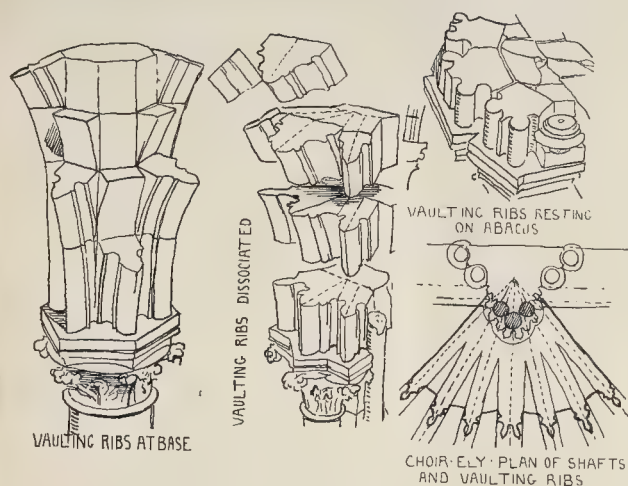
THE INFLUENCE OF MATERIAL ON * ARCHITECTURE.

BY BANISTER F. FLETCHER, A.R.I.B.A.

CHAPTER VII.

The Gothic Style: The Age of Stone.

THE fully developed Gothic art of the thirteenth century was the style which had been slowly developing itself throughout Europe as a necessary sequence of the Romanesque style. It is by destruction, and modification akin to destruction, that architecture has always developed and progressed. By re-suscitation and evolution, and only by such means, has it survived as a living art. To quote Darwin, "From the war of nature, from famine, and from death, the most exalted object which we are capable of conceiving, namely, the production of the higher



Gothic Construction: Shallow beds with thick mortar joints.

animals, directly follows . . . from so simple a beginning, endless forms, most beautiful and most wonderful, have been and are being evolved."

In this period—the thirteenth and fourteenth, and fifteenth centuries—the Gothic masons were exhausting the possibilities of stone as a building material. They heaped it up in towers that rose on open archways through the lofty roofs of the surrounding

of workmanship that astonish our inexperience. (See illustrations of Gothic buildings in separate plate).

In the thirteenth century the Gothic spirit, taking account of mechanical forces, employed materials at hand according to their nature; it sought for those laws of elasticity and equilibrium which were to be substituted for those of inert stability, the only laws known to the Greeks and Romans. It studied how to economise material, because it was so forced to elevate human labour from being the mere carrier of material, to the highest form of technical art and skill.

In the Romanesque period, the walling generally consisted of a rubble core between two faces of stonework, but at the beginning of the thirteenth century, edifices higher and of larger extent being built, a new method was gradually evolved. For, in seeking to diminish the thickness of the interior supports and of the walls, it was necessary for the architects on the one hand to find a mode of construction more homogeneous and capable of resistance, and on the other to avoid the expense of labour which the carrying of material of large size involved. Large facing stones were therefore more and more discarded, and stones with thick mortar joints, and small enough to be carried on a man's back, were gradually introduced, and were employed throughout the thickness of the wall; this method is a middle course between the Roman construction in large facing stones, and that of rough stones included between brick and stone walls.

In a word, the architecture was readily subjected to the means at command, for the architecture of the thirteenth century was adapted to a structure of small stones rather than to one of jointed blocks, and was a compromise between Roman rubble work and the use of jointed stones without mortar. The military organisation, which had helped to mould the Roman style, was, of course, wanting in the Gothic period, when stone was sought in various quarries from different proprietors and transported at the builder's expense or with voluntary aid; for the workmen were forced labourers, doing as little as possible, and taken away, ever and anon, to fight in their owner's battles. In regard to the material at hand, it must be observed

that the Gothic architects of Western Europe possessed stone that was strong and hard, but which split in thin pieces; they had not at their disposal either the marble of Pentelicus or the blocks of granite which the Romans procured from Corsica, the Alps, and the East; they were absolutely compelled to erect considerable buildings with thin courses of stone, thus largely moulding the style, whereas the Greeks erected small buildings with enormous blocks of marble.

This condition would naturally influence the forms given to the architecture even in the vertical parts.

In regard to constructive features, the Gothic builders contented themselves with forming the transverse and diagonal ribs of their new system of vaulting on centres, timber in quantities required for centring as in Roman vaults, and materials for their construction, not being at hand; and these arches became permanent centres on which the panels or "filling in" of thin stone could rest. This arrangement enabled the building to be erected all at once or in parts without disadvantage to the solidity of the edifice. This use of stone as against the concrete of the Roman period gave the elasticity to the building which enabled it to yield to strain without rending, and this, in its turn, was a *prima facie* reason for the non-employment of a concrete or homogeneous mass.

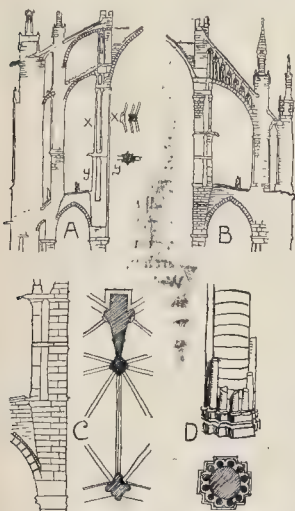
Among the early Gothic architects the arch absolutely determined the form of the support. The arch determined not only the structure but the form which it took, and the architecture is dictated solely by the arch. Thus material, through the form which it dictates, may be said to influence architecture in this period.

In any true architecture form is not the result of caprice, it is only the expression of the structure. The column is a real support; if its capital is expanded, it is to sustain a load; if the mouldings and ornaments are developed, it is because such development is necessary. If the vaults are divided by ribs it is because these ribs are so many sinews performing a function. Every vertical support depends for its stability on being stayed and weighted; every arch-thrust meets another which counteracts it. In this period walls as supports no longer occur; they have become mere enclosures, and the entire system consists of a framework which maintains itself, not by its inert mass, as in Roman construction, but by the combination of oblique forces neutralising each other. No such system of construction, it is evident, could have been developed without the employment of such a material as stone, laid in tolerably small courses with mortar joints, which gave the necessary elasticity to the various pressures.

This system, through the material used, shaped the mouldings, which fulfilled a useful function, protecting the architectural members externally, as in the case of eaves, courses, hood moulds, &c., and internally by jutting forward provide corbels and springers. Further, the comparative scarcity of materials taught the Gothic architects to practise economy in their use; this, no doubt, helped towards the evolution of the characteristic mouldings of the mediæval period, which exhibit much less waste of material than those common in Classic times.

Every new erection was a step towards the limits assigned by the material at the disposal of the architect.

In the middle ages the structure is deco-

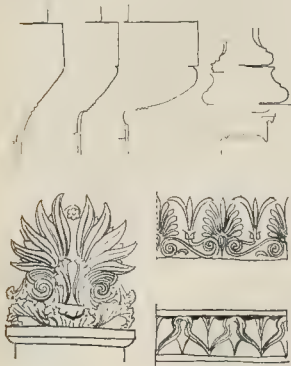


A—Flying buttress at Beauvais.
B—Chancel buttress, Amiens.
C—Plan and section of portion of Chancel, Amiens.
D—Aislepiers, Nôtre Dame, Paris (coursed stone in conjunction with shafts set against the struts).

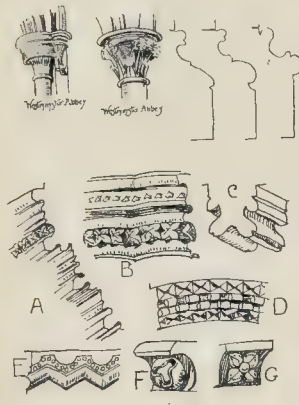
Principles of Gothic Construction: Elasticity and Equilibrium.

naves, and tapered away in shell-like spires embroidered in all the fretwork of Gothic tracery. They hung it aloft in ponderous vaults treated by art to seem the gossamer web of nature, scarce capable of bearing the stalactite pendants in which the latent fancy of the latest age found its expression. Eventually pushing their practice to the furthest boundaries, they cut the granular stone to the thinness of fibrous wood or iron, and revelled in tricks of construction and marvels

ated, it is the naked body to which an attractive form is sought to be given, and it is in this particular that the architecture of this period stands in such close relation to Greek art. The same principle of truth was upheld, but now the form had changed.



Greek Detail: Marble.



A—Haseley, Oxon. D—Billet.
B—Aurk. E—Chertson.
C—Temple Church. F—Ball Flower.
(G—F air-leaved Flower.

English Gothic Detail: Coarse Stone.

It is no longer the self-contained Greek temple, reposeful in the severity of horizontal lines, but a complex, restless structure whose aspiring tendencies find expression in vertical grouping. There is unity in the whole because there is an exact and necessary correlation between all the parts.

NOTES.

AS we fully expected, the Report of the Select Committee on Government Offices Sites, which we print in another column, persists in the opinion that the Carington House site is sufficient for the War Office. Architects who gave evidence before the Committee in favour of grander and ampler schemes and a building worthy of the nation, have probably discovered (if they did not know it before) that an English Parliamentary Committee on such a subject does not want to hear anything about art or architecture; it wants only to carry its own scheme, and to put catch questions to witnesses to entrap them

into admissions which may seem to favour the views of the majority. Some good, however, may have been done in opposing the notion of making the War Office a mere piece of street architecture following the curb lines of the site, as the Office of Works Surveyor wanted to do. The views of the Committee on the treatment of the Parliament-street site we quite concur in, and it is a relief to find that the ridiculous little triangular building at Spring-gardens, shown in the original "Improvements Plan," is disestablished. We may have more to say on the subject when the detailed evidence before the Committee is published.

The North Eastern Railway Dispute.

THE award just issued by Lord James of Hereford proves that he most thoroughly went into and mastered the various questions submitted to him in connexion with the disputes between the North Eastern Railway Company and their employés. The examination of witnesses, &c., occupied twenty-three days, and the award, which is very comprehensive, is decidedly favourable to the men. As the arbitrator's decision will doubtless, in working, result in reducing "long shifts," and also in the diminution of Sunday labour, where possible, it must be regarded as satisfactory from a public point of view, if not from that of the railway shareholder. The North Eastern Railway men fully appreciate the concessions made, and the employés of other lines will no doubt endeavour to obtain similar benefits. We certainly hope that, where practicable, they may be successful; but it must not be forgotten that the same conditions do not prevail on all lines; and just as Lord James has divided the men into grades and classes, so the different railway lines may be looked at in considering the claims of their employés. Seeing that the award fills fifty-eight printed pages, it is a wise provision of the arbitrator that any differences which may arise as to its interpretation are to be submitted to him for further determination. It would be a great thing if difficulties as to the interpretation of Acts of Parliament could be as readily decided; but unfortunately—except for the lawyers—this is out of the question.

Tendering for Egyptian Bridges.

THE very unsatisfactory way in which the Egyptian Railway Administration ask for tenders for the bridgework they require is at last receiving public attention, the matter recently attracting special notice by a report from Lord Cromer to Lord Salisbury regarding the collapse of the Embabeh Bridge over the Nile. The Egyptian Government appoint a board of three gentlemen, selected and nominated by England, France, and Egypt, and the final selection of the successful tender is left entirely with this board. The subject of complaint is that this board is not composed of engineers, and consequently it cannot have that thoroughly scientific and practical knowledge of bridge-construction without which it is impossible to form a correct judgment of the designs which they are called upon to examine. Before asking for tenders the board provides specifications and drawings, but these drawings are in reality mere sketches, giving the position, length, and such general particulars of the structures, whilst in the specifications will be found

only the barest details of what the board require. It will be seen, therefore, that the contractors have to prepare their own designs for the various bridges, as well as to submit their prices for carrying out the works. This method of procedure could not be objected to if the designs and prices thus obtained were examined by some one capable of judging of the merits of the designs as compared with their cost. But under the conditions at present existing almost any class of bridge might be proposed by competing manufacturers, the strength of the structure not depending upon the requirements of the Egyptian Government, so much as upon how far a particular contractor might be willing to take the risk of its stability. As English contractors are in the habit of constructing substantial bridges for railway purposes, they have, therefore, practically no chance of their offers being accepted when the first cost of the work, and not its strength, is apparently the only question that receives any consideration.

THIS Association, the object of which is to promote the intercourse of those who cultivate science in different parts of the Australasian Colonies and in other countries, will hold its seventh session in Sydney on Thursday, January 6, 1898, to last till the following Thursday. The period during the Christmas and New Year vacations of the universities and colleges, it is hoped, will be a convenient time for a very large proportion of the members to attend. The President-elect is Professor A. Liversidge, F.R.S., and the following Presidents of Sections have been appointed:—Astronomy, mathematics, and physics, Mr. R. L. J. Ellery; chemistry, Mr. T. C. Cloud; geology and mineralogy, Captain F. W. Hutton; biology, Professor T. J. Parker; ethnology and anthropology, Mr. A. W. Howitt; economic science and agriculture, Mr. R. M. Johnson; engineering and architecture, Mr. H. C. Stanley; sanitary science and hygiene, the Hon. Allan Campbell; and mental science and education, Mr. John Shirley. Tickets will be issued to members, on production of a certificate of membership, by the Queensland, New South Wales, Victorian, South Australian, Tasmanian, and railway authorities, at single fare for the double journey, available for two months, and excursions will be organised to places of interest, such as the various mining districts, the Jenolan, Wambeyan, and other caves, the Blue Mountains, and similar places of interest to geologists, botanists, artists, and others. The local secretaries are:—Mr. E. F. J. Love, Queen's College, Melbourne; Professor Parker, University, Dunedin; Mr. Alexander Morton, the Museum, Hobart; Professor Rennie, University, Adelaide; Professor Bragg, University, Adelaide, and Mr. John Shirley, Cordelia-street, South Brisbane.

It is not often that we hear of the rights of air and light being discussed in Germany, but a paper at Berlin, interested mainly in freshhold property, has recently published a series of articles relating to this question, from the pen of Dr. Julius Stadthagen, the solicitor to one of the Landlords' Associations. Without entering into the questions of air and light as treated at Berlin, we may notice that

some of the customs and rules which govern these questions in the German capital might be studied with considerable benefit by the lawyers of our own country, for, speaking generally, it appears that a common sense view is taken on most of the points involved, and precedents do not play so important a part as they do here. It is also apparent that, as in other branches of law, the Berlin property-owner or tenant is not obliged to risk any very great expenditure in upholding his rights, and that he can guard himself against encroachments by a procedure that is easily workable. Dr. Stadhagen's descriptions and examples are particularly lucid, and their translation into English would be valuable.

Electricity in Steam, for Railways. THE competition between steam and electric railways is beginning to be a serious matter in America. The falling off in the receipts of steam railways owing to the construction of electric tramways parallel to them has in some cases been as great as 50 per cent. This has forced some of the railway companies to buy up the electric lines and to turn the motive power in their branch lines from steam to electricity. The Pennsylvania Railway Company now possesses the largest mileage of track worked by electricity. In a recent report issued by the New York, New Haven, and Hartford Railway, the working of their branch lines by electricity is shown to have been very successful. The Nantasket Beach branch, nearly seven miles long, has been worked for two years on the overhead trolley system, and has given great satisfaction. It is interesting to notice, however, that in the construction of their latest branch from Hartford to Berlin, a distance of twelve miles, they have adopted the third rail system of traction, first successfully operated on the Liverpool Overhead Railway. This line was opened last month, and it was found that trains with a carrying capacity of two hundred passengers could be regularly and rapidly moved, even when the rails were under water. In ordinary circumstances the leakage is negligible, even although the third rail is at a pressure of 650 volts. As it would be unsafe for any one to touch the third rail at this pressure, special precautions are taken for the safety of the passengers, such, for example, as cutting off the current when the train is at rest in the station. In the future, when the motive power on a railway is changed from steam to electricity, it seems probable that the third rail system will be the one adopted.

A Fire in a Cold Storage. A FIRE has lately occurred in America, during which the natural phenomena which usually accompany a conflagration were apparently reversed. The ice-cold storage vaults of a New York firm were found to be in flames, and while the firemen were engaged in trying to subdue the outbreak, a vessel containing ammonia, used in the process of refrigeration, exploded, spreading its vapour in all directions. The firemen were obliged to work in the cellars of the building in a freezing atmosphere, heavily charged with smoke and the fumes of ammonia, and it was some hours before they succeeded in mastering the flames. One of the men lost his life, and two others had to be taken to the hospital, as they were suffering from the effects of the ammonia and the cold.

Report of the Medical Officer for Hackney. THE annual Report of Dr. King Warry, the Medical Officer of Health for the Parish of Hackney, is chiefly medical in its statistics, but there are one or two points in it bearing on the sanitary condition of dwellings. A note is given of a report on the insanitary condition of four houses in Hackney Wick. The houses were in three different roads, but the complaint in each case was much the same—damp walls, no damp course, no through ventilation beneath the ground floor, no water-closet or no water-supply to it, &c. It is satisfactory to find that the effect of the Report was to induce the responsible owners to put the houses into habitable condition. In another page of the annual Report it is mentioned that the insufficient damp-proof courses are a common cause of complaint in Hackney Wick, that the Medical Officer had recommended the covering of many damp sites entirely with concrete, and that during 1896 250 sites of dwellings had been thus concreted. The following extract from the Report is of interest as an example of the importance of having an impermeable ground under dwellings:—

"On the morning of December 17, 1896, two females were found unconscious in their beds at a house in Bartripp-street, Hackney Wick, the house smelling strongly of coal gas. They were removed to hospital and ultimately recovered. These persons slept in the front room of the ground floor; others sleeping upstairs, I am informed, suffered also from nausea and vomiting. On the previous evening a slight smell of coal gas was perceived in the house, but could not be accounted for, as gas was not laid on to the premises. On investigation it was ascertained that a fracture had occurred in the gas main in the road about fifteen feet from the front of the house. The surface of the road being well macadamised, the gas was prevented from escaping through the surface, but was able to pass through the deeper and softer soil into the house. The soil on which the house was built being loose and 'made up,' offered less resistance than the road outside to the passage of the gas. In addition, the heat of the house had an aspirating effect, assisting the escape of the gas from the soil. This incident is an example of the danger of not covering the sites of dwellings with some impermeable material."

The State of the River. A SOMEWHAT spirited correspondence is being published in regard to the state of the River Brent. It is admitted that it is in a disgusting and unhealthy state, being full of sewage matter. This being so, the only question of a practical character is, who is to blame for this state of affairs, and how is it to be remedied? At present the Middlesex County Council, and the different District Councils by whose areas the so-called river flows, put the blame on each other. Clearly the proper way is for the several Local Authorities to hold a conference, so that some collective effort may be made to put an end to the present state of affairs. It is undesirable that money should be spent in legal proceedings, when, undoubtedly, considerable expense in improved sanitary arrangements will be necessary. This being so, each Local Authority should cease from excusing itself, and should set to work to assist in restoring this stream to a proper sanitary state.

Cost of Working Lifts. In a paper which Mr. F. J. Sprague contributed to the American Institute of Electrical Engineers he states that, "elevators" (as they are called in the States) are now so

much used in the high buildings in New York that more persons are carried vertically than horizontally. The high speed passenger service generally runs at a velocity of from 300 to 600 ft. per minute, and opinions seem pretty evenly divided as to whether, for such purposes, it is more economical to employ electricity or hydraulic power. In the discussion which followed the paper, however, the general tendency of experience seemed to indicate that, although possessed of many advantages, electric elevators were not more economical than the most approved types of hydraulic or steam elevators. This, however, does not seem to be the experience in some other countries. A good deal of information on this subject was furnished some time ago by Mr. E. Egger, who stated that in the United States the result of working electrically showed that a useful load of 1,500 lbs. lifted to a height of 100 ft. cost about $\frac{1}{4}$ d. inclusive of return journey. But in Berlin it would appear that the cost of lifting a useful load of 850 lbs. to a height of 80 ft. by electricity amounts to only $\frac{1}{10}$ of a penny inclusive of descent, compared to double this amount when the elevator is worked by hydraulic power; and in Vienna the figures obtainable tend to show a still more strongly marked difference in favour of electric elevators.

St. Matthew's, Bethnal Green. IN November last a faculty was granted by Dr. Tristram, Chancellor of the Diocese, for laying out the parish churchyard as an open space. The ground was accordingly converted into a public garden by the Metropolitan Public Gardens Association at a cost of about 800*l.*, and was opened by the Earl of Meath on July 20. The parish was formed in 1742, and the church, designed by George Dance, the elder, was consecrated four years later. On the night of December 18, 1859, a fire consumed all of the church, excepting the outer walls. The structure was reinstated after the designs of, we believe, Mr. Knightley, by a parish rate. The church has some good stained-glass windows, including a series known as the "Huguenot Memorial." The organ is by Jones, 1861. In Bethnal Green, with a population exceeding 130,000 persons, there are only twenty acres in all of open space reserved for public recreation.

Muckross, Co. Kerry. AN Irish newspaper announced last week that Muckross Estate (the ancient Clogheen), Killarney, has been chosen for the site of a Royal residence, and that a considerable sum is offered for the property. In 1583, Sir Valentine Browne, Knight, of Crofts, co. Lincoln, was deputed, jointly with Sir Henry Wallop, to survey various escheated lands in Ireland. In June of that same year, Sir Valentine bought from the Earl of Clancarty all the lands in the counties of Kerry and Cork, which had formerly belonged to Rorie Donoghue and Dermot MacCormac. His grandson, created a baronet in 1622, received a confirmation, by patent from the king, of his property there, including the Lakes of Killarney. His grandson, created Viscount Kenmare on May 20, 1689, forfeited the estates through his fidelity to James II. They were, however, recovered by his lineal descendant, the fifth baronet (the viscountcy conferred by James II. after his abdication was not acknowledged in law), whose grand-

son was created Viscount Kenmare in 1798, and advanced Earl of Kenmare two years afterwards. Thus that property has continued to our own day in the possession of the Earls of Kenmare; but the Muckross demesne now belongs, we gather, to Colonel Herbert. The ruins of the abbey stand on an acclivity of the peninsula of Muckross, between the Middle and Lower lakes. The abbey, formerly known as Irrelough, was founded as a friary of the Holy Trinity for Franciscans, in 1440, by Donald MacCarthy, and has since formed a favourite burying-place of the houses of MacCarthy and O'Donoghue. The abbey was rebuilt *circa* 1620, but soon afterwards fell into decay.

THE ARCHITECTURAL ASSOCIATION EXCURSION, LANCASTER.

IN striking contrast in every way is the working field of the Architectural Association's industrious and zealous band of students and sketchers this year to that of last. Then the sylvan beauty of the south, now the gloom and mystery of the north, then the warmth of brick and tile and timber, now the sedate stateliness of stone and slate, then close proximity to the wealth and glitter of London, now the wealth and grime of Lancashire. The distance of the locale from the homes of the majority of the party led to a goodly company of eighteen members taking advantage of the railway excursion arrangements, so that the Architectural Association excursion of this year may be said to have commenced at Euston Station on Saturday morning last. By the forethought of the *de facto* Assistant-Secretary Mr. Hennings, reserved carriages added to the comfort of the party, and the long and tedious journey was deprived of much of its irksomeness by the camaraderie of the members.

Arrived at Lancaster, no more than an hour late, quarters were found, and subsequently most of the party made their way to the Exhibition of Arts and Crafts, located in the volunteer drill hall and adjacent Phoenix rooms. As might be expected the majority of the exhibits are of an amateurish quality both in design or intention and in execution, but there is sufficient in almost all departments—painting, modelling, wood-carving, metal work, and ecclesiastical needlework—to interest the artist and the craftsman and to instruct the amateur.

Sunday was spent as usual. Quietly in the morning, then a short impromptu excursion in the afternoon. On this occasion the sea formed the temptation, and Morecambe was visited, some walking the four miles, others taking advantage of the tramcars that run to and fro between Lancaster and its newly-born neighbour on the coast. Surely, the foreigner who first accused us of taking our pleasures sadly must have spent a Sunday at Morecambe or some similar north country seaside resort. Sad and saddening are the proper epithets of Morecambe, especially on Sunday. Two miles or so farther along the coast the visitors came to Heysham, to the antiquary, the archaeologist and the artist a delightful refreshment after the dismal deadly dullness of Morecambe. An old, very old village, is Heysham, nestling in charming irregularity of disposition in acombe; many of the old picturesque houses remaining with the ancient church, chiefly Early English and Decorated on a Norman foundation, half hidden amongst the trees on the cliff above, and itself quite an upstart compared to the ruined monastery nearby, an undoubted relic of Saxon times. Of this same Early period there are fragments built into the walls of the present church, dedicated, by the way, to St. Patrick, and within quite recent years a remarkable sepulchral monument of very Early Saxon work has been disinterred and exposed to view in the churchyard. The most striking peculiarity about the church is the manner in which the same span of nave and two aisles is roofed with one ridge and gable west of the chancel arch and wall, and with three eastward. Other objects of interest are a number of curious stone coffins presumed to be of Saxon date, and a somewhat dilapidated sundial in the churchyard bearing date 1696, but suggesting that it is a palimpsest and has been "reformed" from an older churchyard cross. There are



Borwick Hall. Part of the Front.

some picturesque old houses in the village, but the most important piece of domestic work is at what is known as High Heysham, an old manor house of very picturesque though simple treatment, bearing date 1508.

Returning to Lancaster, the excursionists received their first wetting, and, with the hope that it might prove the last, felt that the traditions of the Architectural Association were thereby maintained.

Monday.

The first official day of the excursion broke fine and clear, and so continued tempered by a pleasant breeze. The day's work lay along the valley of the Lune, the beautiful scenery of which provided no inconsiderable part of the day's enjoyment, culminating in the exquisite view at Kirkby Lonsdale, which Ruskin has described as "one of the loveliest in England, and therefore in the world. Whatever moorland hill, and sweet river, and English forest foliage, can be at their best is gathered here."

The first halt was made at Cloughton Hall (see lithograph sketch), formerly the seat of the Croft family in the fifteenth century, but now partially dismantled, and used as a farmhouse. The aspect towards the road is very picturesque and striking, with two lofty gabled towers, evidently erected for the sake of the view, with an almost conservatory-like excess of glass in their slight mullioned and transomed windows. There can be little doubt that the house, as it stands, has been erected at three different periods, between the time of the Crofts in the fifteenth century (of whose work there is a very picturesque oriel window or moulded corbels, and with embattled transoms and cusped lights), and the middle of the seventeenth century, to which period the north front probably chiefly belongs. A plan and sketch of the house have been published in the Abbey Square Sketch Book, but there is little of interest internally, and it is difficult to assign to the plan the uses of the several parts with any approach to probability. Near the Hall is the small church built in 1815, and with little of interest beyond its east window, its belfry and its old bell all relics of an earlier structure. There seems to be about Cloughton air some subtle influence which causes its builders to revel in providing puzzles for archaeologists, for, besides the church, a remarkable instance is to be seen in the Hall, where within the time of the present tenant an old stone bearing date 1573, and initials, probably T. I. C., which was found in the village, has been set in the wall of the fifteenth-century portion of the house.

The next halt was at Hornby, where a short time only was spent in examining the church (see lithograph sketch), chiefly interesting as an example, and a very excellent one, of the skill of Messrs. Paley & Austin. Of the mediæval

church all had been swept away in the beginning of the century with the exception of the tower and the chancel, both of which are curious as well as interesting. The tower is octagonal on an octagonal base, the axis of the base being counterchanged with that of the upper part. The chancel, too, has an octagonal apse with unequal sides. So that the mediæval designer in the Perpendicular time was evidently a man who had views as to the capability of the octagon in design.

Leaving Hornby, a fresco luncheon was negotiated by the roadside, and then a visit paid to Thirland Castle (see sketch), where the party were received by the owner, Mrs. Lees. Thirland Castle is now a thoroughly liveable modern country residence, having been several times altered since its first erection by Roger de Poitou, in Norman times. Of this date no traces can be observed except, perhaps, the situation and the moat, the earliest fragments of the present building dating no further back probably than the time of Sir Thomas Tunstall, one of the heroes of Agincourt, who received licence to crenellate his house. In the sixteenth century it was the residence of Sir Brian Tunstall, who fought at Flodden, and during the civil war was held for the King by Sir John Gillington, but, like its neighbour, Hornby, taken by the Parliamentarians and dismantled. Subsequently re-built by Sir Jeffrey Wyatt and more recently restored after fire, altered and enlarged by Messrs. Paley & Austin, it can readily be understood that Thirland Castle is now an example of modern rather than ancient work.

The next objective point of the excursionists was Tunstall Church, of no great interest, although containing a mutilated effigy supposed to be that of Sir Thomas Tunstall (see sketch), and monuments of the Fenwick family. The tower is small and simple, but of good proportion; and there is some rather peculiar tracery of Late Decorated or Early Perpendicular date.

The party then proceeded to Kirkby-Lonsdale, stopping on the way to inspect the ancient and famous "Devil's Bridge" over the Lune, remarkable for its antiquity, its design, but above all for the charming river scenery it frames and adjoins. Then on to the town of Kirkby-Lonsdale, where the church of St. Mary is the only object of much architectural interest. The building of the church apparently commenced at the west end (see sketch), where there are some Norman piers on the north side of the nave after the Durham manner, alternately of the circular Anglo-Norman and the Continental Franco-Norman clustered type. This design appears to have been too costly, for the southern piers, of Transitional date, are more slender, and without any intention of vaulting; proceeding eastward, the work becomes Early English, culminating in a three-light lancet window with rear arch treatment. The piscina in the chancel is in an unusual position on the

first pier on the south side. The church was widened in the fifteenth century, the old doorways being built into the new wall; and in the sixteenth century still further width was obtained by the erection of a second north aisle. In 1705 the tower was rebuilt or restored, and subsequently—in the eighteenth century—the whole edifice being in need of repair, its flat lead roof, battlements, pinnacles, and clearstory were removed, and a sloping roof of blue slate was substituted. The next restoration came in 1866, under Mr. Paley, so that there is plenty of history in the church for the speculative student.

After being entertained by the vicar and his wife and daughter, and admiring the view enlivened by Ruskin, the party returned to Lancaster, well satisfied with their first day's programme.

Tuesday.

The centre of the day's proceedings being at Grange, on the opposite side of Morecambe Bay, a railway journey was the first item on the programme, giving the excursionists an opportunity of enjoying the beautiful scenery and sea air between Lancaster and Grange. At this latter place carriages were taken, and the party was driven to Cark Hall, a charming water-colour subject in the bright sunshine (see sketch). Of course the majority of the sketch-books were directed to the later inserted doorway of the entrance front—an addition during the ownership of Christopher Rawlinson in the eighteenth century—although some of the sketchers preferred the general grouping of the front with its two end gables and central dormer and its mullioned windows which date back to the original erection of the house for the Curwens in the sixteenth century. The adventurous colour of the entrance doorway, with its grandly overhanging circular hood, and Ionic columns, although due only to weather-worn distemper, gives a charmingly effective contrast to the grey rough cast of the main walling. Due note was taken of the circular north-country chimneys; but the pre-occupation of the farmer's wife with the wash-tub, and the stern discipline of the inexorable, but genial, quarter-master, prevented any inspection of the interior, with its panelled room and nice chimney-piece.

A further short drive brought the party to Cartmel, the only, or almost only, attraction of which is the magnificent Priory Church (see sketch), founded A.D. 1188 by William Marshal, Earl of Pembroke, and dedicated to the Virgin Mary, and said to be the only conventual building in Lancashire that escaped mutilation after the destruction of the monasteries. Of the collegiate establishment nothing, however, now remains but the priory gateway, and the barest indication of the existence of the cloisters on the north-west of the church. As a piece of design there are few churches in Lancashire, or indeed in England for that matter, that are more satisfactory than Cartmel. The happy combination of the Transitional proportions, outline, and graceful interior with the later additions and insertions of the Perpendicular period, its enormous windows and unique tower, form a whole that may truly be said to be a perfect monument of wisdom, strength, and beauty. And yet the sketch-books were not busy, at least, internally; for Cartmel is hardly sketchable in the time that an Architectural Association excursionist has at command, except at a safe distance from the exterior, but is rather a place in which to drink in appreciation of the highest qualities of architectural design. It seems almost like sacrilege to turn one's pencil on to the delineation of carved misereres, beautiful and piquant as are those in Cartmel Church; still more so to sketch the screen erected when Mr. Preston, of Holker Hall, undertook the restoration of the church in 1640; or the feeble travesty of this in the upper part of the stalls. For him who is content to descend to small things, the fragmentary remains of the Harrington monument, probably part of that to Sir John and his wife (1305), and other monuments are worthy of study and, as a special example of graceful and refined design, it would be difficult to find one better than the Rawlinson monument in the south transept and put up in 1706. Far and away more admirable is this than the more costly and pretentious monument to the memory of the late Lord Frederick Cavendish recently erected, one more example of the ruin of artistic beauty by costly expenditure.

After a three hours' stay at Cartmel, the

excursionists went on to Holker Hall, where they experienced discourtesy that is rare in the extreme in the records of Architectural Association excursions, and if of frequent occurrence would speedily put an end to this, at least, of the Architectural Association's educational methods. Although the honorary secretary of the excursion had received an autograph letter from the present occupant, Mr. Victor Cavendish, it was only after considerable delay and objection that the members were allowed to see three rooms of the newer portion of the house—a privilege accorded to the ordinary tourist and tripper.

A return was then made to Grange, where sufficient time was allowed to enable the members to enjoy the exquisite natural beauties of this most charming watering-place, and to lament that that force of circumstances prevented the Committee from making Grange the headquarters of the excursion of this year. After a beautiful sunny day, no grumbles were heard at the rain that came during the train journey back to Lancaster, and continued to fall during the evening.

THE ARCHÆOLOGICAL INSTITUTE AT DORCHESTER.

On August 5 the Institute members and their numerous local friends proceeded in brakes to Sherborne, a long but beautiful drive, covering fully forty miles there and back. The old castle of Sherborne was reached about noon, when Mr. Wildman, M.A., the local authority, kindly took charge of the large party. He proved an excellent guide to the gatehouse, keep, chapel, hall, and other parts of this once imposing structure. The earthworks seem plainly to indicate an older occupation of the site than the Roman period, but none of the masonry is older than the days of Bishop Roger of Sarum (1107-1142), who was the founder of the castle. The alterations made in the gatehouse and keep during the fifteenth century are generally assigned to Bishop Langton (1485-1493). In the great civil war the castle underwent two sieges. On August 21, 1645, Parliament ordered the castle to be dismantled, and it was speedily made a ruin by repeated blasts of gunpowder.

The modern castle was then visited, for the sake of seeing in the dairy (in a badly-lighted and wholly unsuitable appointment) a fine tessellated Roman pavement, discovered at Southay Common, on which is represented a sitting figure playing on a six-stringed lyre, whilst another nude figure dances, playing on a double pipe. Unless we are mistaken, this pavement was considerably restored at the time of its removal.

After luncheon Mr. Wildman explained the many beauties of the grand old abbey church, one of the richest examples of Perpendicular treatment. As it was fully described and illustrated in the *Builder* of April 3, of the current year, it need not now be further described. We were glad to notice that some of the visitors had this number of the *Builder*, with its complete ground plan, in their hands. The domestic buildings of the abbey that remain, which are now for the most part incorporated in the school buildings, were clearly explained by Mr. Wildman. In the library the visitors were shown the 1350 charter of Edward VI. on the refounding of the school. The Rev. Dr. Cox here referred to the recent work of Mr. Leach on "English Schools at the time of the Reformation," and cordially agreed with the author that Edward VI. was the spoiler of schools, upwards of 300 having been suppressed by him and his father. Sherborne was one of the very few old schools of the country to which some small endowment was given back through the good influence of Dudley, Duke of Northumberland. Professor Clarke and others also endorsed this view.

The old hospital or almshouse, founded in 1437, and dedicated to St. John Baptist and St. John Evangelist, was inspected. The most interesting part is the chapel. The altarpiece is a fifteenth-century triptych, having the raising of Lazarus in the centre compartment, and the casting out the devil and healing the blind in the wings. It is a fine and delicate painting, and after some discussion was pronounced to be Flemish. Over it are two projecting rods, terminating in shields, which, doubtless, originally sustained a now missing altar canopy.

In the evening there was a pleasantly-managed soirée in the Dorset County Museum, by invitation of the members of the Dorset

Natural History and Antiquarian Field Club. The President, Mr. Mansel Pleydell, received the numerous guests.

The morning of August 5 was occupied by the annual business meeting of the Institute, when, on the motion of Lord Dillon, seconded by Chancellor Ferguson, it was decided to accept the invitation of the Corporation of Lancaster to hold their session of 1898 in that town.

In the afternoon the party proceeded to Poundbury Camp, a short distance to the north-west of the town. The lofty rampart forms an irregular parallelogram of about 380 yards by 150 yards. The greater part of the ramparts was traversed, and then Mr. Emanuel Green (in the absence of Professor Boyd-Dawkins) expressed his general belief in its late Celtic origin, and its brief retention by the Romans. Mr. Moule, Mr. Cunningham, and others followed, but there seemed to be a pretty general agreement.

The important heights of Maiden Castle were next scaled, about 2½ miles south-west of the town. This is by far the grandest and most imposing earthwork to be found in the British Isles, if not in Europe. The line of mighty ramparts all round the crest of the hill are three-fold in some parts and five-fold in others. From the top of the ramparts to the bottom of the fosse measures, in many places, from 60 ft. to 80 ft., and is exceedingly steep. There are two entrances, one on the east side and the other at the west. Both are cunningly protected by overlapping lengths of broken ramparts, so that access to the camp can only be gained by pursuing a labyrinthine course. The plan of the camp, corresponding to the top of the hill, is that of an irregular oval, occupying an area of about 120 acres. Mr. Cunningham, a local antiquary of repute, who has done much burrowing in the district, strenuously and persistently argued that the whole of this wonderful defensive work was accomplished by the Romans, in consequence of having found some Roman remains within it, but it did not appear that he converted a single member of the Institute to his views. Dr. Cox, at some length, and the Rev. Sir Talbot Baker in a briefer way, pointed out the complete impossibility of such a supposition, and contended that it was late Celtic work, held for a time by the Romans, and possibly occasionally used by them as a summer camp (for "camping out") after the building of Dorchester.

In the evening, before a crowded audience, Dr. Cox opened the Architectural Section with a paper on "The Treatment of the Cathedral Churches of England during the Victorian Age," which was a strong and detailed indictment against the destructive and mischievous effect of much restoration work.

The Dean of Wells disagreed with some of Dr. Cox's remarks, and the Rev. Sir Talbot Baker thought some of them too strong, but others, such as Mr. Rice and Mr. Micklethwaite, fully adopted the views of the President of the Section. The discussion was interesting and went on till a late hour.

The excursion of Saturday, August 7, was an attractive one irrespective of archaeology. The eight miles' drive to Abbotsbury afforded continuously beautiful views both of land and sea, whilst there was the Chesil Beach for geologists, and the great swannery for naturalists. On reaching Abbotsbury, the church was described by the vicar, Rev. B. Neville. It is in the main a Perpendicular building, with a good west tower. In a niche over the west door is a symbolic group of the Trinity, the Father, with the Crucifix, and Dove. This is often seen on brasses, but very rarely in relief in stone. Opinions were expressed in favour of retaining a quasi-classic reredos of the year 1751, which is certainly good of its kind. The Jacobean pulpit and sounding-board have been somewhat spoilt. In the south porch is a fine effigy of an abbot in low relief, in Purbeck marble, of thirteenth century date, which has been brought here from the adjacent abbey. The church plate is remarkable for possessing an eighteenth century bread knife, with a silver-gilt haft and similar case.

The abbey church lies immediately to the south of the parish church, with its scattered remains of conventual and early farm buildings on the south side. There is a noble fourteenth century barn which Dr. Cox described. Only half of it is now in use and roofed, with a handsome porch and turreted staircase. The other half, with the second porch, is now in ruins. The total length is somewhat over 300 ft., and is beyond doubt the

largest known example of a mediæval barn in England. There is a slight variation in the buttresses, showing that only half was completed at one time, and that then came a break of some years before the full plan was completed. Very probably the interruption was caused by the Black Death. The western gable is supported in the centre by a large buttress of several stages, terminating at the apex in a canopied niche.

After lunch the heights overlooking the sea were climbed to visit the solitary and beautifully situated chapel of St. Katharine. It is a building of immense strength, of about the middle of the fifteenth century, having a slightly cored vaulting of stone, and walls 4 ft. thick. The builders succeeded in making it nearly storm proof, and notwithstanding its exposed situation and the unglazed condition of the windows, it is still in substantial repair.

Whilst resting on the sward and admiring the lovely prospect, the party succeeded in persuading Professor Boyd Dawkins (who had rejoined the expedition) to talk to them on Maiden Castle. He expressed it as his opinion that it was the work of Celtic people of the late or Iron Age, and said that it was a simple impossibility that it could be of Roman origin. On August 9 the party, who kept up their number of about two to the end, made their first pause at Wolfeton House, a short distance from Dorchester, of which a plate was given in last week's *Builder*. The owner, Mr. Albert Banks, made a most efficient guide, not only to the house but to the neighbouring church of Charminster. The house was built by John Trenchard, father of Sir Thomas Trenchard, during the reign of Henry VII., and was enlarged and altered in the next century. There are several historical incidents, as well as curious legends and a creepy ghost story, attached to it. It contains some fine plaster ceilings and large, well-carved chimney-pieces.

The church of Charminster, which was till recently in a disgraceful state, has now been restored on careful and conservative lines by Mr. Ponting. Amongst other things, the restoration brought to light small Norman clearstory windows between those of Perpendicular date. These windows correspond with the Norman pillars of the arcades below, though the pointed arches are of the next period. The tower is a fine example of Late Perpendicular, 80 ft. high, though from its unusual width it looks lower. It was built by Sir Thomas Trenchard at the beginning of Henry VIII.'s reign.

The drive was then continued a few miles further until Cerne was reached. Here was seen another fine monastic barn, of which again only part remains. It is not near so large as that of Abbotsbury, but the fourteenth-century workmanship of speared timbers and courses of Ham Hill stone is excellent, and could not have been surpassed had it been intended for a church.

After lunch the Rev. H. D. Gundry conducted the visitors through the church. Cerne Church is chiefly Perpendicular, with some remains of thirteenth century work in the chancel. It is the least interesting of any of the churches visited by the Institute during these meetings. The gem of the adjacent abbey remains is the richly-adorned and embattled three-storied gate-house, or rather entrance-porch, to the abbots' buildings or guest-hall, usually spoken of in error as the abbey gateway. There is a considerable display of heraldry about the two large bow windows of the west front, which reach from above the arch to the battlements. This work was done by Abbot Thomas about the year 1500.

The steep southern declivity of the hill at the back of the village was then climbed to reach the celebrated Cerne Giant. This great phallic figure is 180 ft. in length, and represents a man wielding an uplifted club in his right hand. It is outlined by trenches about 1 ft. deep and 1 ft. wide. Professor Boyd Dawkins expressed the view that as the giant was in the midst of a once thickly populated district of the Bronze Age, that it probably pertained to those days, and compared it with similar colossal figures in Scandinavia. It was stated that General Pitt Rivers, who owns the ground, expects shortly to conduct excavations in the immediate vicinity of the Giant.

In the evening the Rev. Dr. Cox presided over the Architectural Section, where the Rev. Sir Talbot Baker gave an exhaustive address on "The House of the Vestals in the Forum at

Rome, and the Discovery of Anglo-Saxon Coins in the Excavation thereof." This was followed by a short account of the recent detection of an Anglo-Saxon church at Breamore, near Salisbury, by the Rev. A. du Boulay Hill. Mr. Hill stated that the removal of certain plaster had aroused attention, and careful investigation proved that the whole of the shell of this church, nave, chancel, and south transept or chamber, was Anglo-Saxon.

The remains of a large outside rood had come to light beneath a later south porch, as at Headborne, Worthy, and Romsey. Small windows opening in the rubble, without any ashlar, had come to light in the nave. But the most interesting discovery is that of an inscription round the arch into the south transept, cut deeply in the stone; the Anglo-Saxon is late, probably of the beginning of the eleventh century; the experts translated it:—"Here becomes manifest the covenant to thee." The meaning seems to be a reference to the completion of a church building vow.

The last day's excursions (August 10) afforded delightful drives in the best wooded part of the county. Puddleton church was described by Mr. Doran Webb; it has some excellent fittings of the time of Charles I. Lord Dillon gave full and most interesting descriptions of the series of effigies of the Martin family, which are in the south transept. Drawings of some of these details were given in last week's *Builder*. The same number also contained a plate of Athelhampton Hall, which is the best example of Tudor domestic work in the county. Here Mr. Moule gave one of his interesting expository addresses.

After a further drive through beautiful country, the great stately church of Milton Abbas was reached. The choir, aisles, and transepts remain, and the fine central tower, but the nave has disappeared. It reminds us much of the chapel of Merton College, Oxford. Mr. Doran Webb gave a good general description of the church. One of its greatest curiosities is a supposed "tabernacle" of fifteenth century work, attached at a considerable height to the west wall of the south transept. The woodwork is of four stories richly carved and painted, save on the side nearest the wall. There is an opening on the wall side about a foot square into the lower story, and the bottom panel is pierced with interlacing work. The top of the pinnacle is broken off, but its present height exceeds 9 ft. It is most strongly and massively fastened with iron stays against the wall, and is, beyond doubt, in its original position. The whole thing is a bell box, grooves from which it swung still remaining. Mr. Micklethwaite and Dr. Cox climbed ladders to inspect it, and agreed as to its intention and project for swinging this great thing in front of the high altar, under the impression that it was a tabernacle for the reserved sacrament, but we have no doubt that this intention will now be abandoned.

The manor house of Bingham's Melcombe formed the last of this interesting and most successful round of visits. This house was described and illustrated in the *Builder* of October 5, 1889.

This ended the meetings proper, but thirty-five members left Weymouth by boat on August 11, to finish the week in the island of Jersey, at the invitation of the Société Jersiaise.

SOMERSETSHIRE ARCHÆOLOGICAL SOCIETY.

AFTER a period of twenty years, the Somersetshire Archæological Society met at Bridgwater for its annual meeting on August 4, 5, and 6.

On Wednesday, after the general meeting had been held in the Town Hall and the Society had been entertained at luncheon by the Mayor, the various points of interest in the town were visited. The parish church of St. Mary is a large church of Perpendicular date with earlier work in the north porch of the Decorated period. At the west end is a low plain tower surmounted by a lofty spire. The curious series of "squints" to enable the altar to be seen from the porch has unfortunately been destroyed. They are noticed and illustrated in "Parker's Glossary." The interior possesses some interesting woodwork, including the screens, with various monograms, on either side of the chancel, an elaborate pulpit, three stalls with a miserere now placed against the west wall, and some later screen work of

Jacobean date. Under the window of the north transept are two external recesses with mutilated effigies. There are still some interesting remains of Domestic work in the town in the neighbourhood of the church: the house known as "Admiral Blake's house," an ancient doorway in Silver-street, and the Watergate of the Castle on the West Quay. Meetings were held in the afternoon and evening, at which various papers were read, one on "Admiral Blake," by Professor Montagu Burrows, and another on "Blake's Charities," by Mr. W. L. Winterbotham. The two following days were devoted to excursions to manor houses and churches in the neighbourhood, which were of great interest, those visited on Thursday being situated west of Bridgwater, in the beautiful country stretching to the Quantocks and the Channel, while on Friday the route lay across the famous battlefield of Sedgemoor, on the east side of the town, with its memories of the Monmouth Rebellion, and to the hardly less interesting site at Athelney of King Alfred's Monastery.

On Thursday, Stoke Courcy was first visited. Here are some remains of a castle, and a very fine cruciform church with a central tower and spire. In the church is Norman work of two dates, the tower arches being earlier than those in the chancel: good examples of carved bench ends; a Norman font; two interesting monuments of the Verney family, one with a fine effigy in armour of John Verney, who died in 1461, and a few encaustic tiles. The church is remarkable for the great height of the chancel level above that of the nave. From Stoke Courcy, a beautiful drive took the party to Doddington Manor House; another old house, Fairfield, being passed on the way. Doddington is an interesting example of a fifteenth century house, with later additions. The earlier part of the house includes the porch, "screens," the hall, with its minstrel's gallery, and doubtless the main walls of the building westward. The withdrawing-room seems to have been altered or remodelled at a later period, and the date 1581 appears on the outside. A fine fire-place, at the upper end of the hall, also bears the same date on the heraldic panel over it, the shield charged with the arms of Doddington, Wyndham, Trivet, and Sydenham. The hall has a good open timber roof, and some heraldic glass, while in the withdrawing-room is some good plaster work. The church, which stands close by, is of no great interest; on the tower is a panel with a shield charged with three bugle-horns, and the initials and date G.D. 1610.

From Doddington, the party drove to the remains of Stowey Castle, which is apparently an early fortress—probably British—afterwards used as the site for a small Norman castle. The intrenchments remain in a very perfect state, and the foundations of the Norman keep, square on plan, have also been exposed. The castle was described by Rev. W. Gresswell, and Mr. E. J. Stanley, M.P., the President of the Society, afterwards hospitably entertained the members and their friends at luncheon at Quantock Lodge.

On the return journey Spaxton Church was first visited. The church stands well on rising ground, and with the exception of Early windows in the nave and at the east end, is of Perpendicular date, with a good western tower and south porch with remains of an upper porch. On the north side of the chancel is a fine tomb under a panelled arch, with male and female effigies; no date or inscription appears on it, however. The woodwork in the church is noteworthy, some of the bench ends being very beautiful. One known as the "Fullers" panel depicts a man "fulling" cloth, with the implements of his trade above. In the aisle, near the south porch, is an alms-box, apparently of the fifteenth century. The churchyard cross is very perfect, and is well illustrated in Pooley's "Stone Crosses of Somerset." The head of the cross remains with sculptures under canopies, and the plinth is panelled with shields, the whole standing on a flight of several steps.

Blackmore Farm is a fifteenth-century house following the usual plan, as at Doddington, but in addition retaining its chapel with canopied niches on either side of a three-light east window, lancets in the side walls, and a gallery approached from the upper floor of the house. It was suggested that, although the building follows the general lines of a manor house, it might have been a grange or "cell" to the Abbey of Glastonbury, with which it was connected.

Cannington Church, the last building visited,



E. Lyng,
Somerset.
Interior of the
Church—looking E.

is entirely Perpendicular, and the tall tower and nave and chancel being under one continuous roof, give the church a curious appearance. Outside are fourteen consecration crosses, carved in low relief on stones slightly less than a foot square. On the north side is an extensive building, largely of late date, but standing on the site of the Priory. It is now used as a reformatory.

On Friday the interesting series of churches lying in the Sedgemoor district were visited, and the only domestic work of interest was the "Club" house at Weston Zoyland. The six churches included were Chedzoy, Weston Zoyland, Middlezoy, Othry, East Lyng, and North Petherton. The Perpendicular period is chiefly represented in all, but at Chedzoy much of the body of the church, including the nave arcade, south porch, and chancel (with traces of a south chapel) is Early English. Consecration crosses, of a different and apparently earlier pattern, occur outside the church, and there is a brass to a Sydenham in the north transept, an altar frontal made from a fifteenth century cope, and a fine series of bench ends, one of the time of Queen Mary, with the initial M, surrounded by a garter, and the date 1557. Over the south porch are three panels, one having the date 1579, and another a shield with R.B., for Richard Beere, Abbot of Glastonbury.

On the south transept at Weston Zoyland is also a panel with Beere's initials. The church is the most spacious of those visited, and has a very fine western tower, and a nave with clear-story, porches and two transepts. The chancel is of Decorated date. Under the window at the north end of the transept is a figure of a priest under a canopied recess. Middlezoy has, like Weston Zoyland, a fine western tower, and Early work in its chancel, and Othry is cruciform with a central tower of Late Perpendicular character. Here also is an embroidered cope of the fifteenth century.

At East Lyng is an interesting church—small in size, but with many good bits of detail. The west tower is of the same type as Middlezoy

and Weston Zoyland, and built of blue lias and Ham stone. The parapets here, as at the other two churches, are richly panelled and pierced, as are also the windows of the belfry. The interior is highly picturesque, and has an interesting series of bench ends very boldly carved. Also a fifteenth century pulpit in the south-east angle of the nave.

North Petherton Church, the last on the list, is a fine Perpendicular building with a richly panelled western tower, a clearstoried nave with porches and aisles, and a chancel with a vestry at the east end, as at Langport and Crewkerne. The party afterwards returned to Bridgwater.

REPORT OF THE SELECT COMMITTEE ON GOVERNMENT OFFICES SITES.

THE Select Committee "appointed to inquire into and report upon the manner in which the sites available for the erection of the new buildings required for Government Offices may best be appropriated for that purpose" (for that, it should be noted, was the sole "reference" to the Committee, the question of architectural treatment being left untouched), has agreed upon the following Report, dated July 22, 1897.

"In continuation of our Report dated July 23, 1896, we beg leave to state that we have taken further evidence upon the plans laid before the Committee last year.

Having regard to certain criticisms made from an architectural point of view upon those plans, we have thought it well to examine representatives of the Council of the Royal Institute of British Architects, and other qualified members of the profession.

Various alternative plans have been submitted to us by these gentlemen, but whilst we have availed ourselves of some of their suggestions, we have felt unable, owing partly to the enormous cost involved, and partly to other considerations, to recommend their schemes generally for acceptance.

Upon a review of the whole evidence, we have arrived at the following conclusions:—

We are of opinion that the new public offices on the 'Parliament-street' or 'Great George-street' site should be erected mainly on the lines of Plan No. 1 in the Appendix to the Report of last year, with a frontage in a line with the frontage of the Home Office, and parallel to the east side of Parliament-street; but we recommend that the south-eastern corner of the new building should be square and not rounded. The land between this new frontage and the present west side of Parliament-street would, if this plan were adopted, become part of the public street; and, in our opinion, there is no need to make special provision for separating the traffic at this point.

It appears to us reasonable, in view of the great metropolitan improvement here to be carried out at the cost of the Government, that the London County Council should be requested to consider whether they should not put into operation the powers possessed by them under the Public Offices (Westminster) Site Act of 1896, and contribute a share of the total value of the land which, under this scheme, would become part of the public street.

We recommend the appropriation of this site for the Board of Trade, the Education Department, and the extension of the Local Government Board.

As regards the Whitehall site, having considered the alternative schemes for the War Office which have been placed before us this year, we adhere to the recommendation made in our Interim Report, being satisfied that a building satisfactory in appearance and accommodation can be erected on that site within its present boundary lines; and we are of opinion that the details as to the arrangements of buildings, courts, &c., should be entrusted to the discretion of the Office of Works, in conjunction with the architect selected. We think that a subway should ultimately be formed under the street between the War Office and the Admiralty.

Schemes have been submitted to the Committee by the Royal Institute of British Architects and by Colonel Edis, for a widening of Charing Cross and of the northern part of Whitehall; but we cannot recommend that the taxpayers should be asked to bear the cost of this metropolitan improvement, which, if undertaken, comes more properly within the duty of the Local Authorities.

We, however, strongly advise that the Mall should be opened into Charing Cross on the north side of Messrs. Drummond's bank.

We do not contemplate the passage of any other than light traffic through the Mall, and are satisfied that the skill and experience of the police would supply satisfactory means of overcoming any difficulties of traffic which might to some extent follow such opening.

We think that no decision should be arrived at as to building on the triangular site in Spring-gardens until the houses standing there have been removed, and the ultimate requirements of the Admiralty considered.

We recommend that Nos. 11 and 12, Downing-street, occupied respectively as a residence for the Chancellor of the Exchequer and as an office for the Patronage Secretary to the Treasury, should be removed, as unworthy of the site they occupy; but we are of opinion that the principal block of No. 10, the historic residence of the First Lord of the Treasury, for reasons of practical necessity and on account of its associations, should be retained, the Downing-street front being masked by erecting a new building with a good architectural façade, and the Park front being cased in stone, so as to harmonise with the north and west fronts of the old Treasury buildings, and the garden ground being enclosed with a screen or railing of handsome design.

We do not recommend any further building on this site. We are of opinion that whatever other office accommodation is required, which cannot be conveniently found in existing Government buildings, should be provided for by an extension of the Great George-street site in the direction of Delahay-street and St. James's Park, in which case some readjustment of the arrangement at present shown in the plan of the Office of Works might have to be made."

POST-OFFICE, LYDNEY.—A post-office building has recently been erected at Lydney at a cost of 2,000l. The builders were Messrs. Kenn & Sons, of Coleford, and the architect Mr. Howard Howells, of Lydney.

Illustrations.

NEW CHURCH, ELLAND, YORKSHIRE.

THE proposed new church at Elland, Yorkshire, is designed to be built on an excellent site, the west end facing the Savile-road. The site itself is, in many ways, a most desirable one, being both spacious, and well suited for architectural effect. It has an extreme length from west to east of about 300 ft., and a breadth of 165 ft., and a fall of some 7 ft. towards the east.

After certain plans had been placed before the building committee, the work of designing the church was placed in the hands of Mr. Geo. H. Fellowes Prynn, of London, and early in the present year his plans were submitted to, and approved of by, the committee.

The architect has taken advantage of the fall of the site towards the east, and gained sufficient head room to place commodious vestries, parish room, lavatory, and heating chamber below the chancel floor level, besides adding greatly to the external effect at the east end.

The crypt plan* shows a large room, 24 ft. 6 in. by 42 ft., immediately under the chancel, which is intended to be used partly as a choir vestry, for choir practice, and as a parish room. A large clergy vestry is placed on the south side, under the chancel of the side chapel. From this vestry a circular staircase for the special use of the clergy leads to the ambulatory above. An external porch in connexion with these rooms, with lavatory adjoining, is placed on the south side, as are also the heating chamber and coal cellar.

The entrance to the heating chamber is from the outside, and its only connexion with the church is by a small circular turret staircase.

An open stone staircase 6 ft. broad leads from the vestries to the upper part of the church.

The general scheme for the Church shows a nave of 111 ft. long by 29 ft. wide with a broad narthex at the west end, which being only divided from the nave by a large archway nearly the whole width of the nave, gives a considerably greater apparent length to the Church. The main western entrance doors open into this narthex, which also serves as a baptistery, the font being placed in the centre. The nave is divided into six bays, these bays being clearly marked by vertical wall shafts, which run up nearly to the roof plate level, and carrying the main moulded principals of the roof. The walls are 30 ft. in height, having somewhat low arches, with clearstory above. A large circular window 15 ft. in diameter, and filled with tracery, is placed high up in the west end wall. A lofty chancel arch carried right up into, and following the curve of the barrel roof, divides the nave from the chancel. The total internal height is 42 ft. On either side of the jambs of this arch, niches are formed for the insertion of sculptured figures.

The length of the chancel and sanctuary together is 45 ft. by 25 ft. in width, carried to the same height as the nave. There is sitting accommodation in the chancel for a choir of forty-six. Nine steps lead from the nave to the altar. The organ is placed on the south side of the chancel, the player being placed on a floor 11 ft. above the chancel level.

Passages are placed on either side of the chancel for the convenience of clergy and choir.

Transepts are thrown out at two eastern bays of the nave, both on the north and south sides. That on the north side forms the nave of the side chapel. This chapel will be a very great convenience for daily and special services, as it is designed to accommodate at least eighty adults, besides giving space for a small choir, and will be so arranged that it can be lighted and heated independently of the church, and can if necessary be curtained off from the main body of the church. Besides the main western entrance, porches are placed north and south, and at the west end of transepts.

The style chosen is a free treatment of Early English. The chief features of the exterior are the treatment of the west and east ends, the two portions that will, of course, be most seen when the neighbouring property has its burden of bricks and mortar.

A fêche, which will answer the double purpose of a belfry and ventilator, is placed

immediately over the centre of the chancel arch and nave.

At the head of the chancel gable is a panel of sculpture representing the Crucifixion.

The grouping at the east end of the chancel, chapel, and transept gables, with the fêche rising in the centre to a very considerable height, will form one of the most pleasing exterior views of the church.

The church will accommodate 800 adults. The materials used will be local stone for walls and dressings, and tiles for the roof.

ILLUSTRATIONS OF "INFLUENCE OF MATERIALS ON ARCHITECTURE."

This sheet of illustrations, from photographs, is given to accompany Part IV. of Mr. Banister Fletcher's paper on "The Influence of Materials on Architecture." It includes exterior views of Rouen, Coutances, and Henry VII.'s chapel, interiors of Amiens and Salisbury, and a view of the roof tracery of Henry VII.'s chapel.

SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

THESE sketches form memoranda of various places visited during the excursion of the Architectural Association in Lancashire, which has been taking place this week. They are either referred to in the account of the first portion of the excursion, given in another column, or will be referred to in the account of the latter portion of the excursion to be given next week.

We have already given some archaeological notes on the places visited, in the *Builder* for July 31, page 89.

MAGAZINES AND REVIEWS.*

In the *Art Journal*, "Art at Sea" is a rather more restricted article than its attractive title implies, being merely a description and illustration of some of the decorative detail in the interior furnishing of the yacht *Volante*, which seems to us to be a little too much pervaded by fancifulness and eccentricity. The figure head, by Mr. Aumonier, is a good and original bit of work, a female bust with butterfly wings. A review of various statues of Burns, with small illustrations, is of interest, but does not lead us to the conclusion that Burns can be adequately treated in sculpture; the rustic dress is inseparable from one's idea of the poet, and does not "treat" well in sculpture. Some admirable animal studies by Mr. Swan illustrate an article "At the Zoo," by Mr. Cosmo Monkhouse, which rather suggests the idea of having been written up to the illustrations.

The *Magazine of Art* is mainly devoted in this issue to decorative art, the article which is most interesting from its illustrations being that on "Flax Embroideries," the work of a special firm, who have evidently some persons of real artistic feeling and perception in their employ; it is the more to be regretted that the names of the actual designers are suppressed, in accordance with a selfish trade spirit which is fortunately getting somewhat out of date now. A periodical like the *Magazine of Art* might give an important impulse in the right direction by refusing to illustrate designs unless they were allowed to credit the actual designer with his work. The same is the case with the excellent examples given of work from the Lambeth Potteries, though Messrs. Doulton, to our knowledge, have generally shown a liberal and truly artistic spirit in recognising the individuality of those who work for them. An article by Mr. Walter Shaw-Sparrow on the "Tenerife Drawn Needle-work" introduces us to a special type of textile work, the process of which leads apparently to the evolution of geometrical patterns, but not of a kind which is out of keeping with textile. Mr. F. S. Robinson's article on "Decorative Art at Windsor Castle" is concerned with the clocks to be found there, chiefly Boulle, and very fine specimens of their kind, though it is a type of art we cannot feel much sympathy with.

To the *Antiquary* Mr. Sydney Hollands contributes an interesting paper, of some length, on "Some Mediaeval Mechanicians," giving an

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that is within our province to comment upon.

account of various early and abortive attempts on record at the making various kinds of machines, some of which were really forerunners of important modern inventions; ideas struck out and dropped again for want of the means or the perception to put them into practical application. Mr. Alleyne Walter's closing article on "The Three Ancient Churches of York, Recently Demolished," appears, along with, we regret to see, the announcement of his death.

The *Century* contains three articles of picturesque illustration: "The Lordly Hudson," with a panorama, among other things, of city and river from the head of the "Liberty" Statue; "A Journey in Thessaly," with pictures by Mr. Harry Fenn; and "Down to Java," in the illustrations to which the country and people are brought home to us.

From the "Field of Art" page in *Scribner* we learn that the Americans have taken one more step towards Frenchifying themselves in art by the establishment of an American Academy at Rome, in imitation of the Villa Medici; "not far from it," indeed, as is specially mentioned. The frontispiece, No. VIII. of "Scenes from Great Novels," illustrating Dimmesdale's revelation which forms the dénouement of "The Scarlet Letter," is a poor concern, quite unworthy of Hawthorne's powerful and impressive story.

In the *Atlantic Monthly* Mr. Muir's article on "The American Forests" is a serious one on an important subject, viz., the enormous waste which seems at last to threaten the practical destruction even of the apparently endless timber supplies of America. The author urges that it is high time for the United States Government to begin a rational administration of its forests. The same subject is touched on in a short article considering it in its political aspect, and recounting briefly the measures which have been recently proposed though not definitely carried. This (which appears to be an editorial article) asserts roundly that "unless there is a radical reform in the management of the forests on the public domain, the prosperity of the whole country west of the one hundredth meridian must gradually diminish with the vanishing forests, and they without active and energetic military control cannot save these forests from extermination." The question is one which affects timber purchasers in the Old World also.

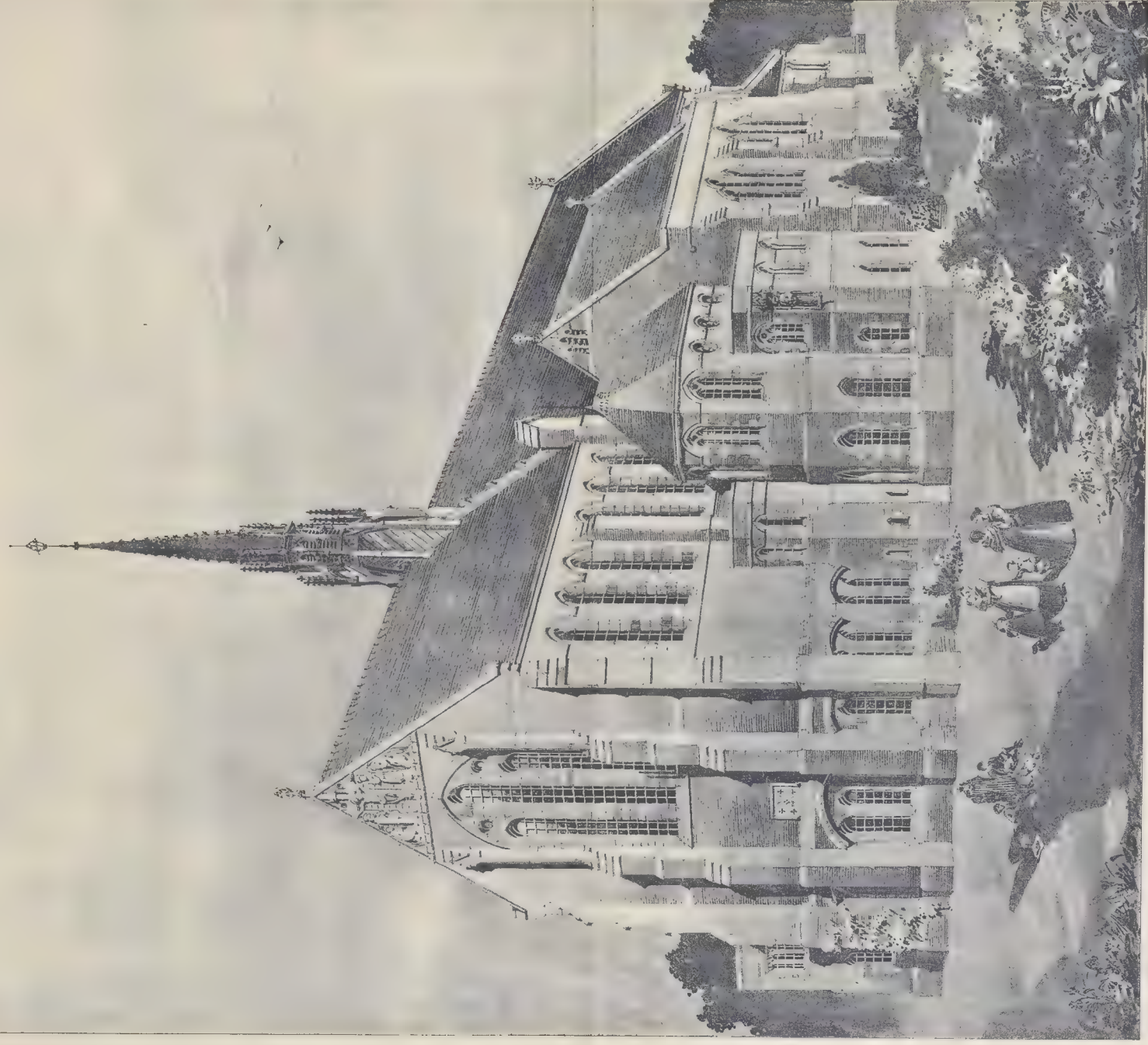
Harper contains a good and well illustrated, and moreover an enthusiastic description of "The Hungarian Millennium," otherwise the recent exhibition at Budapest, and its buildings. The *Pall Mall Magazine* contains an illustrated article on Cliveden, and one on "Bombay Past and Present," a subject on which many Englishmen may be glad of a little information.

In the *Cornhill* the pleasant and witty author of "Pages from a Private Diary" suggests that one way of celebrating the Jubilee year might be that every one who is in possession of anything that he has no right to should give it up—"county gentlemen who have enclosed commons, antiquaries whose private museums are decorated with church fonts or registers or monumental brasses," &c. This is surely not only an original but a wholesome proposition.

Longman's contains an appreciative article on George Mason and his art, with every word of which we are disposed to agree. The rather interesting fact is mentioned that shortly after the appearance of his beautiful picture "The Evening Hymn," Mason received what is said to have been the unprecedented honour of being elected an Associate of the Royal Academy by the unanimous vote of the whole forty academicians. Among facts about his pictures it is related that his beautiful and poetic little work, "Girls Dancing," was suggested in the first instance by the sight of a little country girl dancing and holding her skirt with both hands; a hasty sketch of her formed the basis of the picture. In his anxiety to satisfy himself with this work the artist by degrees painted it nearly all out in the course of improvements, so that if it were "cleaned" in a radical manner a quite different picture would be found underneath.

The *Quarry* contains a short article on the "Donegal Granite Quarries" and one on "The Principle and Tendency of the Compensation for Accidents Bill," by Mr. W. J. Greenwell, Barrister-at-Law. Mr. Greenwell looks doubtfully on the Bill, and thinks if its principle be taken as sound "there is no reason why any possible kind of employment ought to be

* We regret that the plan of the church, which is of some interest, was sent in too late for reproduction along with the description.



NEW CHURCH, ELLAND, YORKSHIRE.—MR. GEO. FELLOWES PENNE, F.R.I.B.A., ARCHITECT



COLANCE.



ROUEN



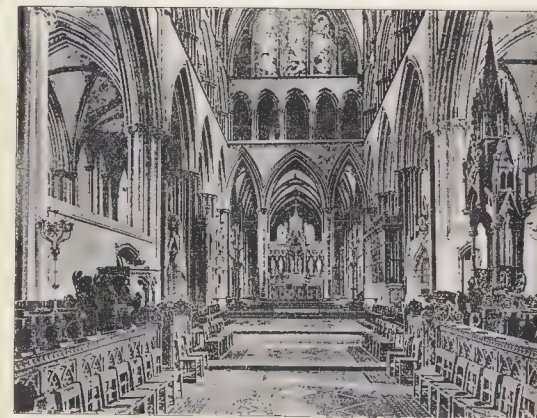
AMIENS.



WESTMINSTER.



CHANTRIES HENRY VII. CHAPEL.



SALISBURY.

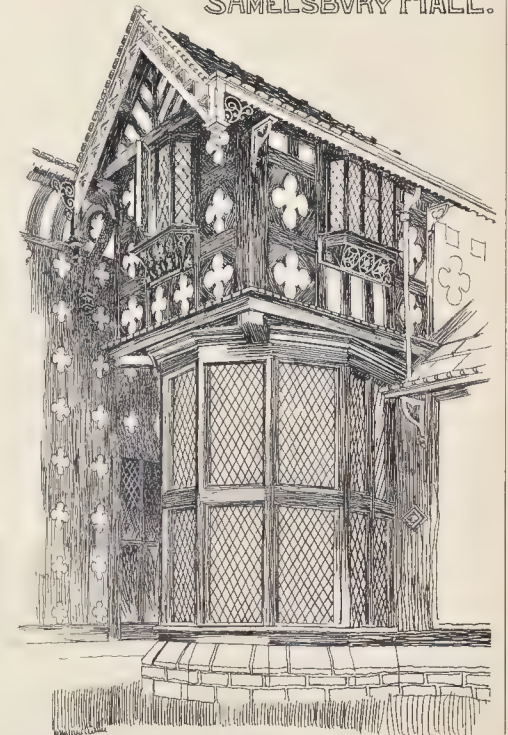
LEVENS HALL.



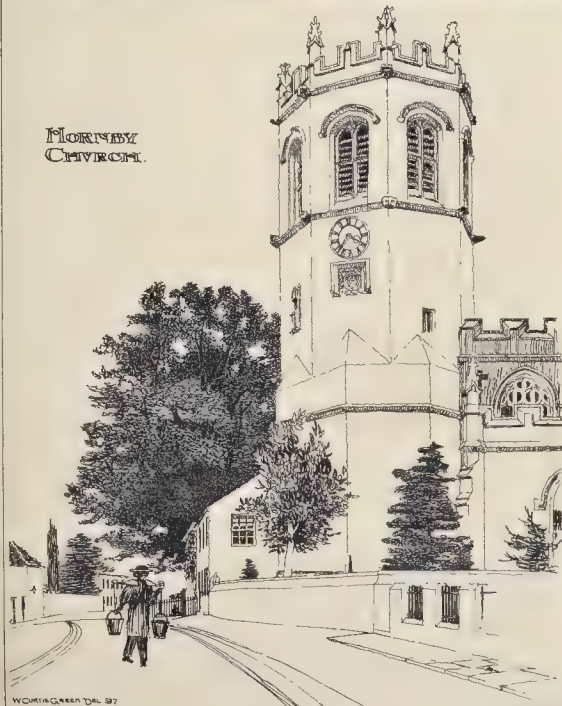
KIRBY
ONSDALE
CHURCH.
WEST ENTRANCE



SAMELSBURY MALL.



MORSEY
CHURCH.





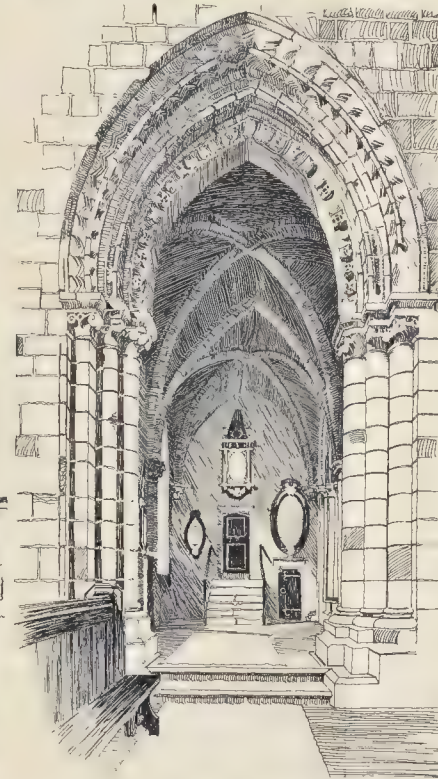
CARTMEL CHURCH.



ENTRANCE LODGE, BARWICK HALL.



CHURCH TOWER
BEETHAM



THE INNER CHOIR, CARTMEL.



CAUSTON PARK
SLOTTED CORNER



THURLAND CASTLE.

exempted from its operation; a suggestion which seems to open a dangerous prospect.

In *Knowledge* we have the second of Mr. Hill's illustrated articles on "English Medals." Other articles of interest are those on "Photographing in Natural Colours," and "Ancient Volcanoes of Great Britain," the latter illustrated with some diagrams of geological structure, &c.

The *Architectural Record* is an interesting and varied number, an article on the villas of Rome contrasting effectively with the succeeding one on the very different architectural quality of the Swiss chalet, of which some fine and very ornate examples are given. Professor Goodyear contributes a paper with the title, "A Discovery of the Entasis in Medieval Italian Architecture." Is it a discovery? The point has not been hitherto much noticed or insisted on, but it would hardly be likely that there should not be entasis found in the columns of buildings many of which, though medieval in date, approach so very nearly to classic forms, and with all the examples of Roman remains before the eyes of the architects. One of the best things in the number is the dry piece of irony in the shape of a letter to the editor under the title of "A Long-felt Want," which we will not spoil by quotation, but recommend the perusal of it to the imitative classic architects of the day.

The *Engineering Magazine* includes no architectural paper this month. Among its articles are "Electricity in the Modern Machine Shop," and "The Electric Plant of the Modern Tall Building."

The *Fortnightly Review* includes an article by Mr. H. Heathcote Statham on "Handel and the Handel Festivals," which gives some special information, not generally known, in regard to the actual facts of Handel's indebtedness to other composers in "Israel in Egypt," a subject on which there is a good deal of misconception on the part of the public and misrepresentation by critics.

Cosmopolis, the polyglot magazine containing articles in English, French, and German, includes in its English section a beautifully written article on "Rome" by Mr. Arthur Symonds, well worth perusal as a literary pleasure at all events. A striking remark is that on the modern sound of the twelve strokes of midnight coming from the Christian churches, "as if they did but reckon the time of years, not centuries. It was Pagan Rome that lasted, and . . . even in ruins, bows the mind before its strength, its purpose, its inflexible success." The article contains many thoughtful passages in architectural and artistic criticism. In the same magazine the Rev. W. J. Scott's article on "Mile-a-Minute Trains" is a good practical railway article, containing some interesting statistics as to speed, &c. The French and German sections do not touch upon any subjects of art or construction.

The *Revue Générale* continues its articles (by M. Périer) on "L'Art en Belgique," the article in this number being entirely devoted to the church of St. Gudule at Brussels, of which eight illustrations are given.

GATEWAY, PARHAM HALL.

PARHAM HALL is a fine specimen of the old moated Manor House. It is about three miles from the historic town of Framlingham, and it can readily be reached by rail, having a station close by. Contrary to the usual custom the builders of the hall placed it not in the valley, but on a commanding eminence, so that not only does it form a most conspicuous point of interest viewed from a distance, but the prospects from the house itself are extensive and beautiful. The Manor was granted to the Uffords, Earls of Suffolk, one of whom, William de Uford, the second Earl, built the church at Parham in the fourteenth century. This William died without issue, leaving the estate to his sister's son, Robert, the fourth Lord Willoughby d'Eresby, the younger branches of whose family became Lords Willoughby d'Eresby, and later branches still Lords Willoughby de Broke and Lords Willoughby de Parham. William Willoughby, who made Parham his seat, was created Baron Willoughby de Parham in 1547, but on the death of George, the seventeenth Lord, without issue in 1779, the line became extinct.

The hall, a greater portion of the original fabric of which still remains, is almost surrounded by a wide moat, crossed by a small bridge, leading up to an elaborate stone-faced



The Gateway, Parham Hall, Suffolk.

gateway of fifteenth century character, the subject of the sketch. In the spandrels of the arch, and in the five traceried panels over, are shields bearing the heraldic devices of the Uffords, the Willoughbys, and the various families with which they intermarried, and over the centre of the gate the helmet and crest of the Willoughbys. The soffit of the arch is most beautifully traceried, but the face to the garden is all built in brick, and only slightly ornamented with mouldings, niches, &c., and so overgrown with ivy as to be hardly discernible. Passing through this gateway, a broad walk leads us through the inner court to the quadrangle, the three sides of which remain in fairly good preservation, though it is probable that at one time the buildings were more extensive. In the construction of the building brick, stone, and half timber are pleasingly commingled, and all are mellowed and softened by time and weather.

The arrangements of the house follow the ordinary lines of the period, but the subdividing lines and partitions are here and there altered to more modern ideas and requirements. The large hall, the chambers of estate, and the domestic portions of the building can all be traced with tolerable exactitude, and here and there scraps of panelling and ancient doors remain to indicate the style and importance of the early building. The brickwork to the windows is beautifully enriched with tracery, as also the bases of the chimneys, but here in the windows we may observe the somewhat meretricious, but oft-followed, custom of imitating masonry by coating the enriched brick mouldings with plaster, forming delusive joints and groins to heighten the imposture. In spite of this, Parham is well worthy a visit from all lovers of the picturesque and students of architecture.

THE ANCIENT "MANOR OF PARIS" GARDEN.

THE projected sale of the Christchurch Parochial Schools, Southwark, is noteworthy for the circumstance that they are situated within an area which is still for conveyancing purposes described as the Manor of Paris Garden. The manor itself was absorbed in the parish when the latter was taken out of St. Saviour's under an Act of 1670, in pursuance of the will, proved in 1631, of John Marshall, of Southwark, who bequeathed 700*l.* to that intent. According to Blount's "Glossographia," ed. 1681, the manor or liberty derives its name from the house and garden there of Robert de Paris; though it should be observed that in the Close Roll (16 Richard II., dors. ii.), which he cites, only "domum Roberti de Parys" is mentioned, being the place in Bankside, near which, by a king's ordinance of 1392, the butchers of London are to erect a house for the disposal of the City's offal and garbage. But it appears that the ground, which enjoyed manorial rights, with the holding of Courts Baron and Leet, from a much earlier period, was formerly known as Widflete, or Wychyflet, and was given in 1113 by Robert Marmon to Bermondsey Abbey. The Templars subsequently held the mills of the Abbey, and set up a chapelry there. In 1313, Edward II. gave the Knights' property to William de Montacute by name of the Manor of Wychyflet, with the mills, &c. In 1433, the Duke of Bedford is nominated "firmarius" of a certain privileged place or sanctuary "vocatam Parish Gardyn" for which he made rules and statutes, set out by Dugdale (vol. vi., ed. 1830); in the next year we read of the "molendina de Widflete cum gardino vocato Parish garden." The mill itself stood north of the Christchurch Parochial Schools which occupy a site measuring 100 ft. by 75 ft. between Hopton's Almshouses (1731-44) and Knights-court and a large cocoa factory, on the east side of the southern limb of Holland-street (prius Green Walk) laid out by an Act of 33rd Geo. III. Close by stood the notorious Holland's Leaguer, whereof there is a woodcut in

a tract of 1632; see Wilkinson's "Londina," and a rarer one, showing also the Swan Theatre, in "Gotofredi, Archontologia Cosmica," fol. 1649. Turning to a plan on vellum, *pencs* (1827) W. Bray, the antiquary, of Bankside, temp. Elizabeth, we see what is now the southern arm of Holland-street marked as the "way leading to Copt [Chapel] Hall," and the arm of Holland-street leading south-east as "Graville-lane." At their angle are the mill-pond and the mill; the mill-pond formed the site of the Falcon glass-works incorporated by an Act of 1773, and owned by Apsley Pellatt, M.P. for Lambeth, *ob.* 1864. In the now western arm of Holland-street stands "the Cross," at the foot of "Oldie Paris Garden-lane," leading to the river stairs, which lay at the spot taken in by the recent widening of Blackfriars railway bridge. A path leading westwards from the schools' site is called the "waye ledging to the Manner Hous." Near the moated Leaguer, also known as Nob's Island, and Mock-beggars Hall, and it is believed just within this corner of the Liberty, stood the Swan Theatre, built circa 1596 by Langley, the ell-nager and craiper, to whom Thomas Cure, the Queen's saddler had conveyed on October 1, 1589, the lordship granted to him by Lord Hunsdon, and described as: "The manor-house within the mote [? the Leaguer], the gate-house (next north of the mill), four pastures, one of which is called the Chapel Hall, or Copt Hall, with the rent of the free and copyhold tenants, amounting annually to 8l. 7s. 8d." On the deprivation of the Knights of St. John (in succession to the Templars) the manor was settled in dower upon Queen Jane Seymour: in 1558 Queen Elizabeth exchanged it with Lord Hunsdon. A map of the manor, 1627, described the Swan as the "old play-house," due south of Paris Garden stairs, between Holland-street and Blackfriars-road: a view of its interior "ex observationibus Londinensibus Johannis de Witt" is contained in Arend van Buchell's MS. common-place book lent by Utrecht University to the British Museum in 1879.

Books.

A Key to English Antiquities: With Special Reference to the Sheffield and Rotherham District. By ELLA S. ARMITAGE. Sheffield: William Townsend. 1897.

THE leading title to this book of some 350 pages is far too ambitious. The author possesses but few qualifications for a task so difficult and comprehensive. Had Miss Armitage confined herself to a popular illustrated account of the old churches within easy reach of Sheffield and Rotherham the result would probably have been useful and acceptable, for that part of the book shows some power of observation, and a general acquaintance with the topographical literature of the district.

The chapters on Prehistoric Remains, Camps and Earthworks, and Roman Remains are far too sketchy to be of any real value or help to the elementary student, and are but a hodge-podge of conflicting statements from various "authorities." As to Moated Hillocks, which form the subject of another short chapter, the writer is bold enough to try and correct Mr. G. T. Clark (who first drew attention to these earthworks in his "Medieval and Military Architecture") as to their probable date, and assumes they are of Roman origin. This supposition has, however, been conclusively disproved whenever they have been tested by trench digging; the fragments then brought to light have been invariably pre-Roman.

A good deal of this too pretentious book is taken up with long reflections on the "Medieval Church and Monasticism," and kindred subjects, which have no bearing on antiquities, are in themselves crude and shallow, and only serve to expose the prejudices of the writer and her lack of power to enter into the motives and spirit of past generations. The best part of these pages is the chat on the different styles of church architecture, the leading points of difference in the mouldings, &c. of late Decorated and early Perpendicular being clearly brought out (though poorly illustrated), on the authority of Mr. Cranage, the historian of the churches of Shropshire. The general reflections on ecclesiastical details, such as low side windows, piscinæ, fonts, &c., are weak and faulty.

Many sad facts are disclosed as to the recent irreparable damage done to old Derbyshire churches by "restoring" clergy and architects, since they were described by the Rev. Dr. Cox some twenty years ago; as, for instance, the destruction of Hope chancel, and the loss of much that was interesting and historic at Killamarsh. By the bye, if this book should come under the

notice of Dr. Cox, who is most liberally quoted, but always with due acknowledgment, he will be amused to find that the writer has ventured to canonise him; he is frequently quoted as "Canon Cox!" This is, of course, a trifling blunder, but it serves as a sample of much carelessness and rapidity of treatment.

The Science of Brickmaking: With some Account of the Structure and Physical Properties of Bricks. By GEORGE F. HARRIS, F.G.S., &c. London: H. Greville Montgomery. 1897.

THE author has succeeded in compressing into a very clearly and interestingly written handbook of some 150 pages, not only the leading scientific facts with which a brickmaker should be familiar if intending to work with any certainty as to his results, but also many notes of particular interest to the architect upon the durability and strength of bricks.

The opening pages are devoted to an account of the geological conditions that have formed brick-earths, and an explanation of the relative values to the brickmaker of the fluvial, lacustrine, estuarine, and marine varieties. The mineral constitution of brick-earths is then dealt with, the component materials being individually described and their effects in the kiln explained. The later chapters are those which will more especially appeal to the architect, as they deal with the qualities of the finished brick, and the methods of ascertaining those qualities. The author here—while recognising the value of microscopic examination and of the absorption and abrasion tests—is inclined to underestimate the importance of tests of direct resistance to crushing, saying that statements of "crushing weight" . . . "are in general of but little practical value," and that the question of durability is the principal difficulty of the architect. Indeed, he goes so far as to aver that, as the strength of a brick can often be inferred from its absorptive capacity, minute structure, and specific gravity taken together, therefore the strength "need not form the subject of direct experiment." His chief reasons for attaching so little importance to crushing tests seem to be—(1) the fact that in ordinary work "almost any kind of brick is, *per se*, strong enough"; (2) the very wide range of strength of bricks, nominally of the same class; and (3) that the published test figures are often misleading in themselves. The first point introduces the very complicated question of the differences between the strength of bricks and that of brickwork, the latter being influenced by the sizes and proportions of the wall or pier, by the bond, by the thickness of joints and nature of cementing material, and by what is usually the most important factor of all, the honesty of the bricklayer—a quality only too often non-existent. The few experiments which have up to the present been made, show that the strength of brickwork, other things being equal, increases with that of the bricks, but it is not yet shown whether there is any limit to this increase or any definite ratio between the strength of the brick itself and that of the finished work. It would, therefore, seem desirable to increase the number of tests, rather than omit them from our practice, in order to see whether on large series of tests of similar class bricks, the general results would give an approximate standard, or whether they would vary too much to permit of any useful average figures being stated.

A point of great importance in this connexion is indicated by the author when he says that to get really reliable data all tests should be under some central control, and all results published, instead of only a selection made (very often) by interested persons.

The book is full of interest to all who have to deal with bricks, and its brevity will be an additional recommendation to busy men.

The Timber Trades Journal of Shipping Marks on Deals, Battens, and other Wood Goods. 1897 Edition. London: W. Rider & Son.

THIS useful repository of timber brands appears in a new edition brought up to date. A new feature in it is the addition of a complete list of the shipping marks on Canadian wood. Although grateful to those who compile a key list of this kind, one cannot help thinking that if timber were branded on a more rational and generally intelligible system, the marks might be self-explanatory, instead of requiring a key. The whole system (so far as it can be called one) seems rather like the cabalistic signs on a

doctor's prescription, kept up to prevent the public getting too much information.

The Art of Tracing. By E. W. FRITCHLEY, Architect. Bombay Education Society's Press. 1896.

WHETHER tracing can be dignified by the name of an "art" may be questioned; but it is a kind of handiwork of considerable importance in an architect's or engineer's office, and there are right and wrong ways of doing it. For the most part Mr. Fritchley's practical directions about the preparation of pens, ink, and other materials, and the finishing up of traced copies, are sound and practical. Moreover, though the subject seems a dry one, the author is sometimes amusing, though we fear he is not aware of it; *ex. gr.*—

"Now to turn to the use of colour from the standpoint of effect. In colouring plans and sections drawn to a small scale, the sectional parts of walls show up better, and have a greater appearance of strength, when shown in dark tints. A thin white edge left between the coloured part and the enclosing lines, tends to give the tracing a neat and finished appearance, and adds to the apparent size of the structure."

When dark colours are used in the sectional parts, it is advisable to execute the adjoining portions in decidedly lighter colours. The whole then has an appearance both of strength, produced by the darker tints, and of elegance and lightness, produced by the lighter ones."

This is really quite picturesque, one might almost say poetic.

Why a book on the practice—we beg pardon, the "art"—of tracing should come to us from Bombay is not very clear; but we presume that acres of tracing are done for what is known in India as the "P.W.D.," and it becomes therefore an important part of Anglo-Indian professional work.

TRADE CATALOGUES.

MESSRS. ADAMS & Co. send us their new and finely got-up catalogue of Sanitary and Hydraulic Ironwork. These include various forms of flushing syphon and flushing chamber, including one with a turning syphon arm, to be directed into and flush three different lines of drain successively; also a combined filter and flush tank, providing screened liquid for flushing. A new feature in the list is the "Insular" Valve, which can act either as a penstock or as a flap valve; it can be screwed tight when completely down or completely up, or left swinging as a flap valve if desired. The patent "Swivel Gully" answers nearly the same kind of purpose as the movable syphon leg, the outlet being capable of being turned to meet any direction of drain; but what about the turn joint, as a means of letting out air from the drain? A large number of strong and efficient penstock doors, grids, &c., are figured, and there are a number of illustrations of various installations of Adams's patent sewage lift. Altogether, the catalogue is in every respect a credit to the firm issuing it.

Correspondence.

To the Editor of THE BUILDER.

SALISBURY CLOISTERS.

SIR,—The drawing of part of the Cloisters at Salisbury Cathedral, published by you in your issue of July 31, was made by me some years ago for a "Study in Indian ink of a Gothic Subject," and has only recently been mounted.

Unfortunately, the mount covers first a scale, and secondly a note to the effect that "one bay only is from actual measurement."

I made a drawing on the spot, in inch scale, of one bay only. Later in the year, when about to redraw this single bay for a "testimony of study," it was suggested that more bays should be shown, to give a better idea of the general effect.

This I did not remembering that the bays had almost invariably five and six-folled heads alternately, although in at least two cases the bays forming the angles are identical in detail.

In short, the drawing was made for a special purpose; no measurements were figured on it, and it was a staid Indian ink drawing.

It did not profess to be a measured drawing of "three bays," and was not so entitled.

GEORGE O. SCORER.

* * Referring to our view of Salisbury we see that the bays adjacent to the north-east angle of the cloister would both have pentagon cusping; and as the number of bays on each face is equal, that

would mean that another adjacent angle would have them the same; that is, the alternate treatment runs through each face of the cloister separately, not right round. That is quite different from showing three bays in the same plane similar. The incident shows the danger of assuming things without reference to the building.—E.D.

SURREY ARCHÆOLOGICAL SOCIETY.

SIR,—I observe in your account of the doings of the Surrey Archæological Society that Mr. W. W. Pocock is represented as dead. I should be glad if you would kindly correct this in your next issue, as I am happy to say that my grandfather is still alive, and, although considerably over 80 years of age, still enjoys the best of health.

A. WILLMER POCKOCK, JUN.

ADVERTISING FOR HANDS.

SIR,—In your last issue there appeared the following advertisement:—

"Painters, &c., wanted.—Apply on or after August 9, to Foreman on Works, Eaton Tower, Caterham, London Prices."

I, with some others, thinking that London men would be wanted, paid for a 2s. 6d. return ticket, feeling sure we should find a job. We waited some hours, when, to our astonishment, we saw about a dozen men come down from the London works; quite enough to do the work. But what makes the thing more strange, we were informed that an advertisement appeared in the Croydon locals which resulted in bringing together some thirty men from London and district, spending their money, and also losing the best day of the week.

A VICTIM.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER IV.—MODES OF MEASUREMENT. Bricklayer's Work.

BRICKWORK walls 1 brick (9 in.) thick and over are taken at *per rod superficial* (272 ft.) reduced to $1\frac{1}{2}$ bricks (13½ in.) thick. Half brick (4½ in.) walls are measured *per foot superficial*, as are also brick walls where they are faced both sides, the reason for this in the latter case being the extra labour in selecting the headers so that they present a level face on both sides with the stretchers, this is especially the case with glazed work. It is well, in the event of bricks from unknown localities being used to obtain particulars as to thickness as this affects the dimensions of stonework, the bricks in different localities varying for four courses in height from 10 in. to 1 ft. 2 in.—the usual height in London and neighbourhood being four courses to one foot.

In the provinces the brickwork is frequently reduced to 1 brick thick and billed at *per yard superficial*.

In measuring the height of a wall which is topped by a wood plate measure to the top of the plate where this does not exceed 3 in. in thickness to pay for the cost of bedding plate. If more than 3 in. allow 3 in. only beyond net height of brickwork.

Allow 3 in. for the waste in cutting up the rake of a gable.

To arrive at the thickness of the footing courses take the average between the bottom and top courses of the footings. Example: 2 brick wall with four courses of footings:—

Example. Top course. $2\frac{1}{2}$ Bricks.
Fig. 5. Bottom course. 4 Bricks.

$$\frac{20\frac{1}{2}}{2}$$

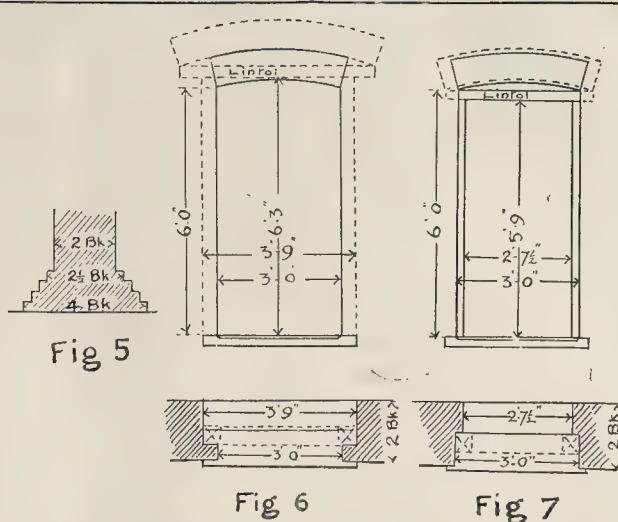
= $31\frac{1}{4}$ Bricks average.

Unless shown (intentionally) or specified to the contrary, take one course of footings to each half brick in thickness of the wall.

In abstracting brickwork it is usual to have columns headed "1 brick" and " $1\frac{1}{2}$ brick" respectively, with their corresponding deduction columns, and all thicknesses are reduced to one or the other of these thicknesses—e.g., 3 brick, the dimension would be twice by the abstractor, and the result put into the $1\frac{1}{2}$ brick column; $2\frac{1}{2}$ brick, the dimension would be put in both the 1 and the $1\frac{1}{2}$ brick columns. Reductions for other thicknesses will readily occur to the surveyor.

In measuring, to take the length of the walls across the openings, and irrespective of chimney breasts and other projections. Projections are taken afterwards and openings deducted when the work to the openings is taken.

It is well when measuring brickwork (to



avoid complications) to take the brickwork up to defined lines. The first (say) up to the general basement or ground floor level, and then generally floor by floor to the top; the projections being taken with each floor.

Note in taking brickwork from floor to floor, that the chimney breasts are large enough to include the number of flues necessary, and also examine drawings to find whether it is necessary to take arches to carry the flues from one point to another. The architect will expect the surveyor to notice any omission of this character.

It frequently occurs that a chimney breast commences at a level above the ground, or is wider on one floor than on the floor below (owing to the increase in the number of flues). Take York (or other hard) stone corbelling to carry this chimney breast, or the extra width, as the case may be, if it is more than can be corbelled out in brickwork.

Keep the brickwork behind stonework separate, and describe as "in backing to stonework, including cutting up to same."

Brickwork in raising to old walls is kept separate from the remainder and described as such to enable the contractors to put down such a price as will pay for the extra scaffolding required owing to the fact that the scaffolding has to commence at a lower level than the brickwork and therefore the proportion of scaffolding for brickwork in raising is larger than that required for brickwork commencing at the foundations.

Take a superficial dimension, i.e., the length by the thickness of the walls raised as "preparing tops of old walls to receive new work."

Brickwork on girders should also be kept separate for the same reason as brickwork in raising.

Brickwork in cement, unless the whole of the brickwork is in cement, is measured first as brickwork in mortar and another measurement taken of the portion built in cement as "Extra value only for reduced brickwork being in cement." Frequently in writing the dimensions it will be found that some dimensions may be booked as "Brickwork in cement," in this case the item is abstracted in the columns both of "brickwork in mortar," and also of the "Extra value in cement."

Deductions of Brickwork for Window Openings.—For sashes and frames:—Take deduction of the outer thickness up to the face of the frame, the size shown from top of sill up to the average of the rise of the arch (if the arch is of very flat sweep up to the springing only), and the remaining thickness a dimension 9 in. wider and 3 in. higher than the outer thickness.

Example (Fig. 6):—

3.0	
6.0	Deduct ½ brick.
3.9	
6.3	Deduct 1½ brick.

In the event of the frames showing the full width outside, as is frequently the case in the

prevailing style of architecture, the recess is usually not more than $2\frac{1}{4}$ in. wider on each side, in this case the order is reversed and the larger deduction is taken outside. Example (Fig. 7):—

3.0		
6.0		Deduct 1 brick.
2.7		
5.9		

For solid frames and casements:—The deductions are taken as for sashes and frames, but the internal thickness is deducted $4\frac{1}{2}$ in. wider than the external instead of 9 in.

For window backs:—Take the additional deduction from the bottom of previous deduction down to the floor, of the depth of the recess.

For Doorways.—If with linings take the deduction 3 in. wider and 3 in. higher than the size of the door, but if with solid frames take the deduction as described to solid frames and casements.

The deductions for stonework will be dealt with in the "Mason."

For Fireplaces and Recesses the sizes and depths shown. If recesses with semicircular heads, take up to the springing in one dimension, and the remainder as a semicircle, as described in Chapter II.

Example: A recess $1\frac{1}{2}$ bricks deep, 3 ft. wide, and 6 ft. to springing, i.e., 7 ft. 6 in. to crown, would be booked as follows:—

3.0		
6.0		
3.0		
6.0		Deduct 1½ brick.

The arch and centering to be taken here as will be described under their respective headings.

Note.—That brickwork is taken across the recess to allow of this deduction.

No deductions are taken for flues unless of exceptional size.

Hollow Walls.—Take the brickwork of the combined dimension of the two thicknesses; thus a hollow wall formed of a 1 brick and a $\frac{1}{2}$ brick is measured as a $1\frac{1}{2}$ -brick wall, and the hollow measured separately in yards superficial, as "extra to forming hollow, &c.," stating the width of the cavity, the description of the ties, and the distance they are apart.

Deductions for openings are usually not taken in this item, but are allowed to set against the material (forming stops to hollows around) and labour in forming the openings.

Note.—The brickwork below a hollow wall is a $\frac{1}{2}$ -brick ($2\frac{1}{4}$ in.) thicker (the hollow generally being 2 in. to $2\frac{1}{4}$ in. wide) than for a solid wall of the same number of bricks in thickness, and, unless specially figured or described, allow this "extra" on the digging and concrete.

Circular Brickwork.—If of flat sweep (not requiring the bricks to be cut), take both sides of the wall as "extra to circular rough face of brickwork (both faces measured)" in yards superficial, except where faced, in which case describe the facing circular. If of quick sweep take the brickwork separately as "circular on plan," giving the radius and the number of templates required, with the radii and lengths.

Thickening old walls, per foot superficial.—Stating the thickness up to one brick and including with the item labour, cutting and toothing and bonding and extra material for bonding. Where more than one brick in thickness as in chimney breasts, &c., take the brickwork allowing $\frac{1}{2}$ brick extra for bonders and take an item of "cutting, toothing, and bonding new work to old" per foot superficial, the brickwork being billed with the bulk except where it is in somewhat small quantities, when kept separate as "built against old walls in (chimney breasts, &c.)." Note.—Thickening and work next old walls should be built in cement.

Brick Vaulting Trimmer Arches, &c., per foot superficial, stating whether in mortar or cement. Groin points in vaulting take at per foot run, and state if fair or rough, and the thickness of vaulting.

Rough Cutting, per foot superficial to be taken up all rakes (as to gables), skewbacks for vaulting and arches, and spays over 6 in. wide, deductions from this being made for cutting in face work as described to cutting in facings.

Fair Face and Limewhiting (or Distemp'ring) per yard superficial.—Take the surface shown describing the joint. If to soffit of vaulting describe as "cleaning off soffit of vaulting, pointing, and (once or twice) limewhiting (or distemp'ring)."

Damp Course, per foot superficial, stating whether slate or asphalt. If of slate state the number of courses (of slate) and if a cement bed between, the thickness of bed. If of asphalt describe make and thickness, and include running rules with the description.

Vertical Damp Course, per yard superficial.—Describe make and thickness, but as vertical asphalt is frequently put on in two thicknesses, state if this is so, and the total thickness, and include in the item for raking out joints to form key.

Cement Weatherings, per foot superficial.—If 9 in. wide or over, if under this width, per foot run.

Rough Oversailing Courses, per foot run.—Taking each course.

Raking out and Pointing to Flashings, per foot run, keeping that to stepped flashings separate.

Squints, Birdsmouths, Chanfers, &c., per foot run.—If plastered, describe as "rough," if exposed, as "fair."

Chases for Pipes, per foot run, stating the size, and if in new or old walls.

Cutting, Toothing, and Bonding, per foot run, stating the thickness of the walls.

Cutting and Pinning Edges, per foot run.—State thickness, if stone or slate, and if to fair brickwork or facing.

New Piers on old Wall, per foot run, giving the size and including "cutting, toothing, and bonding, and extra materials for bonders" with the item.

Flue Pipes, per foot run, giving diameter and description, and stating how jointed, and include cutting and fitting brickwork around.

Numbered Items—Cutting and Pinning Ends of Timbers.—Take these only when not built in as the work proceeds.

Ends of Rolled Joists and Girders.—State if to fair brickwork.

Ends of Sills.—Take these cut and pinned or built in and made good to. State if in facings.

Holes through Walls.—State if for lead or drain pipes. If for drain pipes state if eyelets turned for these. State also if brickwork is faced (and the description of facing) one side or both sides, and give thickness of walls.

Small Corbels under ends of timbers, &c., taking as labour and materials and giving the size.

Discharging Arches or Arches over Internal Openings.—Take as extra over ordinary brickwork, and give lengths and average same on abstracts keeping flat, segmental, elliptical, and semicircular separate, and state whether axed on in rings, and give in addition to the length the width of soffit and the height, and state if they include cutting.

Note.—That for relieving arches over lintels, cutting must be taken to soffit as well as crown. If in cement take this as an "extra" as de-

scribed previously, or include with the item. Centering will not be required for arches over lintels.

GENERAL BUILDING NEWS.

HOSPITAL, PORTSMOUTH.—On August 7 the foundation stone of a large hospital at Portsmouth was laid by the Duke and Duchess of Connaught. The building will consist of three wards, with departments for the out-patients, administration, and laundry. At the present time two blocks only are to be erected—Blocks A and C. The exterior of the building will be faced with the best local red kiln bricks, with "quoins" and "reveals" in a darker cherry colour, and the hospital will be roofed with Bangor slates. There are to be two chimneys on each side, and a fifth and sixth for the heating furnaces form an arch across the gable of the roof. The two sanitary blocks are quite distinct from the main building, and are connected with it by corridors on each floor, with open air spaces above and below. The whole of the building is raised, the ground floor being 5 ft. above the surface level, the space underneath being quite open. Each of the two new blocks is to be in two stories, and will consist of one main ward on each floor, 8 ft. long by 28 ft. wide, a small ward for special cases, and a ward kitchen. To the rear of the wards will be the sanitary blocks, comprising the baths, lavatories, &c. In Block A, which eventually will be connected with all the other wards by means of corridors, there will be a hydraulic elevator, by means of which it will be possible to convey the patient—bed and all—to the operating room below. The corridors will have a dado of coloured glazed bricks, and the wards will be plastered with white mortar, finished with Keen's cement and painted while the sanitary blocks will be built of cream glazed bricks throughout. Each ward will be heated by two of Teale's patent stoves, with descending flues, the smoke being directed downwards through the thickness of the floor to the chimneys outside the building. In addition to these stoves, the building, including the corridors and sanitary blocks, will be warmed throughout by hot-water pipes. The floors will all be of fireproof construction and faced with Venetian granite marble mosaic. The fireproof floors will be supported by rolled steel joists with tubular lintels resting upon the lower flanges. Over the lintels the space will be filled up with furnace breeze concrete, finished to a smooth surface to receive the mosaic pavement. The main blocks will be connected with the existing building by means of temporary corridors; and at present it is only intended to build one staircase wing, which will connect with Block A, while a temporary wooden staircase will connect with Block C. The building will be lighted throughout by electricity. Each block will be protected by two lightning conductors, and each ward will be in telephonic communication with the main building. The contract price of the works is 19,298l. Mr. J. H. Corke is the builder, and Mr. C. W. Ball the quantity surveyor. The architects are Messrs. Young & Hall, of Bloomsbury.

COTTAGE HOSPITAL, ASHBY-DE-LA-ZOUCH.—On Friday, August 6, the foundation stone of a cottage hospital was laid at Ashby. The site is at the east corner of the old cricket-field, Leicester-road. In front of the building there will be a verandah with glass roof on iron girders and skylight bars; opening out of this is the main door leading into an entrance lobby and spacious hall, with staircase to the upper floor. Right and left of the lobby are doors opening into the matron's room on one side, and the nurses' on the other. At each end of the hall are the doors opening into the female ward, and on the left into the male ward. Adjoining these are the lavatories, disconnected from the wards by cross ventilating lobbies. The wards are constructed for four beds each, with a cubic capacity of 1,200 ft. of air space for each patient, with an occasional addition of an extra bed or child's cot. On the left-hand side of the hall is the surgeon's and operation-room, and on the right a bathroom and stores; from the hall a central passage leads to the spacious kitchen and offices and to the back entrance. A mortuary will be built on the extreme boundary the eastern side of the site, and the central block will be carried up two stories, and contain three bedrooms for the staff, and occasionally one can be used for a separation ward. The front and sides of the building will be faced with Whitwick hand-dressed bricks, with stone dressings, gauged brick arches, the roof covered with Broseley strawberry-coloured tiles, red cresting and finials. The plans and specifications of the hospital were prepared by Mr. G. H. Lilley, town surveyor of Ashby, and the contract by Messrs. W. M. Slater & Son, of the same place, for 1,045l. was accepted.

COTTAGE HOSPITAL, EMSWORTH.—The foundation stone of this building, which is to be known as the "Victoria Cottage Hospital" was laid on Saturday, August 7. The plans provide, on the ground floor, a kitchen and scullery, a matron's room, and a room which will be used as a day room, a committee room, a doctor's room, and a hall. By a wide staircase the first floor will be reached, where there will be a ward of three beds for men and a similar ward for women, and the

matron's bedroom, the windows on each side looking into the wards. On the second floor will be the operation room, well lighted, an emergency ward, the servants' bedroom, bath room, &c. Mr. W. Poate, of Westbourne, is the builder; and the architect, Mr. John Birch, of John-street, Adelphi, W.C.

POLICE-COURT, HIGHGATE.—The foundation stone of a police-court, at the corner of Bishop's-road and Archway-road, Highgate, was laid on Tuesday, August 3. The accommodation on the ground floor of the building will consist of solicitors' room, clerk's room, and public waiting rooms for men and women, cells, and caretakers' quarters. On the first floor there will be two courts, with consulting room and magistrates' room. The edifice will be built in red brick, with stone dressings, and is estimated to cost 6,000l. The builder is Mr. Goddard, of Farnham, and the architect Mr. F. H. Pownall.

CO-OPERATIVE STORES, PITTINGTON, CO. DURHAM.—On Saturday, July 31, new premises for the Pittington Amicable Industrial Society were opened. The butchery premises are in two blocks. Facing the main road is the shop, with hall and committee-room above, and boiler-house, containing three boilers, hunger-house, and small cart shed facing divisional window, while the other block consists of stables, cart sheds, and a hay-house. The hall has a frontage of 33 ft. The exterior of the building is built of red brick, relieved with red terra-cotta bricks in place of stone. The stables are about 100 ft. long and 36 ft. wide. Inside they are cemented, with plastered walls, and small divisions for tack, harness, and metal stable fittings enamelled. The floors of the stables are cemented squares, covered with slates. The harness-room and apparences are thoroughly well fitted up. The stables are divided off for ten horses, whilst the cart sheds will accommodate about fourteen vans and carts. The contract price was 2,230l. The builders are Messrs. R. Draper & Son, of Leamside Station. The architects were Messrs. J. & R. Milburn, of Fawcett-street, Sunderland.

FREE CHURCH, CUMNOCK, N.B.—This church, the memorial stone of which has recently been laid, is of the truncated cross form, the end of the longer arm fronting the Ayr road. The elevation has a central high-pointed gable finished with an ornamental cross, with a belfry tower surmounted by a spire on one side and a smaller gable relieved by buttresses terminating in ornamental pinnacles with carved finials on the other. The main entrance door is in the centre of the front gable, and will be approached by a flight of steps, and having on either side lancet-headed windows for lighting the corridor. The arched head of the doorway is filled up with moulded tracery work, and the door jambs have granite columns with carved capitals and deeply-moulded arch stones above. Above the front door and side windows are gables flanked by slender buttresses with pinnacles and carved finials. The front gable is pierced by two two-light large windows filled with arched tracery, while above these is a large circular window with moulded flowing tracery. The wall to the left of the main gable is relieved by two-light windows, having their arches filled with tracery work, and a trefoil moulded sunk band is carried across the lower portion of the gable head. The tower and spire rise to a height of 140 ft., and the angle tower is surmounted by a lower tier in moulded pinnacles with finials and carved crockets. Underneath the cope stone of the tower is an ornamental band of lancet-headed cusped sunk perforations. The tower is divided into four heights by means of string mouldings, three of which are relieved by windows having arched and cusped heads with hood mouldings and terminations, the upper tier consisting of a large two-light window, while the lower division contains a panel and carved shield. From the top of the tower springs an octagonal spire the lower portion of which is pierced on four sides with high window openings with tracery heads surmounted by high gables, and flanked on each side by slender buttresses with carved finials. The other four sides have large octagonal pinnacles at the tower corners, with moulded sunk work in gables on each face and carved finials above. The side elevations will be pierced by large four-light and three-light windows filled with mullions and tracery work. The style of architecture adopted is a combination of Gothic, and the flowing window tracery partakes somewhat of the Flamboyant style. Internally the church will have a front entrance corridor 8 ft. 6 in. wide, at one end of which is placed the session-room, with class-room above, while the tower at the other end contains the gallery stair, with side entrance door. The style will be 44 ft. wide, and the transepts 22 ft. wide, with a length from front corridor to back wall of apse of 68 ft. The back wall will be broken up by an opening 27 ft. wide, beyond which will be placed a raised platform containing the pulpit and elders' seats; and still farther back there is to be an apse, with a stone arched moulded opening, which will provide accommodation for organ and choir, and will be lighted by means of three two-light windows. There will be no side galleries, although they may be afterwards added if necessary, but the space above the front corridor will be utilised as a gallery. The church will seat about 500 persons, and behind the church there will be a hall which will hold 150, with separate entrance and a door from the pulpit

platform, besides a waiting-room. The vestry will also be placed at the back, with an entrance-door, porch, &c., from the manse adjoining. The roof of the church will be of pitch-pine, and open to the collar beam, and the pews will also be of pitch-pine with moulded ornamental ends. The roof principals will spring from carved stone corbels, with ornamental curved bracket supports. The church and hall will be heated by hot-water pipes. The contractors are all local men; the architect is Mr. D. Menzies, York-place, Edinburgh.

BUSINESS PREMISES, HIGH-STREET, SHEFFIELD.—These premises, now in course of erection, occupy an area of over three-quarters of an acre, having a frontage of 173 ft. to High-street, 200 ft. to Mulberry-street, and a cart entrance to Norfolk-street. The frontage to Mulberry-street is to be improved by the addition of a covered footpath 6 ft. wide. The total area of all the floors is about three and a half acres. The basement is to have show rooms the whole length of the two frontages. The ground floor is 150 ft. wide and 200 ft. long, without any internal walls, and is divided into six sale shops, each 25 ft. wide and 200 ft. long, by columns. The first floor is one show room, equal in area to the six sale shops, but with well-vents for admission of light to the ground floor. As designed, part of the first floor is set apart for refreshment and dining rooms. At the back of the sale shops is a covered yard, with rooms for the receiving, marking, and dispatch of goods, and above them and on the level of the show room is the counting house. Two floors of workshops are to be placed over the back part of the show-room. The upper part of the front building is house accommodation for the whole of the assistants, and bedrooms for 120, to which there are two fire-proof staircases. The whole of the floors are of Stuart's Granolithic fire-proof construction, and there are balconies to every window for escape from fire. There are to be two large elevators from the ground floor to the basement and to the first floor, two elevators for goods, and one for the kitchen. To avoid obstruction of the show windows by iron or stone pillars the upper part of the building has been set back 3 ft., so that for the 372 ft. of frontage there is no greater obstruction to the show of goods than the 1½-in. wooden window bars. The upper part of the building is to be of Huddersfield stone. Messrs. Flockton, Gibbs, & Flockton are the architects, and Messrs. Longden & Son, general contractors.

ISOLATION HOSPITAL, MOGDEN, ISLEWORTH.—The foundation stone of this hospital was laid by the Duchess of Teck recently. Provision is made in the building for forty beds, of which twenty-two are in the large fever ward, twelve in the small fever ward, four in an isolation ward, and eight in the convalescent ward. The entrance gates and lodges are placed at the end of the road by which the site is approached, and a forecourt leads centrally to the administrative buildings. On the right, at the north-east angle of the site, and near the entrance is the convalescent home and discharging rooms, whilst deeper in the site towards the north is situated the small fever pavilion. The large fever pavilion is to the left of the administrative buildings, and midway between this and the small fever pavilion is the probationary block. These three pavilions have been planned so that they can be easily connected with the administrative block by means of covered ways, and wide roads for the ambulances lead from the gates to these buildings. At the extreme left of the site is placed the mortuary and post-mortem building, and to the right of this are the stables, laundry, disinfecting building, and the ambulance shed. Each pavilion is placed on a raised platform or terrace, and 1 ft. above this is the general ground floor level of each ward. This will give a slight slope all round the pavilion, and by this means security from damp is obtained. In the fever pavilions, besides general wards, provision has been made in separation wards, either for paying patients or for acute cases where separation from the noise of a general ward is necessary. The contract price is 13,598½, which also includes road works, &c. The contractors are Messrs. J. Godson & Sons, of Kilburn. The architect is Mr. W. J. Ansell, of Staples Inn, London.

ADDITIONS TO WORKHOUSE, LICHFIELD.—Applications were received from twenty-seven architects to advise the Guardians upon the proposed alterations and extensions to the Workhouse. Mr. W. H. Woodroffe, London, was appointed. The Workhouse, which is situated in the Trent Valley-road, was erected in 1840, and was designed by Sir Gilbert Scott. It is of picturesque appearance, in red brick and stone, and small windows with iron diamond-shaped casements, which, for a workhouse, are not conducive to healthy rooms, and, though of quaint appearance, are to be removed.

ST. STEPHEN'S CHURCH, NEWPORT, EAST YORKSHIRE.—The foundation stone of this church was laid on August 6. The building will consist of nave and aisles, short transepts, chancel and aisle. The tower is to be at the west end of the building, and will form the main entrance to the church; the vestries are on each side. The large east window of the chancel has five lights, and will be filled with stained glass by Messrs. Clayton and Bell. The chancel is to be fitted with stalls and prayer desk in oak, and the chancel screen and pulpit will be of similar material. The roof is to be open

timbered, and the chancel ceiling will be panelled. The church is intended to seat 300 persons, and is to be built of brick, with stone dressings. Closely adjoining the church the vicarage is being built. It is also of brick with stone dressings, and the roofs are to be tiled. Both these buildings are being carried out from the plans of Messrs. Smith, Brodbeck, and Lowther, architects, of Hull, and the contract for the church has been let to Mr. Frank Pattison, of Ruskington, Lincoln, whilst the vicarage is being built by Messrs. Kelsey & Son, of Goolse.

ST. MARY'S CHURCH, SWANSEA.—The ceremony of opening the new nave of the parish church of St. Mary, Swansea, was performed on Thursday, August 5. The old nave and the aisles were built in 1745, but the chancel and the Herbert Chapel are parts of the original early English edifice, most of which fell to the ground in 1739, whilst into decay, and it was decided to rebuild it. The section just opened, consisting of the nave, has cost 14,000; the chancel and tower yet remain to be dealt with. The new church is faced externally with local stone, with Bath stone dressings, and internally entirely with Bath stone. It has a lofty nave arcade, with attached stone shafts carried up to the roof, and supporting the principal rafters. The whole of the roofs are constructed of English oak, with some chestnut, covered with the best Westmoreland slates. The internal dimensions of the new nave and aisles are as follows:—Length, 111 ft. 6 in.; width, 66 ft.; height to wall-plate, 40 ft.; and to ridge, 62 ft. This is an addition upon the old nave of 33 ft. in length, 6 ft. in width, and 22 ft. in height.

The chancel will be built in the same style as the nave, with spacious vestries and a lofty tower, 30 ft. higher, in which will be rebuilt the existing corbels under the parapet of the present one. The stained-glass windows in the chancel, and the canopy and effigy will also be preserved and re-erected. It is also intended to restore the Herbert Chapel, the arch leading from this to the new north aisle is the ancient one rebuilt. The floor of the new nave has been laid 2 ft. 6 in. above the old floor, and the ground outside in the yard has been raised accordingly. The principal carving, which has been done by Nicholls, of Lambeth, consists of our Lord in majesty on the vesica over the south porch door, and of our Lord and the four Evangelists over the west porch. The work of rebuilding is estimated to cost at least 25,000, after the design of Sir Arthur Blomfield.

SCHOOL BUILDINGS, KETLEY, SALOP.—The foundation stone of a board school at Ketley was laid on Friday, July 30. The building is intended to accommodate about 350 children; and the estimated cost is £2,800. The builders are Messrs. R. and J. Millington, of Oakengates; and the architect Mr. Dalgleish, of Wellington.

CATHOLIC SCHOOL AND CHURCH, BURSLEM.—The foundation stone of the Catholic school-chapel, in course of erection on land off Hall-street, Burslem, was laid on Monday, August 2. The buildings are in two stories, the school being on the ground floor and having two departments, one of which will accommodate 130 infants, and the other a mixed school for boys and girls, accommodating 224 children. Over the school will be a temporary church, which will accommodate 308 persons, and a choir of eighteen in the sanctuary. The buildings will be of a simple character, in red brick. It is intended at some future time to erect a church on land adjoining the present structure. The contractor is Mr. Wm. Cooke, of Burslem; and the architects, Messrs. R. Scrivener & Sons, of Shelton.

SCHOOL BUILDINGS, WEST DEAN, CHICHESTER.—The ceremony of fixing a terra-cotta medallion portrait of the Queen in these buildings, which are nearly completed, and will be opened by the beginning of next year, took place on Monday, August 2. The building will include a large "mixed" schoolroom, 51 ft. by 22 ft., boys' and girls' classrooms, infants' schoolroom, teachers' room with book and stationery store-room over, and lavatories, with stone-hole in the basement for the heating, which will be by hot water throughout. The medallion was designed by Mr. Geo. Tinworth, and was made by Messrs. Doulton & Co. The building was designed by Mr. J. H. Simpson, clerk of works of the West Dean Estate.

ST. ANSELM'S CHURCH, REDLAND, BRISTOL.—This church, erected as a chapel of ease to St. John's, Redland, was opened on Sunday, August 8. The work at present done consists of the nave and chancel, which accommodate about 400 persons. The style is late Early English. The walls are of pink stone, taken from the site, with dressings of Bath stone. Mr. W. V. Gough, of Bristol, is the architect.

ROYAL COURT THEATRE, LIVERPOOL.—The disastrous fire which took place the beginning of the year at the Court Theatre suddenly stopped the progress of the performances, and on the 21st ult. the restoration was commenced with new roofing and new ceiling. Dressing-room accommodation has now been provided, and instead of general dressing-rooms, as formerly, the theatre possesses thirty-six new dressing-rooms, all built on fireproof flooring. Another improvement is that each dressing-room floor has two fireproof staircases as exits for the artistes. Lavatory accommoda-

tion has been provided for these dressing-rooms, and also for the staff and general public. Owing to the limited area of the rooms surrounding the theatre it was a matter of difficulty to increase the size of the old buffet, but by the removal of a staircase the accommodation of this department has been very materially increased. The buffet and the foyer have been refitted and re-decorated, principally in white and gold. In addition to the above there have been many alterations under the stage and under the pit. A new carpenter's shop and one for the engineer, with which is incorporated a fireproof brazier's shop, have been excavated out of the rock. Adjoining them is a new band-room. Under the orchestra and under the pit a new room has been made, which can be used for general storage or as an additional green-room. It has, moreover, the great advantage of forming a connexion between both sides of the stage. Further, to add to the comfort of the theatre, a complete hot-water system of heating has been arranged. Fire hydrants are provided in the pit, dress circle, and gallery, to be used as an additional protection for the public. For the lighting of the theatre gas has been superseded by electric lighting wherever possible. The work was commenced on June 21 last, and the theatre was ready for opening on Monday, August 2. Notwithstanding the extraordinary difficulties which have stood in the way of anything like rapid progress—for instance, the large mass of rock to be removed and the course of the new excavations, the impossibility of getting plasterers owing to the prolonged strike and consequent substitution of less pliable materials than plaster—the whole of the works have been completed strictly within the short time stipulated in the contract, viz., six weeks. A shelter verandah has been designed to protect the public waiting for entrance to the theatre in Roe-street. The works have been executed by Messrs. W. Morrison & Sons, builders, of Wavertree, from the designs of Mr. Edmond Kirby, architect, Liverpool.

SANITARY AND ENGINEERING NEWS.

DRAINAGE WORKS, EAST RETFORD.—At a meeting of the Retford Town Council on July 30 an extensive scheme of drainage was discussed, a report on the same having been drawn up by Mr. J. C. Melliss, C.E. It appears that not many of the existing sewers in the borough are sufficiently good to be utilised in the proposed new works, except in certain cases as surface water drains. The engineer reported that the present sewage of the borough could, with perhaps the exception of the village of Ordsall, be collected by gravitation to the northern and lower end of Bolham-lane, avoiding the expense of intermediate lifts. He had not included the re-severing of the village of Ordsall, as he thought it might for a while longer be deferred until it became absolutely necessary. When it is undertaken the question can be decided whether it will be best to lift the sewage or to convey it to the general system by a flat gradient sewer well provided by flushing arrangements. The general scheme prepared for collecting the sewage of the borough comprised 18,280 yds. of new stoneware pipe sewers, varying in diameter from 8 in. to 24 in., protected with concrete where necessary; cast-iron pipes for rising main, river, canal, and railway crossings and other places where needed; man-holes, lamp-holes at each change of size, direction and gradient in the sewers, junctions, arrangements for flushing and ventilation, storm overflows, &c. Branch drains between the sewers and the houses are not included. The new sewers proposed have good self-cleansing gradients. They are of sufficient capacity for the sewage of 30,000 persons, or a population of about three times the present; but it will be necessary to prevent all subsoil water and as much surface water as possible from entering them. The sewage will be conveyed by gravitation to the lower end of Bolham-lane, where a coarse strainer will be provided for removing large matter. A lifting station will also be provided at that point, containing three 300 gallon ejectors, two of which will be capable of lifting the sewage through a 15-in. cast-iron rising main to the disposal works placed on the high land, one ejector being kept in reserve. This station and machinery being capable of easy enlargement, is at present calculated for serving a population of about 15,000 persons. The ejectors will be worked by air compressed at the disposal works, and conveyed by a 3-in. cast-iron air main, and as they are automatic in their action, little or no labour will be required to attend to them. The total lift from the invert of the outfall sewer at Bolham to the tank at the disposal works on the high land will be 47 ft. 6 in. The sewage disposal and purification works, with the exception of the land, are calculated to deal with a population of 15,000. In regard to the method of treating the sewage, on arrival at the works it would first of all be strained. It would then be deodorised and precipitated in tanks by means of crude alum, salts of iron, carbon, and lime, in the proper proportions. The sludge would be pressed into a portable and inoffensive condition, and the effluent water filtered through the land. In a further report the engineer states that on further consideration he finds that it would be preferable to lift the sewage of Ordsall village

into the general system than to convey it by a flat gradient sewer, and he proposes to collect this sewage in Goosemoor-lane at a point on the east side of the river bridge, and there to lift it by means of small hydraulic pumps, placed below ground, and worked off the water main in that locality, the sewage being conveyed into the general system at Thrumpton. As regards the admission of surface water into the sewers, it is insisted that it should be excluded from all the new sewers as far as practicable; that is to say, rainfall on roads, streets, and front roofs of all existing buildings, and gardens must not enter the sewers, but provision is made for taking rainfall from the roofs of existing buildings. In case of new building, estates and new buildings, back roof water is also intended to be excluded from the sewers. The estimated cost of the work is about 40,000l. As a result of the meeting the report of the Sewage Committee (including the engineer's report) was adopted, and Mr. Mellish has been instructed to prepare plans and specifications for the consideration of the Local Government Board.

BUXTON AND ASHBORNE RAILWAY.—The first portion of the Buxton and Ashbourne new railway—that from Buxton to Parsley Hay, 9½ miles in length—has been completed. The work on the remaining portion from Parsley Hay to Ashbourne is being pushed forward by Naylor Brothers, the contractors, and when it is completed an important agricultural district of considerable area will be opened up. This will entail the construction of a line 13½ miles in extent, so that the distance from Buxton to Ashbourne will be practically the same distance as that from Buxton to Manchester—namely 23½ miles, or thereabouts. This should be accomplished in an hour, as compared with the three hours' journey by the Manchester, Macclesfield, and Rotherham and the North Staffordshire system. The station of the new line at Ashbourne will be in the Paddock, close to the North Staffordshire Railway station, and the stations after passing Ashbourne for Buxton will be Thorpe Cloud, Fenny Bentley, Tissington, Alsop-en-le-Dale, and Hartington, joining with Parsley Hay, the already completed portion to Buxton. There is a tunnel at Ashbourne 300 yards in length, passing under the hill, and this will be completed in four months' time. There is a viaduct 230 ft. in length, of seven arches, over Bentley Brook, and various occupation bridges are being erected. The abutments are up for a girder bridge adjoining the site for the proposed Thorpe Cloud station for Doveclade. The cuttings are many, and are well in hand. Immense masses of limestone were encountered half a mile from Crakelaw Farm and Newton Grange. A station near to New Inns Farm will serve Alstonefield, Parwich, and the Milldale end of Doveclade. The largest cutting is a mile in length, and a large quantity of earth, stone, and rock has been excavated; it is about 60 ft. deep in the deepest part. The railway will be on high ground relatively to the surrounding country, and the scenery is extremely varied and beautiful. It is hoped that the line may be completed in about two years' time. The resident engineer at Ashbourne for the London and North-Western Company is Mr. Hurst, and the contractors' engineers are Messrs. Parkin, Barnby, & Beattie.—*Manchester Evening News.*

WATER SUPPLY, EASTBOURNE.—On August 6 the Duke of Devonshire inaugurated the new supply of water from Friston. Eastbourne now derives its water from three sources—(1) from Holywell, obtained last summer; (2) from Waverley, opened two months ago; and (3) from Friston. The undertaking belongs to the Eastbourne Waterworks Company, and the present works have been carried out in fulfilment of a pledge to a House of Lords' Committee about two months ago to construct a main extending over a distance of nearly four miles across the Downs through East Dean parish and the Black Robin Farm, from Friston to the high service reservoir at Meads. The work of constructing this new main, which is temporary only in places where tunnelling will be necessary, has been performed by Messrs. J. Aird & Sons, who commenced operations on May 25. In the meantime the works at Friston have been perfected, and a set of engines capable of pumping 2,500,000 gallons per day, and of raising the water to a height of 500 ft. above the level of the downs crossed by the main, have now been laid down. The supply now obtainable by the company from the three sources above named is more than equal to the needs of the municipality, but, having regard to the rapid developments which have been and are still taking place in Eastbourne, the Waterworks Company have anticipated a further augmentation from Charleston, where works are already proceeding.

FOREIGN.

FRANCE.—A fine portrait by Romney has just been purchased by the National Museums Committee and presented to the Louvre.—M. Yvon, architect, has just completed the construction of a new "Ecole Coloniale" at Paris, the façades of which reproduce the architecture of the French colonies in the extreme East.—Four French architects, MM. Depresse, Albert Ballu, Cordonnier, and Brunau, have obtained medals of the first class at the Brussels Exhibition.—It appears that the Palais des Arts Libéraux on the Champ de Mars is to be

transported, piece by piece, to Russia, where it is to form a terminal railway station.—A new railway line is to be made shortly between Milly and Barbizon, the well-known favourite resort of landscape painters.—Last Sunday the garden and park of Chantilly were opened to the public for the first time since the death of Duc d'Aumale. The castle and its collections will not be open till May, 1898.—M. Pigeon, the recently appointed curator of the Museum at Lille, which has long been in a most defective condition, has resigned, declining the responsibility of looking after a collection so badly housed and arranged.—The monument to Molière at Pezenas was inaugurated on Sunday last.—The Museum at Dieppe has been rebuilt. The new buildings include an architecture gallery, five galleries of archaeological exhibits, five others containing various works of modern art, and the collection given to the town by M. Saint-Saëns.—The President of the Republic has just inaugurated the new Palais de Justice at Grenoble, installed in the old Parliament house of Dauphiné; also a fine monument by M. Henri Digne to commemorate the reunion of the States of Dauphiné at the time of the French Revolution. The monument consists of a group in marble representing the members of the Tiers Etat, the clergy, and the nobility taking the oath of union in defence of liberty.—A biological laboratory is in course of construction at Tamaris, the Hon. Dingle to commemorate the rites at Potiers are preparing to spend about 500,000 francs in the rebuilding of the public library and the law schools in that town.—A school of military sanitation is in process of construction at Lyons, at an estimated cost of more than three million francs; the buildings will cover an area of 2,600 square metres.—M. Chas Errard, a member of the Société Centrale, M. Chas Errard, has just died, at the age of 71. He was a native of Caen, where he carried out numerous architectural works. Latterly he had been inspector of works at the new cathedral of Marseilles.—The death is also announced of a painter, M. Léopold de Moulin, who had lived long in Italy and in Algeria, and exhibited in the Salons from 1847 to 1868 works (portraits and genre subjects) which attracted some attention.

GERMANY.—Fifty German architects have arranged to visit the Brussels Congress, under the auspices of the Rhenish Architectural Society.—A competition has been opened at Hamburg for the design of a new church at Hammerbrook, and premiums of a value of 250l. are to be given. The cost of the building is not to exceed 17,000l. and there will be an influential Committee of Assessors. It is notable that all drawings are to be to a small scale, and that they are only to sketchily indicate the design.—An interesting Annual Report has just been issued by the Municipality of Munich, dealing with the whole of the work undertaken by the Building Department, and it appears that great progress is being made in all the sections of this administration. It may be noted that Munich has its own municipal electrical works. One of the most recent buildings of general interest taken in hand by the municipality is the New Exhibition Hall, the estimates for which amount to 20,000l.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. G. E. Todd, builder, of 102, Hackney Road, and 1, Harsard-street, E., has taken in partnership Mr. G. I. Newman, who has been several years in the business with him, and the firm will henceforth be styled "G. E. Todd & Co."

MADRID EXHIBITION OF SPANISH INDUSTRIES, 1897.—The Department of Science and Art has received, through the Foreign Office, a copy of a Despatch, enclosing a translation of a Royal Decree for the holding of an Exhibition of Spanish Industries in the Palace of Arts and Industry, Madrid, this year. The exhibition will be opened on October 20.

OPEN SPACES IN SOUTH LONDON.—It is stated that Lord Llangatock has offered to the Vestry of St. George-the-Martyr the semicircular piece of land called the Paragon, New Kent-road, three-quarters of an acre in extent, for 3,400l., and that he will contribute 1,000l., and the London County Council 1,700l., towards the purchase-money. At a recent meeting of the Wandsworth District Board, it was announced that Dr. Langstaff, L.C.C., had offered to give 5,000l. towards the amount that is needed to carry out the purchase of a piece of land, about twenty acres in area, by the riverside below Putney Bridge. At their meeting on July 27 last, the London County Council agreed to buy the land for 21,500l., subject to the District Board undertaking to pay the Council a sum of 10,000l., and to the raising of a further sum of 5,800l. by subscription. Deptford Park, consisting of seventeen acres, latterly leased as market gardens, and bought from Mr. W. J. Evelyn, lord of the manor, in 1893, has just been opened. The price was fixed at 21,000l. per acre. To the total cost, 26,031l., the following contributions were made:—The Greenwich District Board of Works, 8,250l.; Mr. W. J. Evelyn, 2,000l.; the trustees of the London Parochial Charities, 800l.; private subscribers, 950l.; and the London County Council, 24,031l. The grounds have been laid out by Colonel

Sexby, chief officer of the Parks Department, L.C.C., and 7,500l. were spent in adapting them to their new purpose. In July, 1886, Mr. Evelyn presented, for public use and enjoyment, 1½ acre at Sayes Court, Deptford, as laid out by the Kyrle Society, which had formed part of the gardens cultivated by his ancestor, John Evelyn. Sayes Court house was pulled down in 1728; see also our account of the site, *Builder*, September 20, 1884, and the Wotton MSS.

THE CARPENTERS' COMPANY AND KING'S COLLEGE.—The winners of the medals, &c., presented by the Carpenters' Company to students in the classes conducted under the auspices of the Company and the Council of the College are as follows:—Building Construction, four classes under Professor Fletcher: gold medal and 3l. H. C. Bishop; silver medals and 2l. E. F. Knight, A. J. West, and C. W. Myddleton; bronze medals and 1l. G. A. Turner, W. Shelley, and A. E. Ruffhead. Evening classes: gold medal: J. G. Wiles; silver medals and 3l. F. G. Pain, S. A. Switzer, and P. C. Blow (metal only); bronze medals and 2l. C. W. Beaumont, C. J. T. Dadd, H. C. Bishop, H. Glynn, W. Marchant, Lord Mayor medal for Sanitary Building Construction: A. Carter, J. Kent, S. A. Switzer, T. Graves, J. Gough, W. Drake, and C. J. T. Dadd. Have also won money prizes (all prizes of money are given in books to the value of the prize 6s.). Evening classes (amateur)—silver medals: Miss Carpenter, T. Ainsworth, and J. W. Marchant; bronze medals: L. A. Waldron and A. J. South. These medals are accompanied by scholarships tenable at the classes at King's College. These prizes will be presented by Sir Henry Harben at a soirée at King's College on September 30.

HAND GRENADES.—It is always desirable to be prepared for an emergency such as an outbreak of fire, and our contemporary, the *Scientific American*, describes a form of hand grenade that can easily be made at very little cost. If 20 lb. of common salt and 10 lb. of sal-ammoniac are dissolved in 7 gals. of water, and the mixture poured into glass bottles of thin glass, the grenades so made will be found very efficient for extinguishing small outbreaks of fire. The bottles should be tightly corked and sealed so as to prevent evaporation, and when a fire occurs they must be thrown in or near the flames so as to break, and thus liberate the gas contained, to effect the desired object.

SUBSIDENCE AT NORTHWICH.—A serious subsidence occurred in the sanctuary of Dane Bridge parish church, Northwich, the other day. The floor was supported by brick arches. One of these gave way, owing to the sinking of the foundations, caused, it is said, by brine pumping, leaving a hole some 6 ft. long and nearly 4 ft. wide. The porch walls show large fissures, and the whole fabric has suffered considerably.

LEGAL.

THICKNESS OF EXTERNAL WALLS:

CASE UNDER THE LONDON BUILDING ACT.

At the Lambeth Police-court, on the 6th inst., the Magistrate heard an appeal by Mr. John Tyerman, a Walworth builder, against a notice of objection served upon him by Mr. Ellis Marsland, District Surveyor, in connexion with the rebuilding of the General Hospital, Parkstone-street, Peckham. Mr. Pasmore appeared in support of the appeal. The matter was brought before the Court under the provisions of Section 150 of the London Building Act, which gives a builder power to appeal to a petty sessions court should he be dissatisfied with the decision of the surveyor. Mr. Pasmore stated that the notice of objection served upon the appellant by the District Surveyor had reference to the thickness of the external walls of the basement of the building. The first schedule to the Act (Part 1, Section 3) dealt with the thicknesses to be observed in the building of a wall exceeding 40 ft., but not exceeding 50 ft. in height, the thickness varying according to the length of the wall. In this case the wall was 43 ft. high. Section 7 of the first schedule (preliminary) to the Act, provided "For the purpose of determining the thickness of a wall the height of such wall shall be measured from the base of the wall to the top of the topmost story, whether such wall is carried to the full height or not, or in case of a gable, when there are no stories in the roof to half the height of the gable." The definition clause of the Act provided that "The expression 'base' applied to a wall means the underside of the course immediately above the footings, if any, or in the case of a wall carried by a bressummer above such bressummer." The definition of the word "bressummer" was a wooden beam and a metallic girder, which carries a wall." In this case the District Surveyor claimed that the wall over which the dispute had arisen should be 17½ in. thick for the basement story, it being in his view a wall 43 ft. in height. Section 50 of the Act, which dealt with bressummers, showed that an entirely different state of things had to be considered where bressummers were employed. His (Mr. Pasmore's) point was that the wall began with the bressummer, and not with the basement. He might say that Mr. William Brutton, the architect, was building houses in every district in London, and Mr. Marsland was absolutely the only District Sur-

veyor who had called upon Mr. Bruton to build his basement wall according to the height of the building if there was a bressummer. He submitted that Mr. Marsland had misconceived the intention of the Act. Mr. W. M. Bruton, the architect, was called and examined as to the details of the work. There would be, he said, an open shop front with a bressummer above carrying the superstructure.—Mr. Marsland: The external wall of the basement, I see on your drawing, is 14 in.—The Witness: What I call the retaining wall carries the piers. Yes, that is so. Mr. Marsland: I am asking that it should be 17½ in. thick?—The Witness: That is so.—Mr. Hopkins: I am not sure I understand this. What I am wondering is, why a wall is less a wall within the statute because half way up it may be there is a bressummer.—Mr. Pasmore: Because the height of the wall has to be measured from the base. The base of a wall carried on a bressummer must be from the bressummer.—Mr. Hopkins: Yes, when you are dealing with the thickness of the wall above the bressummer, I agree it may be so, but I am not dealing with that. I am dealing with the wall below the bressummer.—Mr. Pasmore: There can't be two bases to the same wall. The wall beginning in the basement does not go higher than the surface of the ground.—Mr. Hopkins: Why is it less a wall throughout the whole height because it has a bressummer?—Mr. Pasmore: Where the shop front there is no wall at all. I will ask you to look at the definition of the word "base".—Mr. Hopkins: I quite follow that, but my difficulty is that I am not dealing with anything above the bressummer. I am dealing with the wall below the bressummer and which carries the bressummer.—Mr. Pasmore: The wall below the bressummer extends to the ground level only, and is not a wall 43 ft. high.—Mr. Hopkins: If you were dealing with an ordinary shop with brickwork all the way up, the question would not arise. You say that because you have an archway upon a bressummer your statutory position below the bressummer is altered.—Mr. Pasmore: That is so, sir, because under Section 56 we have to provide a bressummer in accordance with the provisions of the Act of Parliament.

Mr. Hopkins came to the conclusion that the District Surveyor was right, and dismissed the appeal.—*Morning Advertiser.*

BUILDING FRONTAGE:

CASE UNDER THE PUBLIC HEALTH ACT.

At the Highgate Petty Sessions Court on Monday, August 2, Chas. Marriott, of Nether-street, North Finchley, was summoned by the Finchley District Council for bringing forward a house frontage beyond that of the adjoining houses. Mr. Forbes appeared for the District Council, and Mr. Moreton Smith was counsel for the defendant. This was a summons under the Public Health Act, which Act laid down the penalty of 40s. a day after notice had been given by the Urban District Authority. The Council alleged that defendant was erecting a house at the corner of Woodside Park-road and Woodside-avenue, and on one side it had been brought forward 2 ft. 2 in. beyond the main frontage of "Fairlight," Woodside-avenue. The plans were passed by the Council subject to the building not being brought forward beyond the front main line of the adjoining buildings, and the surveyor pointed out by letter where to keep the frontage to, but they came forward the distance stated. For the defence it was stated the "adjoining" houses were a long way off, and many cases were cited in support of defendant's contention that he should not be interfered with in his building operations. After a lengthy hearing the Bench retired, and upon their return the Chairman said they had very carefully considered the case, and their decision was that the summons should be dismissed with five guineas costs.—*North Middlesex Chronicle.*

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS IN HANWAY-PLACE.

THE case of Morgan v. Viscount Gort came before Mr. Justice Romer in the Chancery Division on the 6th inst., it being an action relating to the alleged infringement of ancient lights and access of air to the plaintiff's premises.

Mr. Levett, Q.C., who appeared for the plaintiff, said that the parties had agreed to terms, the defendant undertaking until judgment or further order, not to erect in the rear of the plaintiff's premises in Hanway-place any building or wood-work so as to obstruct the ancient lights or the access of air as was hereinbefore enjoyed by the plaintiff. There would be no costs on the motion, except that costs be costs in the action.

Order accordingly.

Mr. Ralph Neville, Q.C., appeared for the defendant.

MEETINGS.

SATURDAY, AUGUST 14.

Institution of Junior Engineers.—Summer meeting, at Dublin. August 14 to 17.

WEDNESDAY, AUGUST 18.

Builders' Foremen and Clerks of Works' Provident Institution.—Ordinary meeting. 8 p.m.

SATURDAY, AUGUST 21.

Northern Architectural Association.—Students' Sketching Club Excursion.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

17,699.—FLOUSHING APPARATUS FOR WATER CLOSETS: J. T. Gilson, San Francisco, in a flushing apparatus comprising a container with service inlet, a tipping tank mounted on trunnions therein, a lever arm, and a flexible connection. The moving parts are provided with sound-deadening stops.

19,177.—SYPHONAL CISTERN FOR W.C.'S, &c.—J. Shanks.—Inventor claims an improved siphonal cistern, comprising a bell or hood capable of being lifted by a lever, to which the closet spindle is connected, the said bell covering a siphon made with three legs, one of which is connected to the down-pipe, while the second forms a trap bend with the third having a free or open end. Some modifications are also described.

19,565.—FANLIGHT OPENERS.—C. F. Gray and Another.—Inventors claim in fanlight openers the construction of bevelled cog wheels, a pulley and screwed spindle for the purpose of actuating a screwed boss, connected with a pivoted fanlight.

19,922.—DRAIN PIPES, SEWERS, &c.: A. B. Plummer.—For the purpose of providing better carrying capacity and more efficient flushing, inventors construct drain-pipes, sewers, &c., in the form of two superposed part circles of two diameters of different radii, the upper one being the greater, and the two gradually merging together.

19,940.—FIRE-PROOF FLOORS: J. F. Howden.—Inventor claims a fireproof floor, comprising metal beams, between which concrete is applied, having within it hollow spaces, obtained by the insertion of shells of thin wood, and having wood, tile, cement, or other flooring fixed on its upper sides, and plaster, on its lower surface.

19,958.—BUILDING BRICKS: J. Sisk.—Relates to bricks provided with suitably shaped grooves for providing "key" to mortar or plaster.

19,971.—PRISM LIGHTS: F. C. Soper.—Inventor claims a prism light having a plain surface on one side, and a series of prisms extending across the body of the glass on the other, with various modifications of the principle.

19,975.—WINDOWS: W. C. MacFarlane.—Consists in novel methods of arranging prismatic or other glass in frames, and hanging same with sliding blocks, &c.

NEW APPLICATIONS FOR LETTERS PATENT.

July 26.—17,575, E. Craven, Safety Stair Ball Nosing.

17,540, H. Lea, Electric Light Fittings.

July 27.—17,553, G. Marsden and J. Newton, Dies Used in the Manufacture of Slabs or Tiles.—17,567, G. Nelles, Saws.—17,590, A. Johnson, Joint for Stone and Earthware Pipes.—17,619, R. McHardy and Others, Door Knob Furniture.—17,616, G. Smith, Sash Fastener.

Not applicable for Opening Windows.—17,617, G. Cooper, Window Sash Fastener.

July 28.—17,680, T. Leigh, Casement Stays for Window or Fanlight Fasteners, &c.—17,693, A. Ward and J. Sykes, Sash Closes.—17,703, H. H. Harvey, C. Free, Locks or Bolts for Doors.—17,713, H. Braun and R. Gross, Door Closing Apparatus.—17,724, E. Masters, Spring Hinge.—17,730, J. Fiske, Lock Hinge.

July 29.—17,774, J. Nod, Manufacture of White Lead.—17,775, J. Nod, Manufacture of White Lead.—17,776, C. Hill, Locks and Door Knobs.—17,811, W. Benson, Casements and Window Frames.—17,829, F. Grant, Windows for Dwelling Houses and Public Buildings.

July 30.—17,879, T. Leigh, Casement Stays for Window Fanlights, &c.—17,922, J. Stuttle, Sash Fastening Devices.

July 31.—18,004, J. Mennessier, Machines for Sharpening and Setting Circular Saws.—18,010, S. Hill and C. Hodges, Door Closing Appliances.

PROVISIONAL SPECIFICATIONS ACCEPTED.

8,877, G. Balfrey, Lever Bolt.—13,492, C. Huskyns, Self-acting Ventilator and Chimney Cap.—12,307, D. Evans and J. Jones, Window Sash Fasteners.—15,554, A. and C. Milnair, Bent Metal Sheets for Roofs, Floors, Partitions, &c.—17,787, E. Hughes, Ledge Junction Making without Solder.—17,815, C. Heidecke, Tools for Opening up Stone, Metal, Wood, &c.—13,404, H. and C. Gammon, Automatic Siphon Flushing Cistern for Water Closets.—13,420, A. Boone, Automatic Transferring and Washing-off Machine for Tiles.—13,695, E. Larking, Sash Fastener.—13,731, G. Howell, Pump Water Closets.—14,048, H. Friend, Pulley Stile Sash Retainer.—14,748, T. Jones, Sash Fasteners.—14,970, J. Daniella, Imitation of Coloured Marbles.—14,972, K. Graham, Window Sash Fastener.—15,028, A. Wincott, Drain Pipes.—15,134, W. Johnson, Fire Grates.—15,262, R. Hope, Window Wedge.—15,284, W. Freer, Doors.—15,434, C. Plant, Flushing Cistern.—15,695, E. Fogg, Sash Fasteners.—15,697, G. Pollard, Sash Fasteners.—15,675, J. Hill, Window Sash Fasteners.—15,676, A. Todd, Sash Fasteners.—15,679, W. Fletcher, Sash Fasteners.—15,680, D. Hughes, Sash Fasteners.—15,686, W. Chitty, Window Sash Fasteners.—15,691, G. Thomas, Sash Fasteners.—15,692, M. Hughes, Sash Fasteners.—15,694, J. Aust.—Sash Fasteners.—15,701, W. Llewellyn, Sash Fasteners.—15,734, H. Griffiths, Window Sash Fasteners.—15,755, H. Warner, Window Fasteners.—16,027, A. Grayson, Double Douvral Fixing Brick.—16,235, W. Thompson, Window Sashes.—16,302, J. Lucas, Sliding and Folding Doors.—16,374, W. Davis and E. Field, Window Sashes and Window Frames.—16,368, A. Gillingham, Ventilating Cowl.—16,451, H. Edmond, Window Frame and Sash.—16,646, R. Bamber, Disinfecting Drains or other places provided with a flushing apparatus.—16,647, J. Wilkes, Dies for Brick Presses.—16,674, M. Gentry and H. Gunwall, Brick Pressing Machinery.—16,694, W. Thompson, Glass Tile.—16,665, A. Loewy, Flooring.—16,742, F. Lynde, Baths, Lavatory Basins, Sinks, &c.—16,923, C. Green, Blocks for Building Bricks, Flooring, &c.—16,950, V. Fischbein, Screws and Screw-drivers.—17,007, J. Craven, Brickmaking Machinery.—17,034, F. Hamill, Oil Pans.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

16,862, W. Kathoner, Roofing Tiles.—20,263, J. Watson, Preventing the bursting of Water Pipes in frosty weather.

31,310, A. Wakellett, Gully Traps.—4,797, D. Annan, Windows and their Frames.—5,921, A. Abolt, Apparatus for Cutting and Sawing Stone.—15,296, J. Duppe and others, Blow Pumps for plumbers, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 22.—By T. W. GAZE (at Diss).
Diss, Norfolk.—Residence and stabling, f and c, 1,307..... £470

A copyhold house and shop, r. 25f. 455
A freehold cottage and 2 r. 34 p. 133

Fersfield, &c., Norfolk.—A freehold farm, area 70 a. 2 r. 25 p. 115

July 23.—By BACON & SONS (at East Dereham).
Little Fransham, Norfolk.—A freehold farm, area 36 a. 2 r. 33 p. 750

July 26.—By D. SMITH, SON, & OAKLEY (at Bath).
Bath (near), Gloucestershire.—"Battlefields"; also part of "Lilliput Farm," 139 a. 1 r. 25 p. f. 6,500

Part of "Lilliput Farm," 25 a. 0 r. 3 p. f. 855
By DANN & LUCAS.

Wilmington, Kent.—"Heathside Nursery" and 4½ acres, f. 1,800

Fifteen freehold cottages, r. 195f. 2,450
By ELLIOTT, SON, & BOYTON.

Kensington.—15, 16, and 16A, Merton-rd., u.t. 35 yrs., g.r. nil, r. 102f. 670
By HARMAN BROS.

Bexley, Kent.—Hurst-rd., "The Cottage," u.t. 80 yrs., g.r. 23f. r. 105f. 1,100

Stoke Newington.—150, Lordship-rd., u.t. 77½ yrs., g.r. 10f., e.r. 75f. 800

46, Cazenove-rd., u.t. 77½ yrs., g.r. 11f., e.r. 70f. 780

74, Bayston-rd., u.t. 77 yrs., g.r. 6f., r. 36f. 400
By E. W. HARRIS.

Beckenham.—30, Ravenscroft-rd., f. r. 36f. 8s. 330
By KING & CHASEMORE.

Thakeham, Sussex.—"Nash Farm" (part of), 27 acres, f. 360
By A. ROBERTSON.

Finchbury.—56, Curtain-rd., u.t. 64 yrs., g.r. 140f., r. 425f. (including mortgage) 5,200

By S. CLIFFORD LEE.
Mile End.—18, 20 & 22, Huddart-st., u.t. 77 yrs., g.r. 15f. 885

93A, Bridget-st., u.t. 62 yrs., g.r. 6f., r. 35f. 500
By ROGERS, CHAPMAN, & THOMAS.

Kilburn.—48, Cavendish-rd., u.t. 72 yrs., g.r. 10f. 550
By F. ELLEN & SON.

Chute, Wilts.—"Lower House Farm," 55 a. 0 r. 1 p. f. 4,400

"The Chute Manor Farm," 848 a. 1 r. 33 p. f. 4,800

Penton Mewsey, Hants.—"Penton Manor Farm," 892 a. 3 r. 16 p. f. & c. 5,900

Andover, &c., Hants.—Six cottage tenements and enclosure, o.a. 2 r. 28 p. f. 404

Enclosures of land, 92 a. 0 r. 22 p. f. 591

Chute, &c., Wilts.—Enclosures of land, 18 a. 3 r. 7 p. f. 170
By T. W. GAZE (at Farncombe).

Forncett, Norfolk.—A freehold farm, area 8 a. 1 r. 30 p. f. 200

Two small occupations, 10 a. 3 r. 17 p. f. 335

Eleven cottages and 2 a. 3 r. 12 p. f. 448

Tibenham, Norfolk.—Two double cottages and o.a. 1 r. 10 p. f. 110
By WALTER & LEE & G. WIGLEY (at Winslow).

Winslow, Bucks.—"Scott's Close," 2 a. 2 r. 0 p. f. 270

A freehold building estate, area 21 a. 1 r. 20 p. f. 2,000

Brick yard and allotment gardens, 17 a. 0 r. 27 p. f. 700

"Red Hall Farm," 177 a. 1 r. 30 p. f. 4,000

Enclosures of land, 23 a. 3 r. 4 p. f. 2,600

"Shipton Farm," 90 a. 0 r. 14 p. f. 4,000

"Grandborough-rd. Farm," 62 a. 0 r. 12 p. f. 2,400

"Rands Farm," 174 a. 3 r. 31 p. f. 4,150

Four enclosures, 172 a. 0 r. 27 p. f. 1,075

"Holcombe Farm," 232 a. 1 r. 32 p. f. 4,500

"Ivy Cottage" and two houses adjoining, 2 a. 1 r. 12 p. f. 770

Two garden plots, o.a. 2 r. 4 p. f. 105

Twelve cottages and 2 a. 1 r. 35 p. f. 570
By J. JUSTIN & CO.

Thornton Heath.—26, Osborne-rd., f. r. 40f. 505

Fulham.—612, King's-rd., u.t. 53 yrs., g.r. 54f., r. 70f. 830
By BEAN, BURNETT, & ELDREDGE.

Southend, Essex.—Lydford-rd., f.g.r. 40f., reversion in 89 yrs. 1,120

New Southgate.—Brunswick-cres., f.g.r. 100f., reversion in 95 yrs. 2,710

Hamstead.—33, 35, and 73, Parliament Hill-rd., u.t. 79 yrs., g.r. 26f., r. 245f. 2,950
By BELCHER, ADKIN, & BELCHER.

East Hendred, Berks.—The King's Manor, with all rights, &c., f. 440
By MESSRS. ELOART.

Fleet-st.—Bouverie-st., f.g.r. 250f., reversion in 63 yrs. 8,300

St. John's Wood.—Blenheim-ter., f.g.r. 81f., reversion in 48 yrs. 2,615
By FIELD & SONS.

Camberwell.—South-st., freehold granaries and hay stores, r. 80f. 1,400

276, 278, and 280, Southampton-st., f. r. 93f. 940

Peckham.—56 to 76 (even), Tennyson-rd., f. 1,430

Marylebone.—North-st., f.g.r. 45f., u.t. 24f. yrs., g.r. nil 580

Euston-rd.—Drummond-st., f.g.r. 37f. 10s., u.t. 26f. yrs., g.r. 12f. 355
By FURBER, PRICE, & FURBER.

Leyton.—27, 29, and 31, Sedgwick-rd., u.t. 81 yrs., g.r. 13f. 445

New Cross.—42, Cassell-rd., u.t. 60 yrs., g.r. 34f., r. 35f. 400

Wood Green.—1 to 11 (odd), Cranbrook Pk., u.t. 74 yrs., g.r. 30f. 12s., r. 135f. 1,050

Wood Green.—1, 3, 7 to 23 (odd), Berners-rd., u.t. 73½ yrs., g.r. 64f., r. 242f. 1,800

1, Hardy-ter., u.t. 73½ yrs., g.r. 10f. 10s., r. 50f. 660
By HUNTER & HUNTER.

Shepperton, Middx.—"Millbrook House" and nearly 1½ a. f. 2,300
By NORMAN & SON.

Marylebone.—3, New-st., beneficial lease for 3 yrs., r. 100f. 285
By G. PEARCE & SONS.

Stoke Newington.—17 to 25 (odd), Kingsbury-rd., u.t. 55 yrs., g.r. 31f. 10s. 1,100

87, Aden-grove South, u.t. 74 yrs., g.r. 54f., r. 30f. 205

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Desires to be delivered
*Horn Market and Abattoir	Lords T.C.	100l.; 50l.; 25l.	Oct. 8
*Horn Hall and Law Courts	March T.C.	100l.; 50l.; 200l.	Dec. 4
*Union Workhouse	Fyde (Lancs) Union	160l.; 100l.; 50l.	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Bridge Chimney	Dundee Harb. Trustees	G. G. Buchanan, Eng. Works Office, Harbour- chambers, Dundee	Aug 16
Bridges Works, Barcombe	Challey R.D.C.	E. K. Wells, Surveyor, Stret. Challey, s/o St. Ista R. Petersen, s/o St. Ista G. Edmonds, Edinburgh A. F. Newnson, Archt., Middleborough	do.
Additions to Houses, Lanthorpe, Middleborough .....	.....	Mrs. R. Middleton, Shafto Avenue, Luton, Bedford E. J. Silecock, Bury Street, King's Lynn	Aug 17
Gravelle Street	King's Lynn Corp Geiton & Crompton U.D.C.	..... T. J. S. Jones, Two Half, Hall, Bury Street, King's Lynn	do.
Workshops, Ac. St. John street, Bridlington	G. W. Peuby Chelmsford T.C. ....	..... Bury Street, 14, Museum- Road, Chelmsford	do.
Engine House, Market-place	Oakley School Board	M. Rahman, 81, Paul's Walk, Wandsworth, S.W. F. H. Coles, Union Office, Hempstead, N.E.	Aug 18
Additions to Schools, near Bedford ..	South Shields Corp.	J. Waite, Sanderson & Co. Bldgs. 2, St. Nicholas- Bldg. Newcastle Town Hall S. A. Pickering, C.E. Town Hall	do.
Movable Floor over Swimming Baths, Brentwood	Hackney Union	D. M. Spence, Architect, Front-st. Annsford Plain Farm, Brentwood, Essex	do.
Timber Store, "The Old Buildings" Headings	South Shields Corp.	Victoria-street, Belfast	do.
Wood Paving	Oldham Corp.	C. J. Glover, Workhouse, Carlisle	Aug 19
Additions to Duesmen Premises Annsford Plain, Durham	P. Welch & Co.	C. O. Baker, Archt. Town Hall, Carlisle	Aug 20
Church, Altheridge, Belfast .....	.....	Walshington, Town Hall	Aug 21
Twenty-five Labourers' Cottages	Carlow Union	G. E. Harrison, Regent, Barnington-lane, Derby	Aug 23
Residence, The Park, Great Yarmouth ..	R. D. Bayes	C. E. Ritchie, Colchester Queen-street, Colchester	do.
Paving, Flagging, Ac. Gladstone- street, Ac.	Dewsbury Corporation Derby Corporation	R. Swindhurst, St. Mary's Hall, Coventry	Aug 24
Brick work of Six Detached Cottages ..	J. Kavanagh	J. Russell Wilson, Hon. Secy. of Public Health, Westminster, C.E. Market-hall, London	do.
Broken Granite Chippings, Ac.	Coventry Corp.	Medley Hall, Arlott St., Northgate, Halifax	do.
Repairs to Church Tower	The Committee	Giles, Gough, & Frost, Archts., 10, Abchurch Lane, W.C. W. E. Chasen Thomas, C.E., City Offices, London	Aug 26
Chainey Shaft, Everton	Blackpool Corp.	J. R. Parks, C.E. Post Office-str. Newcastle on-Tyne	do.
Boss Foundry, near Albert Reservoir, Belfast	Liverpool Corp.	Newman & Newman, 31, Abchurch Lane, W.C.	Aug 27
Asylum Building, Parc Osella, near Bridgend .....	.....	.....	do.
Cast-iron Water Main, Valves, &c., Ac.	Leath R.D.C. ....	.....	do.
Sewerage Works, Manafels Colliery	Newcastle R.D.C. ....	.....	do.
Union Office	St. Ove's Union .....	.....	do.

CONTRACTS—Continued

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered
* Warehouse	Swansea Harbour Trust	O. A. Schenk, Harbour Master	Aug. 26
* Extension of Electric Light Buildings	Kingston-on-Thames Corp.	Bergstrom & Gladders House, Kingston-on-Thames	Aug. 27
* Making up Roads	Wood Green U.D.C.	F. J. L. May, Town Hall, Wood Green, London, N. 22, Donnegall, Belfast	Aug. 28
* Erection of Groyne, &c., River, Antrim, Lond.	Brigaton Corp.	J. A. Bettie, &c. Municipal Engineer, Belfast	Aug. 30
* Draining, Levelling, &c., Gorse-creech, Hays, Lond.	Hendon U.D.C.	S. S. Grimeley, Civil Offices	do. do.
* Iron Fencing and Gates,	do. do.	do. do.	do. do.
* Drainage, &c.,	do. do.	do. do.	do. do.
* Brick, &c. Walling and Fencing,	Pinxtensted Building Bd.	H. H. Church, & William-st. Woodroff, S.	Aug. 31
* Sea Walls, Ripways, &c., Preston Sands, Painsdon, Devon	P. E. Singer	J. W. Wyatt, Esqr. Old-way, Paignton	do. do.
* Painting, Graining, &c.,	New County Joint Committee	do. do.	do. do.
* Alterations to Asylum	Bristol Lunatic Asylum	H. R. Withycombe, Countess, Bristol	do. do.
* Office Office, Railway	Commrs. H. M. Works	13, Whitehall place, R. W. Day, London, W. 1, & 14, Gide House, Exeter	Sept. 1
* Works	Tiverton R.D.C.	B. W. B. Wetherill, Esqr. Waverhampton	Sept. 8
* Erection, &c.,	Leadbury U.D.C.	W. Beaman, Delfm Farm, H.M. Works	do. do.
* Erection of Asylum	W. A. Asylum Bd.	Arch. Nell, Archt. 18, Cocking-st. Exeter	Sept. 20
Alterations to Business Premises, 134, Bury-st. road, Leeds	L. W. Sleight	O. Bell, S. Hall's, Exeter & C.	do. do.
* Erection Apparatus at Workhouse	Buckingham Union	E. Ferguson, Taylor, 70, Chaucery-lane, W.C.	do. do.
* Metal Works, &c.,	do. do.	do. do.	do. do.
* Erection of Asylum	do. do.	do. do.	do. do.
Five Villas, Wilton Park, Upper Batley	Jno. Blackburn	W. Hanstock, Archt. Leeds	do. do.
Ice Factory, Bradford	Bradford Clear Ice and Cold Storage Co.	F. Holland, Esqr. 11, 12, & 13, Chaus. & Gutteridge, Bradford	do. do.
* Stables, Coach-houses, &c., Beasley, Burnley	J. Grimshaw	do. do.	do. do.
* Stables, Ashton under-Lyne	do. do.	do. do.	do. do.
Rebuilding Liberal Club, Andoversham, Lancs.	do. do.	do. do.	do. do.
Two Houses, Wellington Park, Belfast	do. do.	do. do.	do. do.
Mission Building, Queen's-square, Middleborough	do. do.	do. do.	do. do.
Schools, Brixworth, Northants	do. do.	do. do.	do. do.
Wesleyan Chapel, Church Green, Ley, Lancs.	do. do.	do. do.	do. do.
Alterations to National Schools, Wesley, Lancs.	do. do.	do. do.	do. do.

PUBLIC APPOINTMENTS.

Number of Appointment.	By whom Advertised.	Salary.	Applica- tions to be in.
City Engineer's Assistant	Oxford Corp.	24 per week	Aug. 16
Assistant Surveyor	Darwin Corp.	1200, per ann., to commence	Aug. 16
Inspector of Buildings	Devonport T.C.	1200, per ann.	Aug. 21
Chief Master, School of Arts and Crafts		1500, per ann.	do.
Architectural Draughtsman		1800, per ann.	do.
Assistant Surveyor	Whitechapel Rd. of W. London County Council	800, per week	Aug. 25

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. & viii. Public Appointments, pp. xviii. & xxi.

179.	Watson-st., u.t. 66 yrs, g.r. 4 <i>l.</i> 10 <i>s.</i>	£107	26 to 28½ (even), 288 and 299, Old Ford-rd., u.t.	£7,170	Orchard and market garden land, 7 <i>a.</i> 2 <i>r.</i> 3 <i>p.</i>	£675
180.	Horton-st., and 14, Marian-st., g.r. 3 <i>l.</i> 3 <i>s.</i>	295	36 yrs, g.r. 10 <i>l.</i> 1 <i>r.</i> 2 <i>s.</i> 8 <i>d.</i>		By KILLINGWORTH & SON (at Stratford).	
181.	Dalston—32, Navarino-rd., u.t. 55 <i>l.</i> yrs, g.r.	450	28 <i>l.</i> Old Ford-rd., and in 2 to 13, Royal	2,300	Boston (near), Lincs.—“The Boston West Farm,”	8,300
182.	65 <i>r.</i> , g.r. 4 <i>l.</i>		Victor-pl., u.t. 56 <i>l.</i> yrs, g.r. 14 <i>r.</i> 2 <i>s.</i> 11 <i>d.</i>		203 <i>l.</i> 3 <i>r.</i> 37 <i>p.</i> , f. r. 20 <i>l.</i>	
183.	Hampstead—5, Tennyson-rd., u.t. 40 <i>l.</i> yrs, g.r. 7 <i>l.</i>	400	Rethel-gate, 10, 11, 12, 13, Hamilton-gate, 14, 15,	300	26 <i>a.</i> 2 <i>r.</i> 12 <i>p.</i> , f. r. 20 <i>l.</i>	8,000
	g.r. 4 <i>l.</i>		17 yrs, g.r. 5 <i>l.</i>		By R. C. MACKENZIE (at Glasgow).	
	By E. SIMPSON.		By ORGILL, MARKS & ORGILL (at Mason's Hall Tavern).		Paisley, &c., Renfrewshire.—“The Estate of Hart-	32,000
184.	Denpford—39 and 43, Giffen-st., f. r. 25 <i>l.</i>	190	Islington—Elmore-st.—“The Prince Albert”	8,000	By STANKE & SON (at Hereford).	
185.	34, Charles-st., f. r. 25 <i>l.</i>	335	p.h., u.t. 48 yrs, r. 200 <i>l.</i> , with goodwill—		Ewyas Harold, Hereford.—Enclosures of land,	2,800
	By HUMBERT, SON, & FLINT.		By HEPPER & SONS (at Leeds).	1,270	45 <i>a.</i> 0 <i>r.</i> 59 <i>p.</i> , f. r. 32 <i>p.</i> , f. f.	3,925
186.	Watford, Herts.—Hemmel Hempstead-rd., “Dell	5,600	Leeds—13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,	830	Enclosures of building land, 18 <i>a.</i> 3 <i>r.</i> 22 <i>p.</i> , f. f.	0,950
	field, and 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,		18, 19, and 20, Claremont-pl., 68, 100 and		Enclosures of land, 18 <i>a.</i> 3 <i>r.</i> 22 <i>p.</i> , f. f.	3,925
	Southwark-st., f. r. 20 <i>l.</i> , and 15, 16, 17, 18, 19,	1,650	100, Queen's-pl., f. r. 68 <i>l.</i>		By LEOPOLD FARMER.	
	Three Crown-59 <i>l.</i> , f. r. 200 <i>l.</i>	4,500	69, 70, 70 <i>a</i> and 71, Kirkgate, 4 and 5, High Court	3,550	Hampstead—1, 2, and 3, The Green, and 1 <i>a.</i> 1, 2,	1,700
187.	Notting Hill—25, Stanley-cres., f. r. 11 <i>l.</i>	1,650	Lane and Wandle, &c., adjoining area 3 <i>a.</i> 1 <i>r.</i> 1 <i>p.</i>	800	13, West-cottages, area nearly 1 <i>a.</i> , f. r.	3,350
188.	Great Portland-st., f. r. 20 <i>l.</i>	6,630	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,	960	15 odd), Narborough-rd., f. r. 20 <i>l.</i>	3,350
	1, 18 <i>a.</i> 2 <i>r.</i> 38 <i>p.</i>		30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43,		1, 2, 4, 5, 6, Cedar-villas, f. r. 20 <i>l.</i>	3,100
	“Roundbush Farm,” 5 <i>a.</i> 1 <i>r.</i> 38 <i>p.</i> , f. r.	350	46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59,		14, Midland, f. r. 34 <i>l.</i>	605
	Enclosures of building land, 17 <i>a.</i> 5 <i>r.</i> 0 <i>r.</i> 21 <i>p.</i> , f. r.		60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73,		St. John's-wood, 2 <i>a.</i> 3 <i>r.</i> 34 <i>p.</i>	675
	By DEAN, DEAN & DEAN.		74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87,	6,500	g.r. 14 <i>r.</i> 6 <i>s.</i>	575
189.	Victoria Park—Bishop's-rd., i.g.r. 22 <i>l.</i> , u.t. 46	350	88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100,		Stroud Green—33, Inderwick-rd., u.t. 93 <i>l.</i> yrs,	340
	yrs, g.r. 5 <i>l.</i> , with reversion		101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111,		City of London—33, 34, 35, 36, 37, 38, 39, 40, 41,	805
	By E. SIMPSON.		112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122,		50 yrs, g.r. 65 <i>l.</i> , r. 126 <i>l.</i>	
190.	Bishop's-rd., “The Windsor Castle” p.h., &c.,	1,400	123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133,		Maida Vale—No. 131, u.t. 36 yrs, g.r. 21 <i>r.</i> , r. 102 <i>l.</i>	650
	g.r. 65 <i>l.</i> , u.t. 43 yrs, g.r. 8 <i>l.</i> 15 <i>s.</i> , with		134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144,		By HOBSON, RICHARDS, & CO.	
	reversion		145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155,		Stamford Hill—53, 57, and 63, Ravensdale-rd.,	1,050
	By E. SIMPSON.		156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166,	1,092	u.t. 73 yrs, g.r. 35 <i>r.</i> , r. 180 <i>l.</i>	1,050
191.	Old Ford-rd., i.g.r. 17 <i>l.</i> , u.t. 33 yrs, g.r. 4 <i>l.</i>	350	167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177,		49, East Barn-rd., u.t. 52 yrs, g.r. 10 <i>l.</i>	1,000
	with reversion		178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188,	6,100	Anierley—56, Derwent-rd., u.t. 68 yrs, g.r. 10 <i>l.</i>	1,

Kingsland.—425, Kingsland-rd., u.t. 28 yrs., g.t. 64, r. 404. By WAGSTAFF & SONS. £325

Highbury.—705, Highbury Quadrant, u.t. 58 yrs., g.t. 107, r. 705. By DOUGLAS YOUNG & Co. 330

Pimlico.—37, Hanover-st., u.t. 27½ yrs., g.t. 74, r. 37. 370

Marylebone.—24 and 26, Brompton-rd., u.t. 18 yrs., g.t. 37, r. 188, r. 454. 195

Fulton-rd.—Stanhope-st., a leasehold rental of 50s. for 14 yrs. 530

Brixton.—59, Brompton-rd., r. 454, also g.t. 74, r. 108, u.t. 25 yrs., g.t. 157, r. 128. 250

Fulham.—Adeney-rd., four building plots, f. 405

Willesden.—Dudden Hill-lane, &c., six building plots, f. 360

Pimlico.—62, Ranelagh-rd., u.t. 25½ yrs., g.t. 84, r. 554. 420

Vauxhall.—57, Bonnington-sq., u.t. 84½ yrs., g.t. 74, r. 108. 415

By THURGOOD & MARTIN.

Buxted, Sussex.—"Claygate Farm," 82 a. 3 r. 24 p. f. 1,550

Two cottages and a. 2 r. 35 p. f. 160

Cuckfield, Sussex.—"Penland Farm," 40 a. 3 r. 10 p. f. 1,800

Whitechapel.—Westworth-st., f.g.t. 304, reversion in 41 yrs. 1,200

Westworth-st., f.g.t. 757, reversion in 1 yr. 3,000

Westworth-st., f.g.t. 554, reversion in 8 yrs. 1,440

Old Castle-st., f.g.t. 304, reversion in 41 yrs. 1,600

Goulston-st., f.g.t. 350, reversion in 94 yrs. 10,400

Old Castle-st., f.g.t. 704, reversion in 47 yrs. 2,500

Old Castle-st., &c., f.g.t. 41, reversion in 708 yrs. 500

By RULE-OWEN & SON (at Tenby).

St. Florence, Pembrokeshire.—"Park Wall Farm," 151 a. or 34 p. f. 2,950

By R. DONKIN & SON (at Newcastle).

Lanchester (near), Durham.—"The Broadwood Park Estate," area 399 a., f. & c. 11,000

By FRETZ FARMER (at Ormskirk).

Aughton, Cheshire.—Prescot-rd., f.g.t. 257, reversion in 980 yrs. 653

By T. PARRY (at Newport).

Pontymister, Merioneth.—The Pontymister Rail and Timpale Works and 352 a. u.t. 56 yrs., r. 836 f. 32,000

By R. C. PEACE (at Barnard Castle).

Bowes, Yorks.—"Kilnwood Wood Farm," 133 a. 1 r. 37 p. f. 1,150

Various enclosures, 42 a. 2 r. 6 p. f. 995

A freehold farm, area 16 a. 3 r. 4 p. 560

11½, Stints-on-Bowes Moor. 310

July 20.—By H. J. CHESTER (at Cloughmore).

Albury, Herts.—"Upwick Farm," 437 a. 1 r. 1 p. f. 3,100

By PAXTON & HOLLIDAY (at Banbury).

King's Sutton, Northants.—"Little Furston Farm," 150 a. 1 r. 16 p. f. 3,150

Thorpe Manor, Northants.—"Thorpe Fields Farm," 104 a. 2 r. 37 p. f. 3,100

Warrington, Oxon.—"Archers Ground," 23 a. or 21 p. f. 700

By W. A. BLAKEMORE.

Isleworth, North-st.—"Rhombus House," u.t. 97 yrs. 145

Teddington, High-rd.—"St. Clement's," Elm-leigh, f. r. 1304. 1,650

Harrow, Middlesex.—6, Roxborough Pl.-rd., f. r. 1054. 1,725

Roxborough Pl.-rd., f.g.t. 184, reversion in 65 yrs. 500

Contractions used in these lists.—F.g.t. for freehold ground-rent; l.g.t. for leasehold ground-rent; r. for improved ground-rent; g.t. for ground-rent; r. for rent; f. for freehold; c. for copyhold; s.t. for subsoil; e.t. for estimated rental; u.t. for unexpired term; p. a. per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		TIMBER (continued).	
Greenheart, B.C.	ton 8/10 0/10	Sassa, Port, Rio	16/6 0/10
Teak, E.I., lead	10/10 10/10	Walnut, Italian	0/10 0/10
Sequoia, U.S. f.c.	18 1/10	METALS.	
Ash, Canada load	8/10 4/10	Iron—Pig, in Scotland	0/10 0/10
Birch, do.	4/10 6/10	Bar, Welsh, in	0/10 0/10
Elm, do.	4/10 5/10	London	5/10 5/10
Flr. Dantale, &c.	2/10 4/10	Do. do. at works	5/10 5/10
Oak, do.	8/10 9/10	In Wales	5/10 5/10
Pine, Canada red	5/10 6/10	Do. Staffordshire	5/10 5/10
Do. Yellow	4/10 4/10	In London	6/10 7/10
Lath, Dantale, fath	4/10 5/10	COPPER—British	
St. Petersburg	8/10 8/10	Cake and ingot	5/10 5/10
Wainscot, Riga	8/10 8/10	Best selected	5/10 5/10
Oak, leg	1/10 3/10	Sheets, strong	5/10 5/10
Oregon, crown	2/10 3/10	Chili bars	5/10 5/10
Deal, Finland	8/10 8/10	YELLOW MET. IR.	4/10 5/10
Do. 4th and 5th	8/10 8/10	LEAD—Pig	
Do. 6th and 7th	8/10 8/10	English	12/10 12/10
Do. 8th and 9th	8/10 8/10	Sheet	12/10 12/10
St. Petersburg	10/10 10/10	6 lb. per sq. ft.	12/10 12/10
Do. and yellow	8/10 8/10	Sheet	12/10 12/10
Do. white	8/10 8/10	Pipe	14/10 14/10
Sweden	8/10 8/10	Sheet	14/10 14/10
White Sea	8/10 8/10	T.R.C.—English	10/10 10/10
Canada, Pine	8/10 8/10	Sheet	10/10 10/10
Do. do. and	8/10 8/10	Vielles Mon.	10/10 10/10
Do. do. and	8/10 8/10	Spelter	12/10 12/10
Do. do. and	8/10 8/10	Tin—Strait	6/10 6/10
Do. do. and	8/10 8/10	Australian	6/10 6/10
Do. do. and	8/10 8/10	English ingots	6/10 6/10
New Brunswick	8/10 8/10	Sheet	6/10 6/10
Batavia, all kinds	5/10 5/10	Billon	5/10 5/10
Flooring boards,	5/10 5/10	OILS.	
8 1/2 in. prep.	5/10 5/10	Lined—do. ton	16/10 16/10
1st	0/10 0/10	Cocunut, Indian	16/10 16/10
2nd	0/10 0/10	Do. Caylon	16/10 16/10
Other qualities	0/10 0/10	Palm, Lagos	16/10 16/10
Cedar, Cuba, R.	14/10 14/10	Rapessed, English	16/10 16/10
Honduras, &c.	14/10 14/10	Do. do.	16/10 16/10
Mahogany, Cuba	15/10 15/10	Do. do.	16/10 16/10
St. Domingo	15/10 15/10	Do. do.	16/10 16/10
Cargo av.	14/10 14/10	Do. do.	16/10 16/10
Meaco, do. do.	14/10 14/10	Do. do.	16/10 16/10
Tabaco, do. do.	14/10 14/10	Do. do.	16/10 16/10
Honduras, do.	14/10 14/10	Do. do.	16/10 16/10
Row, Turkey, ton	7/10 7/10	Do. do.	16/10 16/10
Bahia	7/10 7/10	Do. do.	16/10 16/10
Satin, St. Domingo	0/10 0/10	Do. do.	16/10 16/10

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ABERSOCH (Carmarvonshire).—For alterations and improvements to Bwch C. M. Chapel, Abersoch, near Pwllheli. Mr. R. L. Jones, architect, Carmarvon. £575

AUDENSHAW.—For the erection of class-room, St. Stephen's Central School. Mr. J. H. Burton, architect, St. Guldene, Hestley Hill. £100 15 0

BARRY (Glamm).—For the erection of school buildings, Barry Island, for the School Board. Mr. G. A. Birkenhead, architect, Caledonian-chambers, St. Mary-street, Cardiff. Quantities by the architect. £1,800

BARRY (Glamm).—For the erection of school buildings, Barry Island, for the School Board. Mr. G. A. Birkenhead, architect, Caledonian-chambers, St. Mary-street, Cardiff. Quantities by the architect. £1,800

BECKENHAM.—For the execution of painting works, repairs, &c., Alexandra School, for the School Board. Mr. John Ladd, architect, 7, Doughty-street, Mecklenburgh-square, W.C. £275

BIGGLESWADE (Beds).—For the execution of sewerage works, &c., Potten, for the Rural District Council. Mr. John W. B. Rooke, Surveyor, Council Offices, Biggleswaide. £1,750

CARNARVON.—For the erection of school buildings, Carnarvon, for the Landward School Board. Mr. R. L. Jones, architect, Carnarvon. £1,750

CARNARVON.—For the erection of County school buildings, in Bethel-road, Carnarvon, for the Carnarvon Local Governing Body. Mr. R. L. Jones, architect, Carnarvon. £1,750

CARNARVON.—For the erection of school buildings, for the Committee of Wainwarr C. M. Chapel. Mr. R. L. Jones, architect, Carnarvon. £1,750

CARNARVON.—For the erection of Sunday School buildings, for the Committee of Wainwarr C. M. Chapel. Mr. R. L. Jones, architect, Carnarvon. £1,750

CHWILGO (Carmarvonshire).—For alterations and additions to Siloh Independent Chapel, Chwilgo, R.S.O. Mr. R. L. Jones, architect, Carnarvon. £1,750

CROOK (Durham).—For the erection of warehouses, &c., for Mr. J. Anderson. Mr. H. T. Gradie, architect, 23, Market-place, Durham. £1,750

ECCLIES (Lancs).—For the erection of a pavilion in the recreation ground, for the Corporation. Chapman & Hilliworth, Patricroft. £1,750

EDEYRN (Carmarvonshire).—For the erection of chapel and school near Pwllheli, for the Committee of Edeyrn C. M. Chapel, Edeyrn, near Pwllheli. Mr. R. L. Jones, architect, Carnarvon. £1,750

LONDON.—For the execution of drainage works at the Infirmary and additions to the workshop and infirmary in the Fulham Palace-road, Hammer-smith, W.C., for the Guardians of the Poor of the Fulham Union. Mr. A. Saxon-Snell, architect, 22, Southampton-palace, Chancery-lane, W.C. Quantities by Mr. Walter Herring, Trafalgar-buildings, Chancery-lane, W.C. £1,750

LOWESTOFT.—For alterations to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clark, architect, 126, London-road, Lowestoft. £1,750

GLEDHOW (near Leeds).—Accepted for the erection of two semi-detached houses, for Messrs. J. & H. Longbottom Mr. W. Carby Hall, Prudential-buildings, Leeds. Quantities by the architect. £1,750

GREAT YARMOUTH.—For the erection of St. Paul's Mission Church, half timbered, for channel, nave, and organ chamber. Messrs. Bontle & Oley, architects, 5, Queen-street, Great Yarmouth. Quantities by the architects. £1,750

HULL.—Accepted for the erection of workshops, &c., St. Andrew's Dock, for the Humber Shipwright Co. Ltd. Messrs. Freeman, Son, & Gaskell, architects, Albert-chambers, Canal-lane. Hull. Quantities by the architects. £1,750

LONDON.—For alterations to the "Kentish Drovers" public-house, for Mr. E. W. Carpenter. Messrs. Waring & Nicholson, architects and surveyors, 55, Pall-mall-street, Westminster. £1,750

LONDON.—For the erection of a house and stable at No. 74, Avenue-road, N.W. Messrs. H. H. & M. E. Collins, architects, 61, Old Broad-street, E.C. £1,750

LONDON.—For alterations and repairs to house at No. 82, Wimpole-terrace, W. Messrs. Mallet, Booker, & Co., surveyors. £1,750

LONDON.—For alterations and repairs to house at No. 82, Wimpole-terrace, W. Messrs. Mallet, Booker, & Co., surveyors. £1,750

LONDON.—For re-drainage, &c., and additions to the infirmary, Warrington, for the Incandescent Electric Lamp Company. Mr. J. W. Stevens, architect, New Bridge-street, E.C. £1,750

LONDON.—For the completion of two houses on the Colts Park Estate, Twickenham. Mr. George F. Snares, architect, 57 and 58, Chancery-lane, W.C., and Hampden Hill, Middlesex. £1,750

LONDON.—For alterations, &c., "Hyre Arms" Hotel, St. John's Wood, N.W. £1,750

LONDON.—For the erection of a factory at Brook Green, Hammer-smith, for the Incandescent Electric Lamp Company. Mr. J. W. Stevens, architect, New Bridge-street, E.C. £1,750

LOWESTOFT.—For alterations to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clark, architect, 126, London-road, Lowestoft. £1,750

LOWESTOFT.—For alterations to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clark, architect, 126, London-road, Lowestoft. £1,750

LOWESTOFT.—For alterations to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clark, architect, 126, London-road, Lowestoft. £1,750

LOWESTOFT.—For alterations to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clark, architect, 126, London-road, Lowestoft. £1,750

NORWICH.—For additions to the West Norfolk and Lynn Hospital. Mr. H. J. Green, architect, 35, Castle Meadow, Norwich.—
R. W. Fayers.....£1,253 15 6
W. H. Brown.....1,150 0 0
* Accepted conditionally.
[All of King's Lynn.]

ROUNDHAY (Yorks).—Accepted for the erection of a house, stable, &c., near Leeds, for Mr. J. Holmes. Mr. W. Carby Hall, architect, Prudential-buildings, Leeds. Quantities by the architect.—

Bricklaying and Masonry.—G. Nettleton & Sons.
Roundhay£2,553 15 6
Carpeting at 17 Henry£1,135 15 6
Painting and GlazingW. Briggs, Leeds124
PlasteringT. Moore, Leeds128
TilingWatson & Worsnop, Leeds142
PaintingW. Walth & Sons, Leeds38

ST. ALBANS.—For the erection of four villas in Upper Watling-road, Mr. Percival C. Blow, architect, 7, Leadenhall-road, St. Albans.—
Bushell£1,315 15 6
Bott Bros.3,710 0 0
* Accepted subject to certain slight deductions.

TEDDINGTON.—For the reconstruction of Church-road, for the Urban District Council. Mr. M. Hainsworth, Surveyor, Elmfield House, Teddington.—

Free and Sons.£2,309 3 4
Lawrence & Thacker3,554 10 0
Kavanagh5,414 15 0
W. Adamson3,315 15 0
T. Adams3,755 8 0
Wm. Watley, Stoke New2,073 0 0
J. Wainwright255 4 8
A. J. Hobman206 12 6
* Accepted.

THUNDERLEY (Essex).—For the erection of cottage residence. Mr. Arthur T. A. Bowyer, architect, 90, Leadenhall-street, E.C.—
Geo. Lacey (accepted)£295

LONDON SCHOOL BOARD TENDERS.

BROOMSLEIGH-STREET.—Exterior painting:—
C. Chidley£128 15 6
Marchant & Hirst154 0 0
W. Hornett131 0 0
* E. T. Foley*85 0 0

CENTRAL-STREET.—Exterior painting:—
C. Guling£120 15 6
W. Hornett160 0 0
* E. Foley*97 0 0

COBOURG-ROAD.—Exterior painting:—
H. Garrett & Son£255 0 0
W. V. Good130 0 0
Jones & Groves193 13 6

DALMAIN-ROAD.—Exterior painting:—
A. Black & Son£145 0 0
G. Summers124 15 6
Jones & Groves156 0 0
G. Kemp*85 0 0

CAINSBOROUGH-ROAD.—Exterior painting:—
C. Wales£216 0 0
W. Silk & Son127 0 0
W. Shummit170 0 0
J. Kybett187 0 0
T. Nicholson159 0 0

MONTEITH-ROAD.—Exterior painting:—
A. W. Derby£275 0 0
J. Kybett247 0 0
J. T. Robey280 0 0
D. Gibb & Co.295 0 0
G. Wales271 10 0

MONTEM-STREET.—Exterior painting:—
G. Barker£240 0 0
McComick & Son285 0 0
W. H. Stephens171 10 0
Stevens Bros*158 0 0

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, OAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, AVE STREET, FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 65, 274 Holborn. Tele. Address, "SNEWIN, London."

NEW ROAD.—Exterior painting:—
Holloway Bros.£245 0 0
F. G. Minter235 0 0
J. Garrett & Son170 0 0
Rice & Son175 0 0
D. Charteris168 0 0
Brittan£156 0 0
J. Ford140 0 0
Laffey Bros.149 0 0
Lilly & Lilly147 0 0
E. Triggs*145 0 0

POPHAM-ROAD.—Exterior painting:—
G. Barker£127 0 0
McComick & Son130 0 0
Marchant & Hirst137 0 0
Stevens Bros.£127 0 0
E. Foley*127 0 0

ROTHERHITHE NEW-ROAD.—Exterior painting:—
Johnson & Co.£193 0 0
Rice & Son145 0 0
G. Summers172 10 0
W. Banks£150 0 0
E. Triggs*153 0 0

ST. JOHN'S ROAD.—Exterior painting:—
A. W. Derby£259 0 0
McComick & Son195 0 0
W. Silk & Son195 0 0
Kybett£185 0 0
G. S. S. Williams & Sons168 0 0
G. Barker*183 0 0

TRINITY PLACE (exterior painting).—
T. Cruys£105 0 0
G. Wales93 0 0
J. Kybett£85 0 0
G. Barker*75 0 0

WARPIE-WAY.—Exterior painting:—
Rice & Son£212 0 0
D. Charteris155 0 0
R. E. Williams & Son154 0 0
Holloway Bros.£140 0 0
F. G. Minter138 0 0
E. T. Bullard & Co.119 0 0

WOOD-STREET.—Exterior painting:—
G. Summers£201 15 6
W. Banks18 6 0
Jones & Groves£178 10 0
E. Triggs*150 0 0
* Accepted.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.
We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.
We are compelled to decline pointing out books and giving addresses.
Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES, GREENHOUSES, WOODEN BUILDINGS,

Bank, Office, & Shop Fittings.

CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied direct from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 25s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46 Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Office) to the Publishing Office, 4s. 6d. per annum, can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.

DOULTING STONE.

The Ham Hill and Douling Stone Co. (Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Douling Stone Co.). Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

THE TEST OF TIME

has proved that SZERELMEY STONE LIQUID Absolutely waterproofs and preserves Bricks, Stone, Cement, Stucco, Plaster, &c. SZERELMEY & Co., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava Asphaltic Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-roofs, and terraces. Asphaltic Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO., PHOTOLITHOGRAPHERS, 4 & 5, East Harding-street, Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch. METCHIM & SON, 20, Parliament-st. S.W. "QUANTITY SURVEYORS' TABLES." For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

PILKINGTON & CO

(ESTABLISHED 1838), MONUMENT CHAMBERS, KING WILLIAM STREET, LONDON, E.C.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING. ACID-RESISTING ASPHALTE. WHITE SILICA PAVING. SEYSSSEL ASPHALTE.

ERIEST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS. PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow. Head Office and only City Address, 61, ST. MARY AXE, E.C. SEND FOR ILLUSTRATED PRICE LIST.

ILLUSTRATIONS.

Proposed Memorial Church.—Messrs. Clark & Hutchinson, Architects.....	Double-Page Photo-Litho.
Stalls, Organ Case, and Screen, Kington Church, Warwickshire.—Mr. John Belcher, F.R.I.B.A., Architect.....	Double-Page Ink-Photo.
Carved Oak Stall-Canopies, Lancaster Church.....	Two Single-Page Ink-Photos.
Roman Remains recently found at Chester.—From Photographs by Mr. Matthews Jones.....	Single-Page Ink-Photo.
Illustrations to Mr. Banister Fletcher's Essay on "Influence of Materials on Architecture".....	Single-Page Ink-Photo.

Blocks in Text.

Sketch Section of Dome, St. Paul's.....	Page 145	Hoghton Towers.....	Page 148
Sketch Section of Dome, Pantheon, Paris.....	" 145	The Gateway, Lancaster Castle.....	" 148
Sketch Section of Nave, St. Paul's.....	" 145	Design for Memorial Church.—Plan.....	" 152
A New Fixing Brick.....			Page 157

CONTENTS.

The Working of the Conciliation Act.....	143	Kington Church.....	152	Obituary.....	154
The Influence of Material on Architecture.....	144	Carved Oak Stall Canopies, Lancaster Church.....	152	General Building News.....	155
Notes.....	145	Roman Remains in Chester.....	153	Sanitary and Engineering News.....	156
The Architectural Association Excursion.....	147	Examples of "Influence of Materials on Architecture".....	153	Stained Glass and Decoration.....	156
Some Thoughts on Old English Architecture.....	149	Competitions.....	150	Foreign.....	156
Archæology as a Science.....	150	Archæological Societies.....	153	Miscellaneous.....	156
Books: S. Ridsdale's "Water and its Purification;" Appleby's.....	151	Cardiff New Town Hall and Law Courts.....	153	Capital and Labour.....	157
Illustrated Handbook of Machinery;" R. H. Jones' "Ar-.....	152	Tendering.....	153	Legal.....	157
chitectural and Aesthetic;" M. Mather's "John Ruskin".....	152	Foundation or Commemorative Stones.....	153	Meetings.....	157
Trade Catalogues.....	152	Dantric Oak for Window Sills.....	154	Recent Patents.....	157
Proposed Memorial Church.....	152	Student's Column: Quantities and Quantity-Taking. V.....	154	Some Recent Sales.....	158

The Working of the Conciliation Act.



THE Board of Trade have issued their first Report on the working of the Conciliation Act, 1896. It covers the period from the date when the Act came into force, namely, August 7, 1896, to June 30 in the present year.

When the Act was under discussion in Parliament we pointed out that it could do no harm, and might do some good, but that it was difficult to anticipate any great results from it. That opinion seems to be justified by this Report. It has effected some modest and useful work, but its most useful purpose has been to emphasise the principle that disputes ought to be settled by peaceful methods rather than by industrial war. The practical effect has not, we think, been great.

The Act itself enables the Board of Trade, when a difference exists, or is apprehended, between employers and workmen, or between different classes of workmen, to inquire into the cause and circumstances of the difference, or to take such steps as the Board may think expedient to enable the parties to meet under the presidency of a chairman mutually agreed upon or nominated by the Board or by some other person, with a view to the amicable settlement of the difference. Or, again, the Board may, on the application of either party, appoint a person to act as conciliator or may appoint a board of conciliators, or, on the application of both parties, may appoint an arbitrator. For the period already mentioned this section has been employed in the sense that action has been taken or invited in thirty-five cases. In four cases there has been no settlement, though in one of these the dispute was subsequently settled by the parties and some outside individuals, and in six cases the application was declined. One of the other cases is that of the Penryn Quarries, in regard to which the official summary is "No settlement, dispute still in progress."* The same result has to be

chronicled in regard to the Boot and Shoe Operatives dispute at Norwich. We have, therefore, twelve cases, at least, in which the Act has proved useless. In the other cases the intervention of the Board of Trade has been of use: even without the Act it is probable that some of these disputes would have been practically settled, but it is nevertheless a distinct advantage that there should be some impartial body to which either or both sides can apply with a view to putting an end, by conciliation or arbitration, to a trade dispute.

Among these thirty-five cases we find several of special interest to the readers of this journal. There is a dispute between the bricklayers and plasterers of Newcastle-on-Tyne, which arose out of a long-standing dispute as to the limits of work belonging to the respective trades in respect of the laying of cement flooring. In 1893 the matter was referred to the arbitration of the Tyneside Building Federation, and their decision was that the work belonged to the plasterers, except jobbing builders' repairs in sanitary work, which might be done by either party. Difficulties arose, however, in regard to the working out of this award, with the result that the masters locked out both plasterers and bricklayers. The intervention of the Board of Trade had no practical result, but "in March, 1897, at a conference consisting of two architects, two builders, two bricklayers, and two plasterers," the dispute was finally settled. Here we have a case in which both before and after the intervention of the Board there were peaceful arrangements, so that this is a striking instance of the fact that the Act in many instances is of no practical value. Another case arose out of a strike of painters at Middlesbrough. They demanded an advance of one penny per hour, and some alteration in the working rules. On March 22, the General Secretary of the Men's Union asked the Board of Trade to take action. Several interviews subsequently took place between a representative of the Board and the employers and workmen, but no settlement or arbitration was arrived at, and, says the Report, "the dispute has not been settled." Two other cases arose out of disputes in regard to carpenters and joiners at Prescott, in Lancashire. The question was a simple one. The work on which the men were employed was within the Liverpool ten-mile radius, and so was covered by the work-

ing rules of the Liverpool district. But these rules were not in force within the Prescott district, to which the men and the master builder belonged. A conference was arranged by the Board of Trade, at which Mr. W. E. Willink, architect, of Liverpool, agreed to preside, and the dispute was settled by an agreement that the master would conform to the rules of the Liverpool district while he was doing work within it. In the last "building" case, that in reference to the masons at Huddersfield, the application made by the mayor on behalf of the Master Masons' Association was declined "as the possibilities of direct negotiation between the parties did not appear to be exhausted, and it did not seem that any useful purpose would be served by appointing a conciliator." This was the right and prudent course; the intervention of a Government Department should be the last resort, and, as we have already said, we consider the good results of the Act to arise not so much from the direct action of the Board, as from the fact that the statute is a direction, so to say, that parties should compose their differences in a friendly manner.

In the case of the carpenters and joiners at the Potteries a joint application was made by masters and men asking the Board to appoint an umpire to determine certain questions on which the parties were unable to agree. "It appears that the men had asked for an advance of wages of 1d. an hour (from 8d. to 9d.) while the employers claimed a reduction of 1d. (from 8d. to 7d.). A further matter to be submitted to the umpire was the amendment of the working rules so far as relates to the number and binding of apprentices. The master-builders complained of the burden imposed on them by the present indentures of apprenticeship, and also that if through discharge of journeymen in slack times they were left with more apprentices in proportion to journeymen than were allowed by the working rules, they would not be permitted by the indentures to discharge their apprentices so as to reduce them to the "recognised proportion." Sir William Markby, a retired Indian Judge, and now, we believe, connected with the University of Oxford, who had previously decided a dispute of bricklayers in the same district, was appointed umpire, and issued his award on April 30, by which he gave the men a

* From a paragraph in our "Miscellaneous" column it will be seen that there is now some hope of the dispute being speedily terminated.

small rise of wages, finding in effect that the claim both of masters and men was unreasonable. It is a little difficult to understand why application could not have been made to Sir W. Markby by the parties in the first instance; but, be that as it may, the Board fulfilled a useful function in being able to nominate an umpire.

We have dealt only with such cases in this report as are in some measure connected with the building trade; there are others of larger and more general importance; on these we do not propose to touch. They show, however, that the Board of Trade has so far acted with discretion and good judgment, and their advice will become more valuable as experience is gained and records preserved of past disputes. Nor can we omit to notice that in some of these disputes members of the architectural profession have exercised useful and, as we suppose, judicial functions. This is as it should be. In many respects architects are well fitted to be arbitrators or umpires in disputes which arise in connexion with building trades. They are familiar with the ways of masters and of men. They are immediately connected with neither side, and they are thus in a position to bring both knowledge and impartiality to bear on any dispute in which they may have to intervene. The Institute of Architects would, we think, be doing useful work if they were to obtain the names of members of the Institute in different parts of England who would be willing to place their services at the disposal of the Board of Trade. In Sir Courtney Boyle's introductory letter to the Report, he observes that "if the tendency to use the Act grows, the Board of Trade will have to rely more and more on the assistance and service of such gentlemen (referring to those who have acted as arbitrators and umpires) in completing negotiations, the preliminary stages of which may be usefully conducted by the officers of the department." The Institute might well bring their position and knowledge to bear in this matter.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.

BY BANISTER F. FLETCHER, A.R.I.B.A.

CHAPTER VII. (continued).

Excursus: Bye-paths of Glass, Marble, Terra-cotta, Brick, Wood, and Iron.

So far as internal architecture is concerned the invention of painted glass was perhaps the most beautiful ever made. Neither the painted sculpture and hieroglyphics of the Egyptian temples, the coloured and sculptured slabs of the Assyrian palaces, the paintings of the Greek temples, nor the mosaics and frescoes of the Byzantine and Romanesque periods produced colour effects that can be compared with the brilliancy and the many-tinted splendours of the transparent walls of a Gothic cathedral, alive in its windows, a blaze of glorious colouring. In the north and west of Europe, where this material is the principal mode of decoration, the walls were kept internally as flat as possible, so as to allow the windows to be seen in every direction, while all the mechanical expedients of piers and flying buttresses are placed on the outside to facilitate the introduction of this new material—glass. Even further, when by the grouping of windows and the subsequent

formation of mullions and tracery, the entire screen wall between the piers came to be occupied by bright coloured windows, these windows of necessity took the pointed form of the vault, in place of the previous semi-circular; the pointed form having been originally adopted for constructive reasons arising from the progress of the art of vaulting, which was further influenced by the desire for lofty windows to act as frames for the glass.

The influence of marble in Northern and Central Italy caused a divergence from the Northern Gothic type. In Italy the abundant and beautiful coloured marbles induced the elaboration of a plain wall treatment that reduced mouldings to flatness and comparative unimportance as in the cathedrals of Florence, Sienna, and Orvieto, or in such Venetian palaces as the example given in the lithograph, where the architect relies for effect of light and shade on disposition and colour alone. The influence is also seen in Greek and Italian Sculpture, which differs from the rude work of Northern Europe, partaking, as it did, of almost classical purity.

In Byzantium, the pierced lattices of the windows also furnish examples of another beautiful method of marble slab construction. The large windows at St. Sophia are sub-divided by marble posts, between which the pierced lattices make a mere screen. The western windows are similarly pierced out of sheet marble with a meander carved on the bars. The lower part of the window openings are fitted with marble closures, sometimes of translucent *phengites*, through which the light shone. In St. Sophia the architects used bronze formed into panels on a wood frame, and with panel margins of cast bronze, decorated with meanders, frets, and leaf mouldings, delicately modelled in high relief, as an addition to the rich and effective interior.

In the use of terra-cotta and brickwork, especially in Italy, the influence is evident, the plastic state of the material rendered abundance of ornament easy of application, and a smallness of detail followed, which was eminently suited to the material, as, for example, at the Frari Church at Venice and elsewhere (see lithograph).

The treatment of moulded brickwork has never been carried further to perfection than in North Italy during the Gothic and Early Renaissance period, especially in civic buildings. The effect of sublimity is perhaps not to be obtained in so small a material unless used in the broad massive manner of the Romans. On the other hand, there is no beauty of detail or of design on a small scale that may not be obtained by the use of moulded bricks; which, if carefully burnt, are as durable as most kinds of stone.

The Italian use of brickwork was essentially the right one; the details were small and designed with taste, and the effect of variegated colour was relied on instead of depth of shadow—a perfectly legitimate use of light and shade and warmth where small materials are used, and in which stone of different colour is carried systematically in patterns through the design, and gives a special character, as at Verona. A flatness and want of shadow is necessarily characteristic of brick buildings, sufficient projection not being obtainable for cornices; but such can scarcely be deemed a fault in the material. It was, however, always tolerated

by the Italians, who allowed the material to express its own capabilities without trying to disturb its architectural function.

In Northern Germany, in the valley of the Elbe, a brick architecture was developed as at Lubeck and the neighbouring cities, which, although not equalling that in the valley of the Po, has that special character belonging properly to the material, although expressed in a somewhat meagre manner.

The influence of wood as a constructive material produced a class of buildings of which Moreton Hall (see lithograph) is a type, and which were erected during the later Middle Ages when abundance of timber was at hand. These buildings well express the functions of the material.

Decorative ironwork has in the past added largely to the character of different periods, and reference need only be made to the Spanish "rejas," rich in their fanciful details, and sparkling as if fresh from the smith's forge, in a stream of sunlight darting across the dark nave of some Spanish church, to remind one of the liturgic mysticism of the Mediaeval periods.

CHAPTER VIII.

The Renaissance Period: A Period of Upheaval and Destruction. Style Largely Independent of the Influence of Material.

The Renaissance of the fifteenth century in Italy, and of the sixteenth century in other parts of Western Europe, was a period of destruction—a break in that orderly evolution of architecture which is based on the nature and necessities of materials.

In place of such evolution we have the worship of style, that is of the past results of the nature of materials as formulated into systems. Such results were worshipped for their own sake, and applied regardless of the materials of their execution. The designer is revenged for the trials and perplexities of his long subjection to the duress of Nature, and now carries out his design even in the face of the nature of the material he employs.

The falsity, however, of this Renaissance school of design is evident when we trace back to the roots the origin of its characteristic features.

History points out that there is no escape from the influence of material, nor from any feature, however arbitrarily developed subsequently, that had not its origin in the special qualities of some material and structural requirement to which it owes its birth.

In the fifteenth century Italy, the headquarters of the new movement, possessed skilful jewellers and excellent medallists, and it was by their help that the Renaissance commenced and expanded. From their well-known good taste, architects consulted them, and often, indeed, were their pupils, as Ghiberti, Donatello, and Brunellesco. Moreover, who were at once painters, sculptors, architects, silversmiths, jewellers, and goldsmiths, only looked, somewhat naturally, at the finished results as the goal to be aimed at, and were not troubled about the means to such an end. Again, the development of the schools of painting had their influence on architecture, and aided the other influences which caused structures to be looked upon as works of art unaffected by materials, instead of being dependent solely for their form and effect on materials. In the same manner, and for the same reasons, the period may be looked on as the age of accessories, in which iron work, gold and silver work, tombs, monuments, altars,

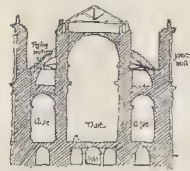
fountains, and, by the whim and fancifulness of the designer, in large measure affected architecture, which henceforth ceased to be the governing art.

The truth of this proposition may be deduced from the fact that, whereas in previous periods materials, as they arose, were successfully worked into the general progress of architecture to form part of the whole scheme, and to be the creative force of each new style, now materials were scorned or misapplied. Driven outside the pale of art such new materials grew up as Ishmaelites, develop in artless forms, drawing their strength from the stern facts of utility and necessity, which compel their application in structures no longer conventionally recognised as architecture. The Renaissance application of new materials has been in the form of substitutes and shams, and this last result is a natural outcome of the system of design, for if a design of Palladio, say, is a true model of proportion and beauty, it is so as a composition of features or orders, which within certain lines is capable of execution to any scale and must be equally effective also within extreme limits in any materials.

To comply with the canon of absolute beauty is the primary necessity, and indifference to materials is the inevitable consequence. Herein is the only possible defence of falsity of material, and the widespread use of the spurious and the

left to find out some treatment of their own. Thus the greatest success of modern art in architecture has been the rescue of the small villa, house, and cottage from degradation, and this triumph has been achieved through learning from the same procedure of old country buildings the scope and influence of materials.

Speaking generally, we may note that in this period there is an endeavour to reconcile the Gothic and the Roman method of construction, *i.e.*, the body and the dress are one and the same thing constructively, because the architects of these times, attracted by the mere external appearance of ancient Roman art—the only one they had been able to study—and not perceiving that this form was merely an envelope, and not the real structure, continued in the matter of construction to follow the traditions of the



Sketch Section of Nave, St. Paul's.

Middle Ages, which, as before stated, did not separate the structure from the decoration.

The influence of material in the preceding styles is an important factor, as is also the method of working such material. In the Gothic period each stone was finished, moulded, and sculptured in the workshops before being laid—a method which produced skilful and intelligent masons and stone dressers, and obliged the sculptor to make the decoration suit each piece of stone. In the Renaissance period the new mouldings and carvings could be executed with more exactitude and less expense in situ, thenceforward the necessity of making the jointing accord with the various members of the architecture was no longer imperiously felt, and this negligence often resulted in a total want of harmony between the jointing and the architectural features which were continuous, taking no account of the former but cut on the building itself as a mere block. Form is the leading consideration in this epoch; old principles were no longer regarded, and structural system there was none. The division between designer and builder widens and deepens, and the results of this separation will be seen in the next chapter.

NOTES.

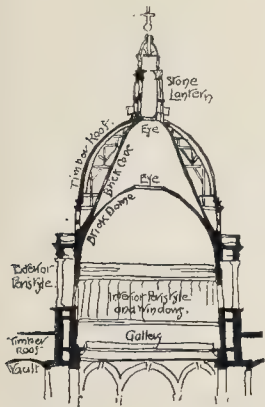
The Architects' Congress at Brussels. THE International Congress of Architects, which is to be held at Brussels on the 28th inst. in connexion with the International Exhibition, promises to be a good gathering, for we already hear that 250 architects of different countries propose attending. Of this number there are fifty representatives from Germany and from France respectively; of other nationalities, we observe that there are three Americans, ten Dutchmen, and eight Englishmen on the preliminary list of members. The general arrangements are in the hands of the "Société Centrale d'Architecture de Belgique," and among the nominations for honorary membership or as vice-presidents are Professor Aitchison, M. Charles Garnier,

Mr. Cuypers of Amsterdam, Mr. Stuebben of Cologne (the President of the Amalgamated Society of German Architects), and Messrs. Hinckeldeyn and von der Hude, the Presidents of the two Berlin Architectural Societies. Similar distinctions have also been accorded to the Presidents of the Architectural Societies of St. Petersburg, Amsterdam, and Stockholm. As regards the programme, the proceedings are to commence with a conversation in the Exchange on the evening of the 28th. On Sunday, the 29th, an Architectural Exhibition will be opened, and two papers are to be read in connexion with it in the forenoon. The first official meeting of the full Congress takes place on the Sunday afternoon, when the King of the Belgians has promised to be present.

THE idea of so perfectly charming an old street as Church-row, Hampstead, being destroyed, as far as its old buildings are concerned, for the sake of erecting more paying structures of a modern builder's type on the site, is certainly enough to make us wonder where this kind of thing is to stop, and whether we are to end by having every bit of old London demolished at the bid of the building speculator. At the same time it is no use pretending that we can have any right to prevent an owner pulling down what he does not care for, because we like it, unless picturesque streets could be scheduled under a protective Act of Parliament. Failing this, the National Trust, which has no powers of compulsion but only of persuasion and purchase, proposes to purchase the street and preserve it in that way. It is gratifying to see that this newly formed Society seems really to mean business, and if it can save Church-row for us we shall be only too grateful; but how long can such efforts be continued? And will not the action of the National Trust almost tempt money-loving persons who own interesting properties to threaten to pull them down, in order to draw the National Trust purse-strings? It seems only too likely—so corrupt is unregenerate man. The best we can really do, perhaps, is to try to establish a degree of public feeling on the subject which would lead to a man feeling it a disgrace to destroy a fine street or building for the sake of an addition to his income. Some of us feel like that now; but it is to be feared we are rather a small minority.

In former days, Church-row was a popular resort for the evening promenade of visitors to the wells; it is contemporary with the parish church of St. John (to which it forms a fine approach), as rebuilt by Sanderson, in 1745-7, after the designs of Flitcroft, who lived in Montague-grove, close by.* Many of the local celebrities lived in Church-row: amongst them being Mrs. Barbauld, and her niece Lucy Aikin; T. Park, the youthful historian of the parish; J. R. Herbert, R.A.; and the Abbé Morel, at Oriel House, where he held services until the building of St. Mary's Roman Catholic Church, 1815-6, in Holly-place. The burial ground at the Row's west end, and extending northwards along Holly-place, was opened in 1812.

* The copper-covered spire was added in 1784, and the chancel at the west end in 1878. A view of the old church, by Chas. Heath, after Hollar, will be found in Part's "Hampstead."



Sketch Section of Dome, St. Paul's.



Sketch Section of Dome, Pantheon, Paris.

sham throughout the Renaissance epoch was not a casual incident nor wholly without reason. In another aspect, the canonised system of design has had a profound influence, for buildings of the common class being incapable, either from expense or from a sense of inappropriateness, of treatment by its formulae—the Classic orders, &c.—were ruled out of architecture altogether and

Jubilee Trades and Inventions Exhibition.

AN "East London Diamond Exhibition" is to be opened at the People's Palace in October. It will cover a great variety of work, the sections being proposed to include the following subjects:—Building, Architecture, Joinery, &c.; Shipbuilding and Engineering; Electrical and other Lighting; Textiles and Clothing; Food and Confectionery; Toys, Fancy Goods, and Toilet Requisites; Gold and Silver Work, Clocks and Jewellery; Pottery, Glass, &c.; Furniture and Decoration; Printing, Publishing, Bookbinding, &c.; Musical Instruments; Boots, Shoes, and Leather Goods; Matchmaking; Brush, Basket, and Cane Work; Brass and Metal Work, Cutlery, and Iron Work. No charge is to be made for space, and exhibitors will be put to no expense beyond that of carriage to and from the entrance to the building, the promoters undertaking the reception of the goods and placing them on stands, &c. The Secretary, Mr. C. E. Osborn, writes:—"Many interesting and useful inventions have been brought to light during her Majesty's reign, and it is hoped that the artisan class will largely contribute to make this effort a success. No pains will be spared on the part of Mr. A. F. Hills and the Executive Committee to make the forthcoming exhibition one of real utility to the British artisan. A large number of medals of gold, silver, and bronze will be offered." Inquiries can be addressed to the Secretary at the People's Palace, Mile-end.

The Greek-street Church.

THERE seems likely to be some litigation between the London County Council and the vicar of the English Church in Greek-street, Soho. One thing is clear: that part of the church requires repair. The County Council require that work to be done and the vicar says he has no funds, and is not legally liable for the cost of the work. We do not propose to enter into the legal question, for it is certain that if there are no funds available for the repair of this church, an appeal should be made for the purpose to the Churchmen of London. To stand on legal right under such circumstances is foolish. Here is a church which needs repair, and whether the vicar is the person who should be served with the notices under the London Building Act may be interesting to lawyers. The ordinary individual, who is neither a lawyer nor a clergyman, will rightly consider that the question should never be allowed to drift into the law courts. The vicar is the person who, in popular estimation, should raise funds for the repair of the church. It is being done by vicars all over England every day: whether they are legally bound to do so is wisely put on one side.

At a time when public attention is to a great extent directed to military movements at Aldershot, it is pleasant to be able to commend the excellence of the accommodation provided in the new barracks, which are a very great improvement on the insanitary huts and the dangerous hovels in which our troops used to be housed when they were not under canvas. For all this, there is room yet for improvement, both in the reduction of the number of standing camps, and the better arrangement of many of the camping grounds. It seems inadvisable that the la-

trine system should be depended on so much during a hot season like the present one, and that there should be no proper sewer system and good lavatory accommodation for the camping grounds. It is entirely a wrong principle to believe that the roughing of camp life is in any way more useful by the omission of improved sanitary arrangements, and when we have as many as 35,000 or 40,000 troops concentrated in a small area, it would be well to minimise the stench which mark the vicinity of some of the camps—more especially those that have not the benefit of any cover from trees or shrubbery. And it would certainly also not affect the usefulness of Aldershot if the arrangements for drinking water were better.

Sanitary Condition of Chichester.

FROM DR. BULSTRODE'S report to the Local Government Board upon the prevalence of enteric fever at Chichester it appears that the unsatisfactory sanitary condition of the city arises mainly from defects in water supply. It is mentioned that the town is traversed by the Lavant and by branches of this river, some of them artificial, and that there is a certain amount of pollution of the stream through the turning of refuse of the worst kind into it here and there, but that this does not prevail to a very great extent. On the other hand, water supply, partly from the Chichester Waterworks Company and partly from private wells, shows some of the worst faults constantly found in more rural neighbourhoods. The wells are of the kind known as "shallow"; i.e., they are not sunk through any impermeable stratum, but consist of excavations sunk in the gravel overlying clay. These wells are dry-steined, and thus are but imperfectly protected against filth soaking through the soil. Many of them are found but a little removed from non-watertight privies and cesspools, to which reference will shortly be made, and the water contained in them is in danger of becoming fouled by infiltration of cesspool or privy contents; indeed, on chemical examination of the water, many of them have been pronounced highly polluted. Excrement is disposed of partly by means of a recently-constructed sewer system, partly by means of privy cesspits, which are capacious receptacles situated in the curtilages of the houses, lined mostly with brick, but not in such a manner as to render them watertight. Over these are erected commonplace privy structures, often much dilapidated. The cesspits, too, near the houses which they serve, are often within a few feet of the well from which the drinking water of households is derived. The emptying of these cesspits is left to the owner, and in one case the last emptying was so long since that there was no recollection of it. The Report adds, what is perhaps the more serious part of the whole matter, that the contents of these cesspools must be gradually permeating the subsoil of Chichester.

Insanitary Conditions in Truro.

ACCORDING to the last monthly Report of the Sanitary Committee of the Cornwall County Council, typhoid fever has risen from six cases and one death in June to fifteen cases and four deaths in July, and Truro City contributes seven out of the fifteen cases. The outbreak occurred in a very poor neighbourhood, which seems not to have

received proper sanitary inspection. Tub closets are in use which, if not regularly emptied and attended to, will sooner or later produce an epidemic of infectious disease. The Report says, "Such insanitary conditions as have for a long time prevailed in Moresk-road are certainly not creditable to the City Council, who are the guardians of the public health. The pump from which the people in that locality obtain their supply of drinking water is subjected to two sources of pollution, one from the imperfect state of the drainage, the other from persons taking water from an adjoining stream (which is not much better than an open sewer)."

Drinking Troughs for Horses.

AN appeal has recently been published by the useful society which collects funds for the purpose of supplying drinking troughs for horses in London for money to carry on their work. The question must be asked why the water companies should not be legally bound to supply troughs and water at specified places in the streets. In hot weather great distress is caused to horses by the difficulty of getting water in the streets. If the water supply of London were not in the hands of private individuals no doubt there would be a proper supply of water for horses which are employed in the streets. It is to be hoped that some member of Parliament will next session take up the question. The supply of troughs and water should not be left to private benevolence.

Moving a Building in Paris.

LAST week M. de Dammartin, an architect in the service of the Paris Municipality, superintended successfully the moving of a building, the Ecole Communale in Rue de Patay, which, though only a timber erection, was of formidable size for moving, being 84 metres long by 18 wide, and 11 metres high. It was moved to a distance of about fifty feet, in order to clear part of a site for a proposed new school building. The building was moved by windlasses, and traversed over 140 rollers laid down on the street previously, proceeding at the rate of about two inches per minute. The feat is of course nothing very remarkable compared with the shifting of stone and brick houses which has been carried out occasionally in the United States; but that it was accomplished, as we are informed, without breaking a window or stopping the clocks in the building, is creditable to those who had the management of the operation.

Glow Lamps.

THE report on glow-lamps recently presented by a Committee of the American National Electric Light Association contains many novel suggestions which will prove practically useful. Standards of light and methods of photometry are first discussed. The Hefner-Altenek amyl acetate lamp is recommended as the ultimate standard, carefully standardised glow-lamps being used as standards in everyday work. This is in accordance with common English practice, but when the greatest accuracy is required the Diddim to c-p. standard is preferable. The candle-power of a glow-lamp is ordinarily measured in a horizontal plane round the bulb, the lamp being placed vertically. This leads to manufacturers making lamps which produce a good illumination in their equatorial

plane and throw little light either up or down. To obviate this defect, the Committee recommend that when the candle-power of lamps is measured they should be inclined at an angle of 45 deg. to the vertical. Also to avoid the trouble of taking the candle-power in several positions and taking the mean, they suggest that the lamp be made to rotate round its axis at the rate of two or three turns per second whilst the test is going on. Another excellent suggestion is that the candle-power should not be measured accurately, but that it should be merely seen whether it lies between certain limits or not—a very much simpler operation. For example, the candle-power of a 16 c.p. lamp ought to lie between 15 and 17; so that the photometer screen is only placed in two positions, and a glance is sufficient to show if the lamp lies between the required limits. The life, power consumed, and variation of candle-power with life, are wisely left to take care of themselves, as the object of the Committee was merely to give a simple and rapid method of testing that will be useful commercially.

seems, to be replaced, by the Duke's orders, with a high wall that will quite intercept the view. The house was purchased by the late Duc d'Aumale for his son on the occasion of the latter's marriage; having previously been occupied by the Comte de Paris. It is said that the property, *olim* York Farm, was given to Lord Clarendon by Charles II. upon the public announcement of the Duke of York's marriage to Lady Anne Hyde, and then became the residence of his son-in-law, whose daughters, Mary and Anne, were born in the present house. It subsequently formed the home of Dr. Cleaver, Archbishop of Dublin, and in 1817 was bought by the Hon. Mrs. Damer, to whom Walpole had bequeathed a life-interest in Strawberry Hill. Mrs. Damer, who carved the two heads of Isis and Thames, on Henley Bridge, lived at York House until her death in 1828.

THE ARCHITECTURAL ASSOCIATION EXCURSION, LANCASTER.*

Wednesday.

THE starting-point of the day's drive being on this occasion Carnforth, a short railway journey had to be made from Lancaster. On the way to the first point of destination, Borwick Hall, rain was encountered, and showers may be said to have been the most pronounced feature of the day during the exploration of the Valley of the Kent. Borwick Hall, of which a sketch was given in our issue of last week (page 128 *ante*), looks now very different from the appearance it must have borne when Charles II. visited it in 1651, when his troops encamped near it before the battle of Worcester; the greater part of the interior being now no more than a collection of bare and empty panelled rooms. The plan and appearance of the house suggest that the existing building grew up as a manor house or mansion round an earlier "peel" tower, which is very clearly marked in the design both on the plan and elevation. The present house was erected by William Bindloss, a wealthy weaver of Kendal in 1593, the builder being, as appears from an inscription at the top of the stair, "Alixander Brinsmead, mason, 1595." This stair, by the way, is an admirable practical type, resulting from a compromise between the mediæval turret stair and the Renaissance model. Around a central massive pier, 3 ft. by 2 ft. 3 in., are short flights of four and three risers respectively, with square quarter landings. Owing to the showery nature of the day, a slight divergence from the programme was made, luncheon being taken in the old panelled hall of Borwick, instead of in the open air as originally intended between there and Beetham Church, so that plenty of time was allowed for studying and sketching, the water-colourists particularly being highly pleased, especially by the very picturesque grouping of the back entrance of the house and the small portion of the offices of the original mansion now used as a farm-house. A few transient gleams of sunshine gave them the opportunity to put in the shadows and brighten up the sketches to an extent that the general character of the day hardly seemed to warrant. Although the house, as appears from the date on the stair, was mainly built in 1595, considerable additions were made in 1650, at which time the entrance lodge shown in our illustrations last week, and the balustraded terrace and other parts, were erected. The picturesqueness of the group of buildings is considerably enhanced by the very complete and extensive range of farm buildings coeval with the palmy days of the manor. As with many other buildings of this part of England, the walls are finished with roughcast, the quoins and dressings of doors and windows, gables and chimneys, being in cut stone.

Through several heavy showers the excursionists drove from Borwick Hall to Beetham Church, passing on the way, without stopping, the ruins of Beetham Manor House, formerly fortified and based upon a "peel" tower. The

church at Beetham, dedicated to St. Michael, has, as shown in our illustration of last week, a tower of the type characteristic of the district, as at Sedburgh and other examples. There are some parts of the church dating back to Norman times, the south arcade of the nave being of the Transitional period, and the south door even earlier; but the greater part of the building as it stands is of fifteenth century work, as is evidenced by the detail of the north arcade, the aisles, and clearstory. There are many monuments in the church, some particularly interesting, as that of Sir Thomas de Beetham and his lady, although the effigies are much mutilated. The glass in the windows, both modern and ancient, is well worth seeing.

With some more showers the party, on leaving Beetham Church, drove on to Levens Hall, celebrated for its formal garden, which was laid out by Beaumont, the designer of Hampton Court Gardens, and which, with its numerous fantastically-cut yews, hollies, and other trees, is an excellent example of topiary art carried to the verge of absurdity. The house, an ancient seat of a branch of the Howard family, though dating back to the time of Henry III., has been much altered subsequently and adorned richly in the seventeenth century with panelling and plaster work, carved oak chimney pieces, and doorways. A curious detail is the prismoidal arrangement of the quarried glazing, apparently following ancient precedent, though for the most part restored. Unfortunately, the lady tenant being engaged in receiving visitors it did not suit her convenience for the members of the party to explore further the many beauties of the interior of the house, with its furniture, tapestry, and pictures, than the entrance hall. This indeed is very charming, and deepened the regret of the visitors that they could not see more. As in the case of Borwick and Beetham, the plan of Levens Hall again suggests the foundation of a "peel" tower as the basis on which the house has been superposed.

Failing the complete inspection of the house, the stables received a considerable share of the visitors' attention, possessing, as they do, some uncommon points of interest, notably the old stall divisions, with a richly-moulded cornice above the oak posts, curiously not carried up to the ceiling.

Driving back to Carnforth, a slight detour was made through the beautiful park of Dallam Tower, where the grand beeches, the pretty river Beetha, and the fine collection of red deer, even more than the mansion (built in 1720), fully justified the addition to the programme. Arrived at Carnforth, the railway was again utilised to take the party back to their headquarters at Lancaster.

Thursday.

To extend the basis of the day's operations the railway was again employed, the train being taken to Preston, where carriages were provided, in which the excursionists drove to Blackburn and back to Preston, on the outward journey taking the new road between these towns, and returning by the old road. Some showers were encountered, but not sufficient to damp the enthusiasm of the excursionists, by this time become accustomed to the vagaries of Lancashire weather. Driving through Preston, the Roman Catholic Church, the Town Hall, and the magnificent Harris Institute were noted.

The first halt was made at Samlesbury Hall, the only example of half-timber work seen during the week, and the character of whose treatment is seen in the illustration given by us last week, which shows the bay window of the hall with dormer over, as well as the manner in which the panels are finished between the timbering, and the characteristic treatment of the oriel windows. On the side towards the road the windows are executed in stonework, with traceried lights, mullions, and transoms. The oldest part of the house is the hall, built in the time of Edward III., with a fine open timbered roof of very massive scantlings. Considerable additions and restorations were made in the reign of Henry VIII., to which period the bulk of the existing work belongs, but the sham minstrel gallery, which bears date 1532, has within quite recent times been inserted.

Proceeding to Blackburn, the short time before luncheon, at the "Old Bull Hotel," was spent by most of the party in a visit to the Free Library, one of the earliest in England, erected

THE use of solid drawn steel pipes as conduits for the electric wires in house lighting is extending and is the practice recommended by many consulting electricians. The little extra expense as compared with wood casing is more than counterbalanced by the greater security and convenience of the conduit system. A question which has been considerably discussed lately is whether the inside of the steel pipe should be insulated or not. Of course, insulated pipe is dearer than plain pipe; still, as the difference between the prices is only a small fraction of the total cost this has no great weight when we consider the effect on the whole installation. The extra advantages claimed for the insulated pipe are, that it prevents abrasion of the cables on drawing in, that it is an additional safe guard against leakage, and that no moisture due to condensation collects inside. With the smooth-bore plain steel pipes that are now used we fail to see that there is much greater risk of abrasion than with the insulated pipes. By using good cables the leakage can easily be made negligible, and the extra safety provided by having a bituminised or wooden lining to the pipes is very small. We have never heard of any trouble arising from condensation in plain steel piping, and as it has been used now for five or six years, it has stood a fair practical test. The only possible way for moisture to get inside would be by capillary action along the covering of the wires, and this would be just the same whether the conduit were insulated or not. On the whole we think that those interested in insulated tubing have not yet made out their case against plain tubing.

WE hear that the residents of Twickenham, and others—including some eminent artists—have agreed to petition the Duc d'Orleans to desist from one alteration he has begun at York House. Many of our readers will remember what a pretty prospect across the river is obtained from the high-road (leading to the church) as it traverses York House grounds, whereof a narrow slip lies between the road and the river. The low hedge between the road and the garden slip is, it

* Continued from last week, page 129.



from the designs of Messrs. Woodzell and Collicutt. It being "Blackburn week," most of the shops were shut and the town was even less interesting than usual.

After leaving Blackburn, the first stop on the way back to Preston was at Livesey Hall, three miles from Blackburn. Livesey is an interesting example of a small manor house, stone-built, on the usual seventeenth-century E plan, and appears to have been erected at three periods (1608, 1666, and 1689), if the date-stones are to be believed, although the plan and detail suggest that the house was built at one date and the stones are insets. Until about ten years ago the house was in a fair state of preservation, but is now almost wholly a ruin, a small part only being still occupied as a farm house. Sufficient, however, was found in the detail and grouping to fully occupy the sketch-books of the members for the short hour allowed.

A short drive and a walk up the hill brought the party to Hoghton Towers, beyond question the *bonne bouche* of the week, where, by the kind permission of Sir James de Hoghton, a very happy three hours was spent, and seemed far too short. Sir James being away the duties of *cicerone* were performed by Mr. Hatch, of Lancaster, the builder who for nearly a quarter of a century has been engaged at Hoghton Towers in the various works that have been going on, at first under Messrs. Paley & Austin, and now under Mr. R. D. Oliver. Whether for its magnificent views, its plan, its grouping, or the excellence of the modern work now being carried out from Mr. Oliver's designs, it would be difficult to find a more delightful example of an English country mansion than Hoghton Towers. The great hall, between 50 ft. and 60 ft. long, is remarkable for having two bay windows at the dais end, but the most striking feature of the plan is the double arrangement of the quadrangles around which the house is grouped. The inconvenience of such a plan from a modern standpoint has been cleverly obviated by the recent construction of an underground corridor running underneath the upper quadrangle. The visitors were hospitably entertained with tea and could not help contrasting the reception they met at Hoghton with that at Holker. On the return to Preston a little time was found to spare for a brief inspection

of the Harris Institute, and the party then returned by train to Lancaster.

Friday.

This was an intensely disappointing day. On the programme Furness Abbey was the venue, but unfortunately heavy rain the whole day quite spoilt the arrangements, as neither the scenery nor the ruins could be properly enjoyed. Furness Abbey forms No. XIV. of the *Builder* series of "Abbeys of Great Britain."

Friday evening, as usual, was devoted to business and merriment. For the business, the committee was elected for the ensuing year, Mr. W. Talbot Brown and Mr. A. W. Hennings being appointed joint secretaries, the *locale* of next year's visit was discussed, special stress being laid on the desirability of finding that part of England which has the minimum rainfall, and sketch-books were examined and compared. For merriment, songs, recitations, and humorous speeches served to enliven and to dissipate in some degree the sense of sadness at the parting which the morrow would bring.

Saturday.

Although the last day of the excursion is always looked upon as being rather broken into by preparations for "tapering off" on the part of the members, on this occasion, rather by way of exception, a considerable amount of interesting work was done by practically the whole of the members of the party.

The first visit was made to the ancient castle of Lancaster, now used as the county gaol. The natural advantages of the hill on which the castle is placed, commanding, as it does, the valley of the Lune, and what is even of still greater importance, the possession of an ample supply of fresh water at the very small depth of some 15 ft. below the surface, has made the site one that has been occupied by successive series of fortified posts from the times of the Romans, whose presence is proved by the discovery of coins, urns, a number of fragments of earthenware, calcined bones, votive altars, sepulchral lamps, and other antiquities which may possibly have belonged to the station known as *Ad Alanaum* or as *Longovicum*. In Saxon times it was also a place of importance, and in the seventh cen-

tury it was the capital of the county, and some very early remains with Runic inscriptions have been found in the churchyard. The Saxon post Luncastre and the town it guarded was destroyed during the Danish incursions, and the modern history of Lancaster Castle and town may be said to date from the time of Roger de Poitou, some of whose work undoubtedly still remains in the keep. John Earl of Morton and Lancaster, and John of Gaunt, fourth son of Edward III., made considerable additions, including the magnificent gateway, which was especially examined and ascended by the excursionists, who also inspected with considerable interest the curious construction of the so-called dungeons in the Well Tower, the vaulting of which is constructed of concrete that has been supported on a centre of waffles, the marks of which are clearly evident on the under surface. Although popularly styled "dungeons," both the professional visitors and the governor and warders of the prison, who may be taken as professional experts in the requirements of dungeons, all agreed that there is small probability of these apartments being frequently, if ever, used for the purpose popularly assigned them; but, like many other lower stories of Norman keeps and castles, they probably formed the storehouse or cellars so necessary for provisioning a fortification against siege. Similarly there is without doubt no credence to be placed upon the popular ascription of some towers of Lancaster Castle to Adrian and Constantine.

Leaving the castle, the members made their way to the parish church, where they were met by the senior partner of the firm of Austin Paley & Austin, who took them round the building, pointing out and explaining the various parts of interest. The church appears to have been erected first by Roger de Poitou, who founded a Benedictine Priory here attached to the Abbey of St. Martin de Sees in Normandy. On the suppression of alien priories the establishment of Lancaster was by Henry V. annexed to the Abbey of Sion, in Middlesex. Of the building of Roger de Poitou's time little, if any, remains beyond the south doorway and the walling immediately adjacent, nearly the whole of the church having been rebuilt during the Perpendicular period, and

the tower again rebuilt in or about the year 1750, with some very peculiar results from the attempt of the eighteenth-century men to copy mediæval detail. Considerable attention was given to the very fine specimens of screen work and oak carving which form the canopies to the stalls now placed in the sanctuary of the church (see lithograph illustrations). Popularly these are supposed to have been brought from Cocksand Abbey, but Mr. Austin pointed out that Cocksand was too small an establishment to have been likely to have had in its church so large a number of stalls as here, and suggested that it was far more likely that they came from Furness. To add to the archaeological puzzle, it is quite clear that some of the detail has been executed by foreign workmen; but this need not—knowing what we do of the travels of mediæval craftsmen—incline us to suppose that the work itself was executed anywhere else than in Lancashire. After taking note of the stained glass, of which there are some fine examples by Clayton & Bell and by Shrigley & Hunt amidst much that is atrocious, the party returned by way of the "hanging corner" to the Shire Hall adjoining the castle. After spending a few minutes here, the members then went on to visit the workshops of Mr. Hatch, with whose work they had become familiarised, and greatly pleased during the week, in the many examples which they had seen carried out by Mr. Hatch for Messrs. Paley & Austin and other architects. The wood-working machinery and the carvers' shop were the two special features that attracted the notice and interest of the party, and after examining these a return was made to the hotel, halting by the way at the studio of Messrs. Shrigley & Hunt. Group photographs were then taken by two of the amateur photographers who accompanied the party—Mr. Noblett and Mr. Osborne Smith, jun.—after which parting and leave-taking was the order of the day, some returning south to London and to work, others going off to Windermere and the Lakes.

SOME THOUGHTS ON OLD ENGLISH ARCHITECTURE.*

PERHAPS amongst the Cotswold Hills we can find as characteristic examples of architecture, both ecclesiastical and domestic, as in any district in England, and though they may not rank in importance with nobler and more imposing edifices, yet I venture to think they are as full of interest and charm as any of the remaining buildings in other parts of the country.

These hills, from their geological formation, lying in the great belt of oolitic limestones, gave a material eminently suited to withstand the ravages of time, and the isolated positions of the towns and villages and houses, cut off in many cases from the main arteries of traffic, have doubtless been the means of their preservation to-day.

In the limits of a short paper it is impossible even to touch upon the historical and social aspect of this Cotswold country, but it may be interesting to trace some of the methods and traditions of building throughout successive periods in England, and to note their bearing upon its architecture, and particularly as exemplified in many of the buildings in this district.

Towns of any pretension in which people lived for mutual protection and help were surrounded at first by a ditch or moat, and, later, by walls, with gates guarded and kept closed from sunset to sunrise; and villages in isolated positions, such as we see them to-day, hardly existed. Throughout the whole of the Anglo-Saxon times, and even much later, houses were of very small scale, badly lighted and ill-drained, and adapted for protection from the weather only.

As we gather from the records relating to London and Winchester, towns were made up of low huts lining the narrow lanes, constructed of wood framing, or mud with roofs of straw or reed thatch, and, though the frequent recurrence of fires compelled the employment at last of more enduring materials, down to the great conflagration in the seventeenth century London was a city of wood and plaster. So serious and constant were the fires that the people were exhorted "to have water at men's doors" for readiness in case of emergency.

*A paper read before the Bristol and Gloucestershire Archaeological Society at their annual meeting at Stow-on-the-Wold on July 27, by Mr. E. Guy Dawber.

It was not until the middle of the fourteenth century that towns began really to free themselves from the indescribable squalor and misery of the early Middle Ages, and municipal life and enterprise first asserted itself. Up to this time castles, cathedrals, monasteries, and religious establishments had been built, and the church was the dominant power in the land, owning more than a fifth of the whole of England, and exercising enormous influence; but as the trade of the country so rapidly developed and the rising towns felt their power, they threw off the yoke of the Church, and constituted themselves into separate municipalities, making their own laws, and even ratifying those made by the State.

In the twelfth and thirteenth centuries houses were seldom more than two or three stories high, with the lower one sometimes of stone or brick (though this was not compulsory until the reign of James I.), partly underground, and appropriated for the sale or storage of goods; and the ordinary house was a very simple affair, consisting of one room—the general living and sleeping room—and another, called the solar, either through it on the same level, or above it, and reached by a separate outside staircase. This upper room nearly always had a fireplace in it, and larger windows than in the room below, which were seldom more than narrow slits. In the larger houses this hall was generally open up to the roof, as at Oakham, in Rutland.

In the fourteenth century we begin to find the turret and inside staircases and the buildings spreading round a courtyard with stables and outbuildings, and the whole surrounded by a moat or ditch; indeed, in country houses of any pretension the manor and farmhouses were protected by enclosure walls, dykes, or moats. Birtsmorton, under the Malvern Hills, is a good example of a fourteenth century moated house, much of it built of timber and plaster, and, though modernised in later years, gives a good idea of its original condition; and many houses exist in Suffolk, Kent, and other parts of the country still surrounded by moats. We must recollect that down to the early part of the seventeenth century houses in England were more or less built for protection and safety, so that an Englishman could literally speak of his "castle," and many of the old so-called Border towers, along the northern marches of the country, were only ordinary dwelling houses, and were inhabited just as a farmer does his house to-day.

In the fifteenth century houses of any size were still quadrangular, with courtyard in the centre, and moats continued in use, though probably belonging to an earlier date. Icomb Place may be taken as a good instance of a house of this period. The hall, even in the smallest house, was the general assembly and living room, with the fireplace on a hearth in the centre, and the smoke escaped through an open cupola on the roof, as at Lincoln College at Oxford, and Penshurst in Kent, or as best it could through the windows.

The floors of the upper rooms were of wood, carried on corbels built into the walls, but the hall was usually of earth well rammed down by being continually trampled upon. In winter dry rushes were laid down, and in summer green fodder or sweet-scented herbs, but even with this precaution the floors must have been in a damp and dirty condition, and some idea of their state may be gathered from the fact that the doorway of the hall at Winchester was widened to admit of carts coming in. This was probably the origin of the raised dais that we find in so many of the old halls, to enable the head of the house to sit with some degree of comfort raised above the damp floor, which was considered good enough for his retainers.

Life must have been lived under very rough and crude conditions, and such as we could not tolerate to-day, for we know that window-glass was not made in England before the fifteenth century, though for years before it was one of the many commodities we obtained from Flanders in exchange for our staple production, wool. Some came from Normandy and Venice, but chiefly from the Low Countries and Lorraine, and down to the close of the seventeenth century most of the ordinary glass drinking-vessels sold in England were made in Venice and Flanders from patterns sent out by our glass dealers, though we read that some had been made in the reign of Queen Elizabeth at Crutched Friars, in London, by one Jacob Venaline, an Italian.

Glass windows, both plain and painted, had of course, long been used in ecclesiastical

buildings, but it was not until the fourteenth century that it was applied to domestic ones, and then but seldom. There are, or were, some ten years ago, a few excellent examples of old fifteenth-century glass in the old Bishop's Palace at Temple Guising in the windows of the hall, with the mitre and crozier and arms painted in the small quarries.

Before this time the window openings had iron bars, canvas, or lattices made of wicker, or rifts of oak in chequer work, or else wooden shutters attached to the head of the outside and propped open, badly fitted, and which let in the wind and wet, and in old accounts we often find a charge made for "making the windows shut better than usual," and in Henry III.'s reign a precept was issued for putting glass instead of wood in a window in the Queen's wardrobe at the Tower "so that that chamber might not be so windy," as the chronicler quaintly puts it.

Then, again, plastering and whitewashing were common in England in the twelfth and thirteenth centuries, and, in fact, continuously down to the present time, and churchwardens of fifty years ago can no longer lay claim to having discovered its excellent uses for ecclesiastical decoration, for, as far back as the reign of Henry III. we read of the Norman chapel in the Tower of London being whitewashed inside and out, and Westminster Hall was whitewashed for the coronation of Edward I.; in fact its use internally and externally was universal, both for the roof as well as walls, no doubt owing to its excellent fire-preventive, as well as sanitary, properties.

When not whitewashed, and in the better houses, the plaster was coloured, and polychromatic decoration was carried to a great extent quite down to the sixteenth century, much the same as we see the houses painted in Holland and Southern Germany to-day, which is merely a survival of the old mediæval tradition, and in Lancashire and Shropshire the timbers of the old houses are still painted black and the plaster filling white, and there is no reason for supposing it improbable that this is but a continuation of the colour decoration of the Middle Ages.

Before the general introduction of wood panelling, tapestry and arras, or as the early writers describe it "hangings," were used for covering the walls of superior apartments, and had been even as far back as the tenth and eleventh centuries, when we read of stained and painted clothes being used—at first only over the doors, but in later years whole rooms were hung with it.

The earliest wood panelling in houses was of deal or fir imported from Norway, generally stained or painted green and powdered with stars of gold, or else subjects allegorical and legendary were painted in compartments; but there is no doubt that until quite late in the 16th century all stone and wood work were coloured, and it is only in recent times that we have banished colour and seem afraid to paint oak or stone.

In the long gallery at Chastleton Hall, the wainscoting on the walls bears traces of colour and gilding, and numerous examples remain in old houses all over England. Hardwicke and Haddon Halls and Bolsover Castle in Derbyshire, are full of most interesting instances.

At first the panels were small, and invariably carved with the well-known linen-fold pattern, and then larger and plainer, mixed with Italian detail and with richly-carved friezes and cornices. Compton Winyates, Chastleton, and numerous houses, both large and small, in this district, are full of it, both in its more elaborate and simpler forms. In halls, as at Chastleton, we generally find it about 8 ft. or 10 ft. high, with plaster above; once, no doubt, coloured or modelled in relief, and in smaller rooms carried right up to the ceiling.

Across one end of the hall was the screen, with openings leading to the buttery and the kitchens, and a very charming example can be seen at the Manor House at Little Wolford, where the original screen and gallery over still exist in the hall, with the fireplace at one side and an internal circular staircase leading up to the rooms above.

The sixteenth and seventeenth centuries were celebrated for rich timber-framed and plaster houses, such as those at Ludlow, Tewkesbury, and other places, but in the Cotswold hills we do not get much of it, except in the oak-bearing districts in the valleys where its presence is reflected in the buildings. At Little Wolford, Todenham, Broadway, Winchcombe, and Campden, are some instances, and

we find a few examples of external stamped and moulded plaster decoration also in Broadway, and one at Burford, dated 1688, and one in this town, in the corner house of the marketplace, where a simple device of crosses set in squares makes a pleasing and effective arrangement. The old plaster-fronted house, called the "Star House," recently pulled down, was treated in this fashion, with patterns set out around the windows and in the gables, and as an interesting example of seventeenth-century work its loss is to be deplored; but the house was in such a ruinous and dilapidated condition that its demolition was only anticipated by a few years.

Of internal plaster work, ceilings and cornices, this district has its share, and the beautiful series at Chastleton Hall in the long gallery and various other rooms illustrate this delightful craft very exhaustively. At Birt's Norton, at Swell, at Broadway, at Banbury, and at Daneway House in the Stroud valley are some beautiful ceilings. All these were modelled by hand, the irregularity of the modelling giving a softness and undulation to the mouldings and ornament quite in contrast to the machine-like accuracy of much modern work.

Though plastering, or parqueting, is of very early use in this country, it was not until the great influx of Italian artists and workmen in the reign of Henry VIII. that it became a recognised branch of decoration. At first the ceilings were plain, set out with ribs of geometric rather than free-hand design; but, as these early ceilings in Elizabeth's reign always relied upon colour and gilding for their effect, they did not need to be elaborate. Edmund Spenser, the charming poet of the Elizabethan era, in speaking of them says—

"Gold was the parquet, and the ceiling bright
Did shine all scaly with great plates of gold."

As time went on they became extremely elaborate, and a mass of modelled and interlacing ornament and colour to a great extent ceased to be used. The ceilings even extended down on to the walls as a frieze, sometimes 6 ft. and 10 ft. deep, as at Creve and Hardwicke Halls; indeed, in the sixteenth and seventeenth centuries the plasterer was the supreme decorator.

It was not, however, until the Renaissance of Italy swept over France, producing the sumptuous "François Premier" style, and thence into this country, that the great houses of magnificence were built, such as Thornbury and Broughton, Montacute and Longleat. At this time the plans of houses, though no longer built round a courtyard, still retained the central hall; but the wings projected like the arms of a letter E or H, and the moat was abandoned and gave place to terraces and gardens of quaint and formal character. We may notice Wroxton Abbey, Castle Ashby, and Chastleton Hall as examples, and it is to this period—the seventeenth and eighteenth centuries—that the great bulk of the architecture now existing in the Cotswolds belongs.

In the Middle Ages and down to the eighteenth century all architecture was localised so to speak, and the Cosmopolitan methods of building we adopt to-day were quite unknown. In East Anglia, for example, a country of clay and gravel, we find brick and flint buildings universally, and stone was only used in special cases or in Ecclesiastical buildings, and then as an ornament and setting, and rarely as the main item of construction. In Kent and Sussex and the southern counties we have the local rag stone, and brick and tile hung buildings and tile roofs. In the West of England in the oak-bearing districts we find the black and white timber buildings, and in this the Cotswold district we have the stone treatment carried perhaps to its fullest development.

These hills, from time immemorial, were celebrated for feeding numerous flocks of sheep, for in former times the great barons preferred grazing, as then fewer hands were needed on the land, and their vassals could attend them in their numerous wars with each other or when fighting for the King. Before woollen goods were manufactured in England, and down to the middle of the fourteenth century, unwrought wool was sold direct to the Flemings, so that the breeding and feeding of sheep was the general practice, and it is doubtless owing to this that towns like Northleach and Campden were once so prosperous and wealthy.

As far back as the twelfth century wool was our staple article of export, and it was sold to Italy and Flanders, the English and Cotswold

wool in particular being esteemed before any other.

Northleach and Campden were the two principal woollen centres in this district, and held public markets for wool and cloth, and in the fourteenth and fifteenth centuries, perhaps, reached the zenith of their prosperity, during the time when England was the great centre and distributor of finished goods all over Europe.

In the church at Campden are a series of memorial tablets to many eminent clothiers or "woolmen," as they were called. William Groil, citizen of London, William Dobbins, John Lethenard, William Wotley, and William Greville, who all owned property in the parish, and who died in the fifteenth century—these, with the stately monuments of the Hicks family, the ancestors of the present Earl of Gainsborough, tell us better than anything else the wealth and importance in those days of this little town in the Cotswolds.

Part of William Greville's house of the fifteenth century is still standing in the main street, and an exquisite oriel window shows us the interest and pride that must have been taken in it, indeed the many large and costly houses, scattered about in the small towns and villages in these hills, are without doubt due to their large trade in wool.

The fifteenth century, that great era of church building in Gloucestershire, when so many noble buildings were erected by the pious munificence of the wealthy merchants of the staple, was of immense benefit to Campden, for we read that at this time the grammar school was founded, and that there were no less than four separate chantries in the parish. The name of Sir Baptist Hicks, first Viscount Campden, is indelibly connected with the town, as one of its greatest benefactors. He was Mayor and a merchant of London, dying in 1629, and had large estates in the parish, and in Tetlow, his native place, near Bristol.

He built and endowed the almshouses—a delightful group of buildings on a raised terrace by the church—and the Wool Market Hall, and a magnificent house for himself near the church, which was unfortunately burnt down during the Civil Wars, under the mistaken impression it would fall into the hands of the Parliamentarians. The entrance gateway and garden pavilions are all that remain of what must once have been a very beautiful and interesting building.

Perhaps Campden exemplifies more than any other place in this district the true spirit of this Cotswold architecture, though in every village are examples of it. Here you will find all styles, from the exquisitely delicate fifteenth-century work in the remains of the old Court House, to the stately and scholarly work of Sir Baptist Hicks, and the dignified examples of Queen Anne and the early Georges—small they may be, and perhaps, to the passer-by insignificant and hardly noticeable, but all betraying that sense of fitness of purpose and simplicity of expression so characteristic of English architecture in these periods.

In the matter of design, we can say with truth, "there were giants in those days," for go where we will amongst these Cotswold villages and contemplate any old building—one untouched by later renovations—and it is impossible not to be impressed by its beauty and subtle charm—the mullioned windows and latticed panes, the stone-slatted roofs of all colours, the venerable walls covered with lichens, the absence of any meretricious or unnecessary ornament, and the wonderful feeling of homeliness that pervades everything, all combine to produce the very essence of simple and beautiful architecture.

With the rage for "improving" everything, much of this old work is being swept away; the dwellings of our ancestors, so closely interwoven with the life and history of the country, and possessing such an intensely human interest, are rapidly being destroyed, in many cases to make way for what can be regarded as only very doubtful improvements.

I do not suggest that unhealthy or insanitary houses should be retained, but I do urge that where it is possible to save them, that one should hesitate before breaking the few remaining links that bind the villages and country towns of to-day with the interest and associations of the past.

CONVALESCENT HOSPITAL, CULTS, ABERDEEN.—A convalescent hospital is being erected at Cults, the cost of which will be between 4,000l. and 5,000l. Messrs. W. & J. Smith & Kelly are the architects.

ARCHÆOLOGY AS A SCIENCE

WE quote the following from the *Times* report of Sir John Evans's opening address as President of the British Association meeting at Toronto:

"Whatever little I may have indirectly been able to do in assisting to promote the advancement of science, my principal efforts have now for many years been directed towards attempting to forge those links in the history of the world, and especially of humanity, that connect the past with the present, and towards tracing that course of evolution which plays as important a part in the physical and moral development of man as it does in that of the animal and vegetable creation. It appears to me, therefore, that my election to this important post may, in the main, be regarded as a recognition by this Association of the value of archaeology as a science. Leaving all personal considerations out of question, I gladly hail this recognition, which is, indeed, in full accordance with the attitude already for many years adopted by the Association towards anthropology, one of the most important branches of true archaeology. It is no doubt hard to define the exact limits which are to be assigned to archaeology as a science, and archaeology as a branch of history and belles lettres. A distinction is frequently drawn between science on the one hand and knowledge or learning on the other; but translate the terms into Latin, and the distinction at once disappears. In illustration of this I need only cite Bacon's great work on the "Advancement of Learning," which was with his own aid translated into Latin under the title "*De Augmentis Scientiarum*." It must, however, be acknowledged that a distinction does exist between archaeology proper and what, for want of a better word, may be termed antiquarianism. It may be interesting to know the internal arrangements of a Dominican convent in the Middle Ages; to distinguish between the different mouldings characteristic of the principal styles of Gothic architecture; to determine whether an English coin bearing the name of Henry was struck under Henry II., Richard, John, or Henry III., or to decide whether some given edifice was erected in Roman, Saxon, or Norman times. But the power to do this, though involving no small degree of detailed knowledge and some acquaintance with scientific methods, can hardly entitle its possessors to be enrolled among the votaries of science. A familiarity with all the details of Greek and Roman mythology and culture must be regarded as a literary rather than a scientific qualification; and yet when among the records of classical times we come upon traces of manners and customs which have survived for generations, and which seem to throw some rays of light upon the dim past when history and writing were unknown, we are, I think, approaching the boundaries of scientific archaeology. Every reader of Virgil knows that the Greeks were not merely orators, but that with a pair of compasses they could describe the movements of the heavens and fix the rising of the stars; but when by modern astronomy we can determine the helical rising of some well-known star, with which the worship in some given ancient temple is known to have been connected, and can fix its position on the horizon at some particular spot, say, 3,000 years ago, and then find that the axis of the temple is directed exactly towards that spot, we have some trustworthy scientific evidence that the temple in question must have been erected at a date approximately 1,100 years B.C. If on or close to the same site we find that more than one temple was erected, each having a different orientation, these variations, following as they may fairly be presumed to do, the changing position of the rising of the dominant star, will also afford a guide as to the chronological order of the different foundations. The researches of Mr. Penrose seem to show that in certain Greek temples, of which the date of foundation is known from history, the actual orientation corresponds with that theoretically deduced from astronomical data. Sir J. Norman Lockyer has shown that what holds good for Greek temples applies to many of far earlier date in Egypt, though up to the present time hardly a sufficient number of accurate observations have been made to justify us in forecasting all the instructive results that may be expected to arise from astronomy coming to the aid of archaeology.

The intimate connexion of archaeology with other sciences is in no case so evident as with respect to geology, for, when considering subjects such as those I shall presently discuss, it is almost impossible to say where the one science ends and the other begins. By the application of geological methods many archaeological questions relating even to subjects on the borders of the historical period have been satisfactorily solved. A careful examination of the limits of the area over which its smaller coins are found has led to the position of many an ancient Greek city being accurately ascertained; while in England it has only been by treating the coins of the Ancient Britons, belonging to a period before the Roman occupation, as if they were actual fossils, that the territories under the dominion of the various kings and princes who struck them have been approximately determined. In arranging the chronological sequence of these coins, the evolution of their types—a process almost as remarkable, and certainly as well-defined, as any to be found in nature—has served as an efficient guide. I may venture to add that the results obtained from the study of the morphology of the series of coins were published ten years before the appearance of Darwin's great work on the "Origin of Species." When we come to the consideration of the relics of the early Iron and Bronze Ages, the aid of chemistry has of necessity to be invoked. By its means we are able to determine whether the iron of a tool or weapon is of meteoric or volcanic origin, or has been reduced from iron ore, in which case considerable knowledge of metallurgy would be involved on the part of those who made it. With bronze antiquities the nature and extent of the alloys combined with the copper may throw light, not only on their chronological position, but on the sources whence the copper, tin, and other metals of which they consist were originally derived. I am not aware of there being sufficient differences in the analyses of the native copper from different localities in the region in which we are assembled for Canadian archaeologists to fix the sources from which the metal was obtained which was used in the manufacture of the ancient tools and weapons of copper that are occasionally discovered in this part of the globe. Like chemistry, mineralogy, and petrology may be called to the assistance of archaeology in determining the nature and source of the rocks of which ancient stone implements are made; and, thanks to researches of the followers of those sciences, the old view that all such implements formed of jade and found in Europe must of necessity have been fashioned from material imported from Asia can no longer be maintained. In one respect the archaeologist differs in opinion from the mineralogist—namely, as to the propriety of chipping off fragments from perfect and highly finished specimens for the purpose of submitting them to microscopic examination. I have hitherto been speaking of the aid that other sciences can afford to archaeology when dealing with the questions that come almost, if not quite, within the fringe of history, and belong to times when the surface of our earth presented much the same configuration as regards the distribution of land and water and hill and valley as it does at present, and when in all probability the climate was much the same as it now is. When, however, we come to discuss that remote age in which we find the earliest traces that are at present known of man's appearance upon earth, the aid of geology and palæontology becomes absolutely imperative. The changes in the surface configuration and in the extent of the land, especially in a country like Britain, as well as the modifications of the fauna and flora since those days, have been such that the archaeologist pure and simple is incompetent to deal with them, and he must either himself undertake the study of these other sciences or call experts in them to his assistance. The evidence that man had already appeared upon the earth is afforded by stone implements wrought by his hands, and it falls strictly within the province of the archaeologist to judge whether given specimens were so wrought or not; it rests with the geologist to determine their stratigraphical or chronological position, while the palæontologist can pronounce upon the age and character of the associated fauna and flora. If left to himself, the archaeologist seems too prone to build up theories founded upon form alone, irrespective of geological conditions. The geologist, unaccustomed to archaeological

details, may readily fail to see the difference between the results of the operations of nature and those of art, and may be liable to trace the effects of man's handiwork in the chipping, bruising, and wearing, which in all ages result from natural forces; but the united labours of the two, checked by those of the palæontologist, cannot do otherwise than lead towards sound conclusions.

While the above passage forms in the main an interesting summary of the scientific position of archaeology, we cannot pass over without a protest the reference to Sir Norman Lockyer's so-called discoveries as to the importance of the astronomical element in the Egyptian temples. His name as an eminent astronomer attracted attention at first to his theories, but his book on the subject, "The Dawn of Astronomy," in which he practically represented the Egyptian temples as telescopes for looking at certain stars, was soon recognised by every impartial reader who knew anything of architecture to be a piece of fantastic exaggeration, which in fact has drawn some ridicule upon its author. The book is already dead, and we are surprised to see any serious reference to it again.

Books.

Water and its Purification: A Handbook for the Use of Local Authorities, Sanitary Officers, and others interested in Water-Supply. By SAMUEL RIDEAL, D.Sc. (Lond.). London: Crosby Lockwood & Son. 1897.

THIS is a very useful book, though it will possibly prove, in parts at any rate, too technical for the majority of the readers to whom it is addressed. It commences by describing the characters of natural waters. Here we notice (p. 4) that the author ascribes a yellowish tint in water as due to the possible presence of urine. That is perfectly true, but that tint is much more frequently brought about by iron derived from the rocks through which, or over which, the water has traversed. Again, it is stated that: "The grosser suspended matter in a water can be removed by filtration or subsidence, whilst that dissolved is not affected by such treatment." The author surely would not contend that no dissolved matter is removed by filtration! To say nothing of what is removed (probably by organic agency) by filtration in sand and gravel filter beds, we may recall the effect of "spongy iron," "revolving iron" filters, &c., in removing much that was chemically dissolved in the water passing through them. The chapter devoted to "Animal and Vegetable Impurities" is excellent and well illustrated. We cannot say as much, however, for the section dealing with "Springs and Wells," and the author would have done well to have had this portion revised by a competent geologist who understands the geological aspects of water supply. It disfigures the book as it stands. Without attempting any detailed criticism we may remark that the general tendency of weathering is not to leave "synclinal curves as basins." The "line of emergence of a stratum at the surface" is not a good definition of "outcrop," for wherever the rock comes to the surface it is said to crop out (outcrop); neither is the direction of that line necessarily "the strike." The following sentence is quite incomprehensible: "The strike on a flat surface would be at right angles to the dip, but this relation is much disturbed by inequalities on the surface, so that the outcrop becomes a sinuous or wavy line." We advise the author to read a shilling primer of Geology before writing any more on that science.

In a practical work of this kind we are astonished to find the author following (p. 71) the report of Mr. Wethered as to the relative porosity of different geological formations. In such a fanciful document as the average British Association Report we do not look for much good work nowadays. The figures quoted no doubt accurately represent the result obtained by steeping small samples of different stones in water for some hours; but in the field the rate of porosity, even in the same class of stone, varies within very wide limits. The development of a thin seam of clay, for instance, in a sandstone will most materially affect the latter's porosity. Sandstone will also materially vary according to the nature of the cement binding the grains of sand together, and so on. Such tables have no practical value for

working purposes, and are absolutely misleading in many cases.

The "divining rod" comes in for a good share of recognition, and the author is a believer in it. Without traversing the question we may remark that, supposing the "water-finder" can discover water by means of the divining rod, that water is mostly surface water, or occurring only at shallow depths, its quality is often such as to disqualify it for potable purposes. The diagram of a section through the London basin is a remarkable production—but we refrain from further comment on it.

The author is more at home when dealing with "Rivers" and their pollution, "Storage," "Filtration," and the like. "Household Filtration" and the "Softening of Water" are dealt with at some length, but we do not notice anything novel—the subjects are well presented. Perhaps the best part of the book is the chapter on "Analysis and Interpretation of Results," and there is a good deal of useful information in the tables at the end. If we have ventured to point out a few blemishes it is not because we have not a high appreciation of the book as a whole.

Appleby's Illustrated Handbook of Machinery. Section II.—Hoisting Machinery. By C. J. APPLEBY, M.I.C.E. London: E. & F. N. Spon, Ltd. 1897.

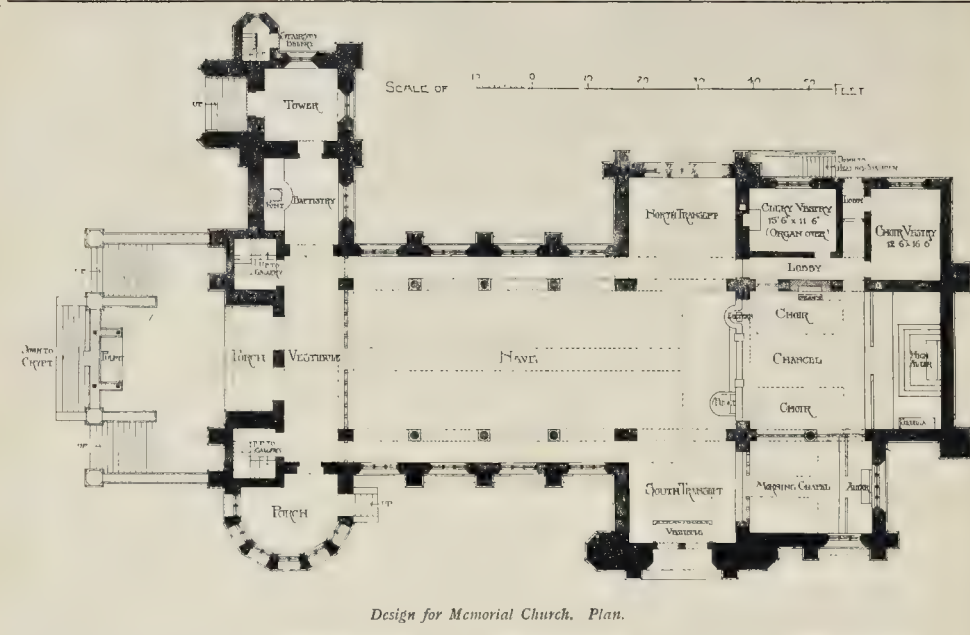
APPLEBY'S handbooks of machinery, which have been in existence for the last thirty years, are well known to engineers and contractors, and a new edition—which is now being published—has been rendered necessary by the great improvements that have been made in recent times in the manufacture of all kinds of machines. The present edition, which is being entirely rewritten, will be composed of seven volumes, dealing with practically every kind of machine generally used by those who have to carry out any kind of engineering work, and the information given will be found of special service to contractors, not only in this country but also abroad.

As the author's firm are the makers of a large part of the machinery referred to, the books have, naturally, somewhat the appearance of trade catalogues, but on examination they will be found to be much more than mere lists of plant, and Mr. Appleby's connexion with the manufacture of the machinery he describes allows him to speak on such matters as their cost with authority.

In the present volume all kinds of hoisting machinery, from a simple screw-jack to a 100-ton steam floating crane, are described and illustrated, their cost, capabilities, and such like information is always given, often at considerable length, and the most modern machines, as well as the employment of electricity for driving purposes, are referred to. Great care has evidently been taken that the present edition should be brought quite up to date, and be able to maintain in the future that reputation for usefulness and accuracy that the publication has hitherto always commanded.

Asbestos and Asbestos: Their Properties, Occurrence, and Use. By ROBERT H. JONES, F.S.A. London: Crosby Lockwood & Son. 1897.

ALTHOUGH we are not informed of the fact on the title page, this is evidently a second edition of the author's work on "Asbestos," published some years since. Mr. R. H. Jones is the acknowledged authority on the economic value and uses of asbestos, and the expanded work before us is the most complete text-book on the subject. It is inclined to be chatty, and a number of details, of purely local interest might well have been omitted. A certain "Manufacturing Company of New York," and the various contracts they have secured during the past year or two, are alluded to in such a prominent manner that when we first opened the book we were afraid that it was a kind of "glorified advertisement"; but a glance at the earlier chapters dispelled the idea. The book is not only a splendid compilation (drawn from all conceivable sources) of what is known of the history and occurrences of asbestos, but contains much original matter, the result of personal investigation on the author's part. Dealing with the present sources of supply, we are told that the British Isles seem to be entirely shut out from the list of asbestos producers. The two countries which at present furnish the bulk of the world's supply are Italy and Canada. Speaking of the relationship subsisting between



asbestos and serpentine, the author discusses the ornamental serpentines of Canada, and he is of opinion that they might be successfully introduced into the English market. We are afraid that Continental and Irish competition would prove too much for the American material. That section devoted to the use of asbestos for building purposes contains nothing new; it recommends the more extended use of the substance for fire-resisting purposes. In reference to asbestic, which has already been described in the *Builder*, it is a wall plaster, composed entirely of asbestos and possessing many of the qualities of the latter. Asbestic plaster is prepared in two qualities, namely "rough asbestic" and the "finish." The former may be applied to the walls of a new building, upon brick, metal, laths, plain boards, or expanded metal, and when dry, forms a coating of the nature of asbestos feltboard. This coating is covered with a layer of the "finish," which is pure, fine asbestos and produces a smooth surface. The work also contains much useful information on slag wool, soapstone, boiler and pipe coverings, &c.

John Ruskin: his Life and Teaching. By MARSHALL MATHER. Third Edition. London: Frederick Warne and Co. 1897.

SURELY it is time that we saw the last of books on the Ruskin cult. They are out of date now, as their writers will probably find. This one contains the usual series of chapters on different phases of Ruskin's works and the usual explanation and comments for the uninitiated reader, some of which are open to a good deal of criticism. There is a piece of enthusiastic writing about the "Temeraire" picture, for instance, in which certain "laws" of Ruskin's are illustrated by the picture; "try to represent the appearance of things, never what you know the thing to be" (a dictum which is open to question in some cases, at all events); accordingly the reader is instructed to note how Turner has omitted a great deal of the rigging of the ship, also the portholes of the distant ships, because from his point of view they would not be seen. That is, he did not choose to see them; a sailor would have seen them. We may not doubt be quite right often to omit details in pictures which could be seen in nature; but let us have the right reason for it. Then the author proceeds to show how the "Temeraire" illustrates the Ruskin ideal (though why it should be claimed as his property we do not know) "draw accurately what you see." Did the author ever seem a steam tug with a lateral angle in the middle of her length? For that is the way Turner's steam tug is drawn; the perspective is all wrong.

It is curious to see how this kind of writing goes on still; but we should hardly think there is much of a public for it now. Is it not time that some one published a book on the absurdities of Ruskin? He would find a considerable field for criticism, and might even find his work more popular than he expected.

TRADE CATALOGUES.

MESSRS. JOHN TULLIS & SON'S (Glasgow) "Guide to Belt Driving" is a finely-illustrated catalogue, and something more, as it contains a paper by Mr. Tullis, originally read at the Convention of British and Irish Millers in Glasgow some years ago, giving the results of his experience on the subject of belt driving generally, and also a series of "Hints on belt driving," which are of the greatest practical value. The illustrations, including carefully executed sections of various makes of belt to a large scale, give a good idea of the amount of skill and thought which has been expended on what may seem to outsiders the very simple matter of a belt rove round two wheels to make one drive the other, but which is in reality a subject of the greatest nicety and delicacy in regard to make and adjustment in order to transmit the power without loss and with the least possible wear and tear. Power in a mill is money, and a belt which is not doing its work in the most efficient way is losing money at every revolution. Among the special points illustrated in the catalogue may be mentioned the flexible centre link belt, which will accommodate itself to pulleys of different form; the link belt arched in section on one side to enable it to grip the whole surface of a rounded pulley; the various built-up sections of leather driving ropes; the modes of stretching, jointing, and putting on belts, &c.—Messrs. Berry & Chapman (Hornsey) send us their catalogue of apparatus for warming houses with either hot air or hot water, with sections of their hot water heaters, and a sectional view of a dwelling-house warmed on their combined hot air and hot water principle. They state that they are prepared to warm a dwelling-house "such as is rented in London at from 50l. to 70l. per annum" at an initial cost of 20l. to 25l., proportionately increasing with the size. A London house of that rental, however, must obviously be a very small one.

REEREDS, ST. PAUL'S CHURCH, LONGRIDGE.—A reered is being erected in St. Paul's Church, Longridge. The architect is Mr. Christian, of London. The wood carving is by Messrs. Berry & Chapman, of North Walsham. The centre piece is a sculptured panel representing the Lord's Supper.

Illustrations.

PROPOSED MEMORIAL CHURCH.

THIS design was prepared for a church with seating accommodation for about 400, and would be constructed of stone, with Broseley tile roofs, at an estimated cost of 16,000l.

The drawing was an exhibit in this year's Royal Academy Exhibition, Messrs. Clark & Hutchinson being the authors.

As we observed at the time, in criticising the Academy architecture, the design shows a good deal of decidedly original feeling and treatment.

KINETON CHURCH.

The stalls, organ case, and screen at Kineton Parish Church, Warwickshire, of which we give an illustration, are designed by Mr. John Belcher, the organ being erected so as to leave free space all round it, a point often neglected.

The drawing was exhibited at the Royal Academy.

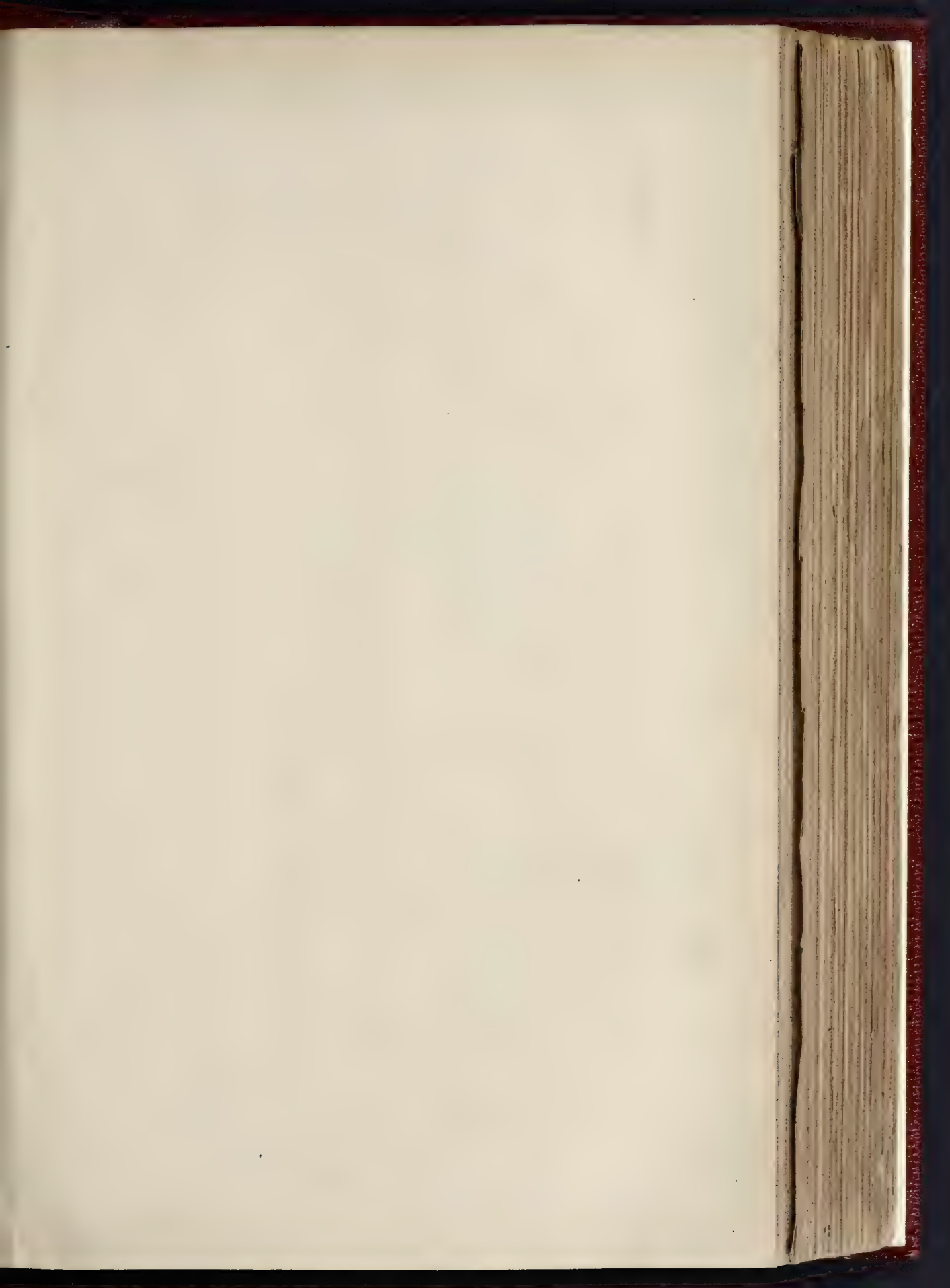
The work at the church also included the erection of new vestries, for which Mr. Tallis of Warwick, was the contractor. The organ is built by Messrs. Brindley & Foster.

CARVED OAK STALL CANOPIES, LANCASTER CHURCH.

THE two illustrations from photographs give some idea of the richness of the foliage carving of the stall canopies in Lancaster Church, mention of which is made in our account of the excursion of the Architectural Association on another page.

It is not the first time this splendid piece of mediæval work has been brought under the notice of our readers, but we are not aware that any illustration of it has been given in our pages, for many years back at all events.

The sumptuous character of the carving, and multiplicity of detail in it, leave no doubt that it has been work carried out for some special purpose of importance, and with an effort to produce something of exceptional excellence and over which no pains were to be spared. It is known that the work was not executed for its present position—the theory used to be that it was brought from Cocksand Abbey, a theory, however, for which we never heard any reason given. Mr. Austin, we observe, on the occasion of the Architectural Association visit, expressed the opinion which we have always held, that the work had most probably been

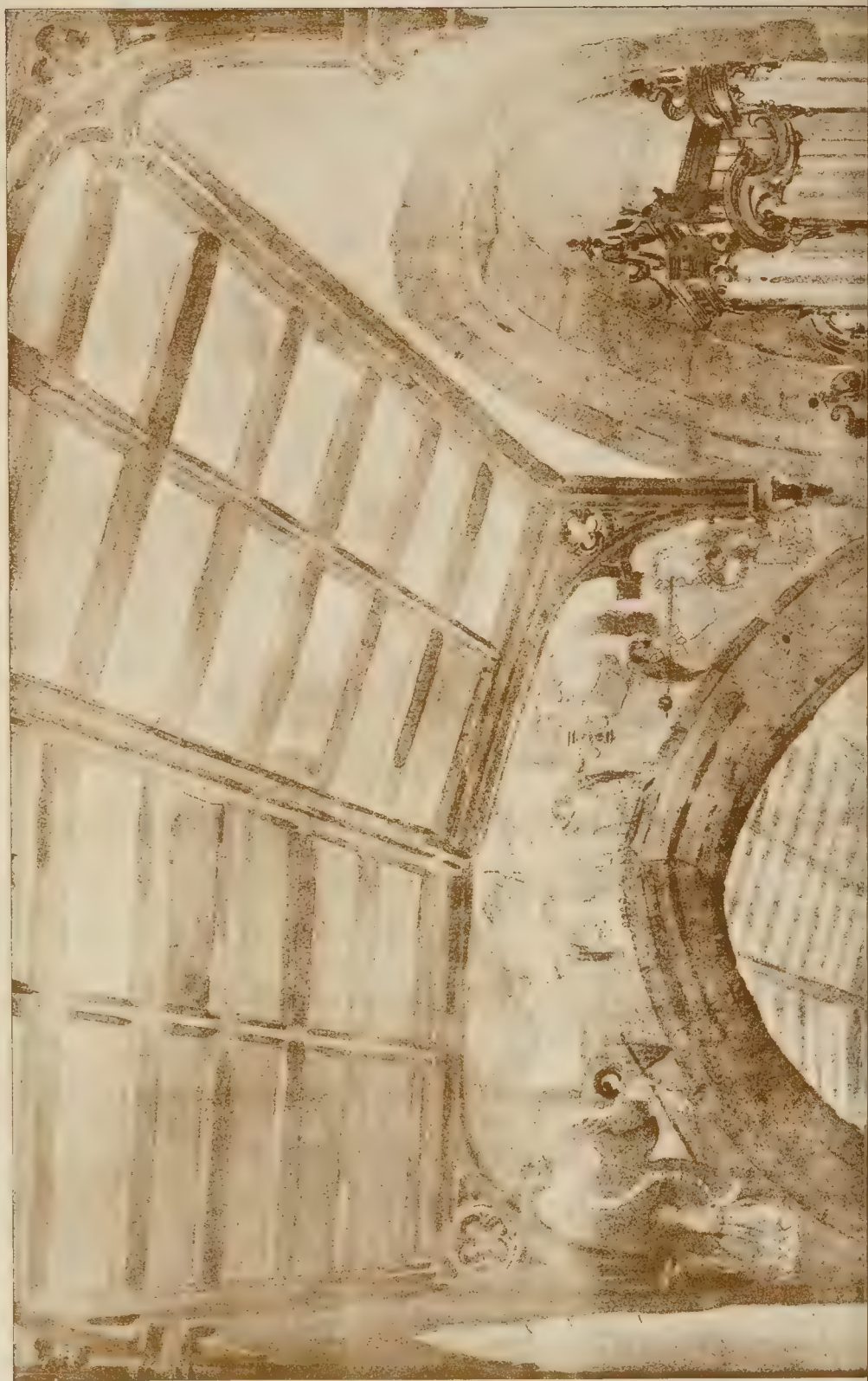


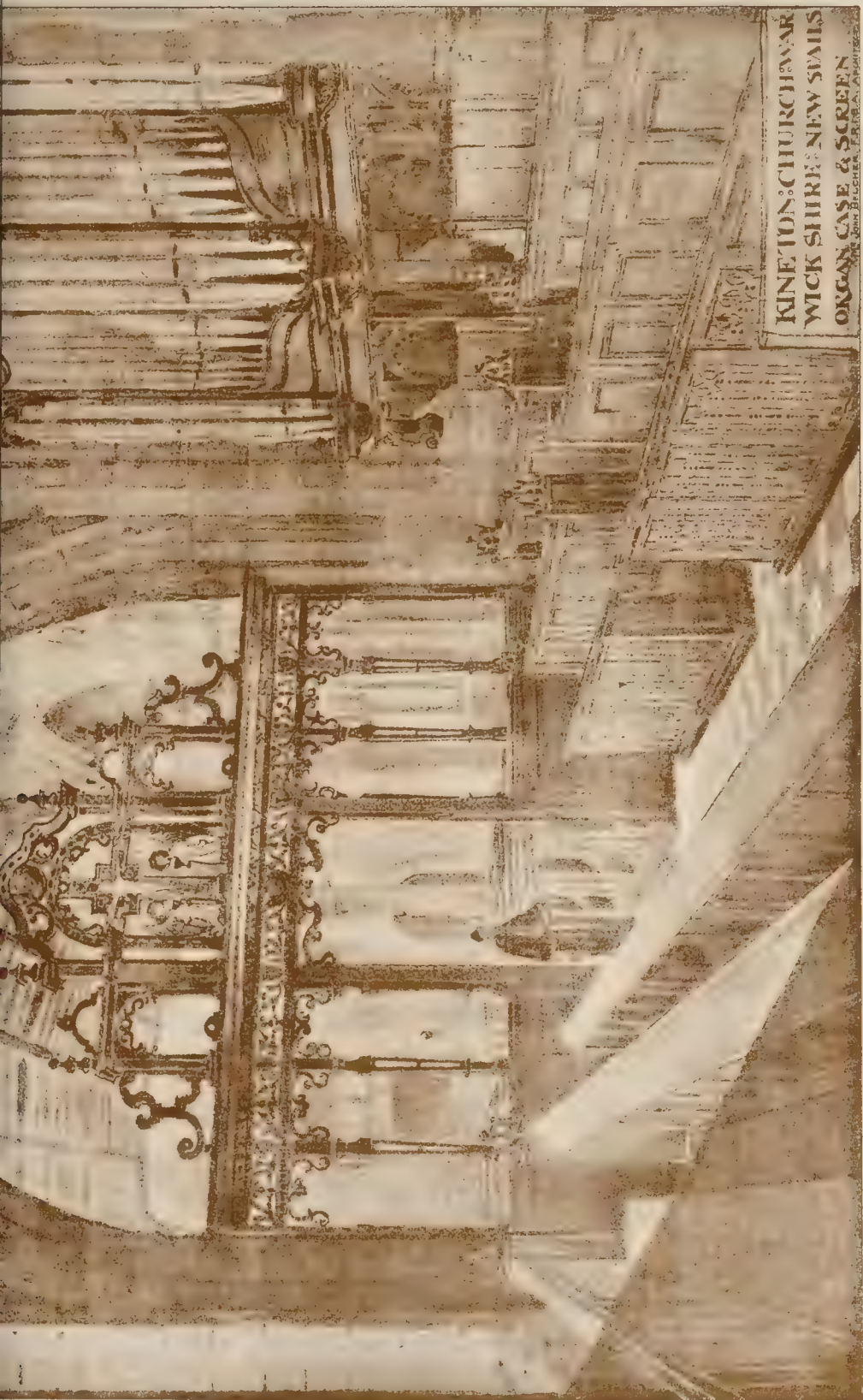


PROPOSED MEMORIAL CHURCH —

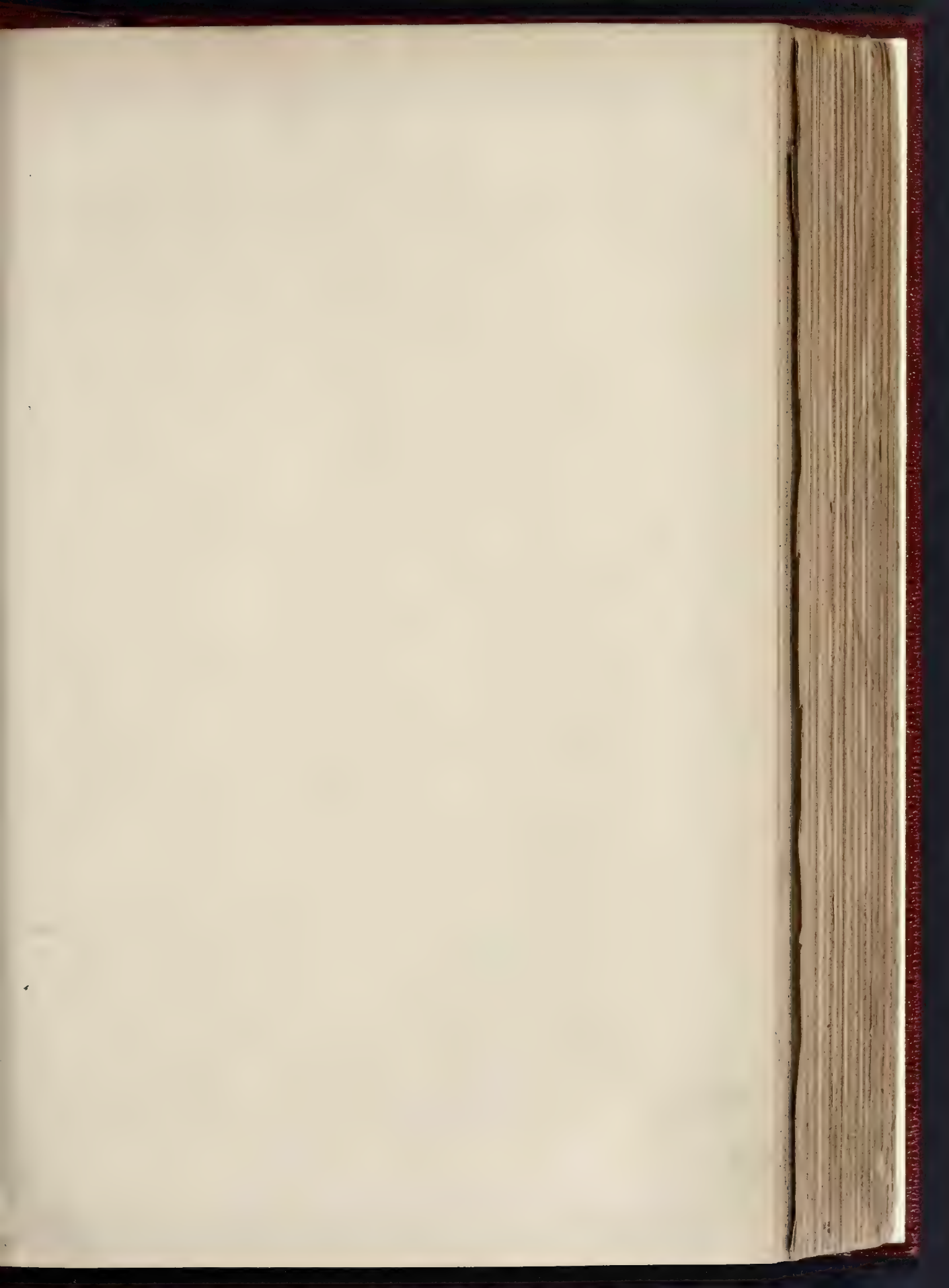


PHOTO LITHO SPRAGUE & CO. 435 EAST HARDING STREET FETTER LANE EC

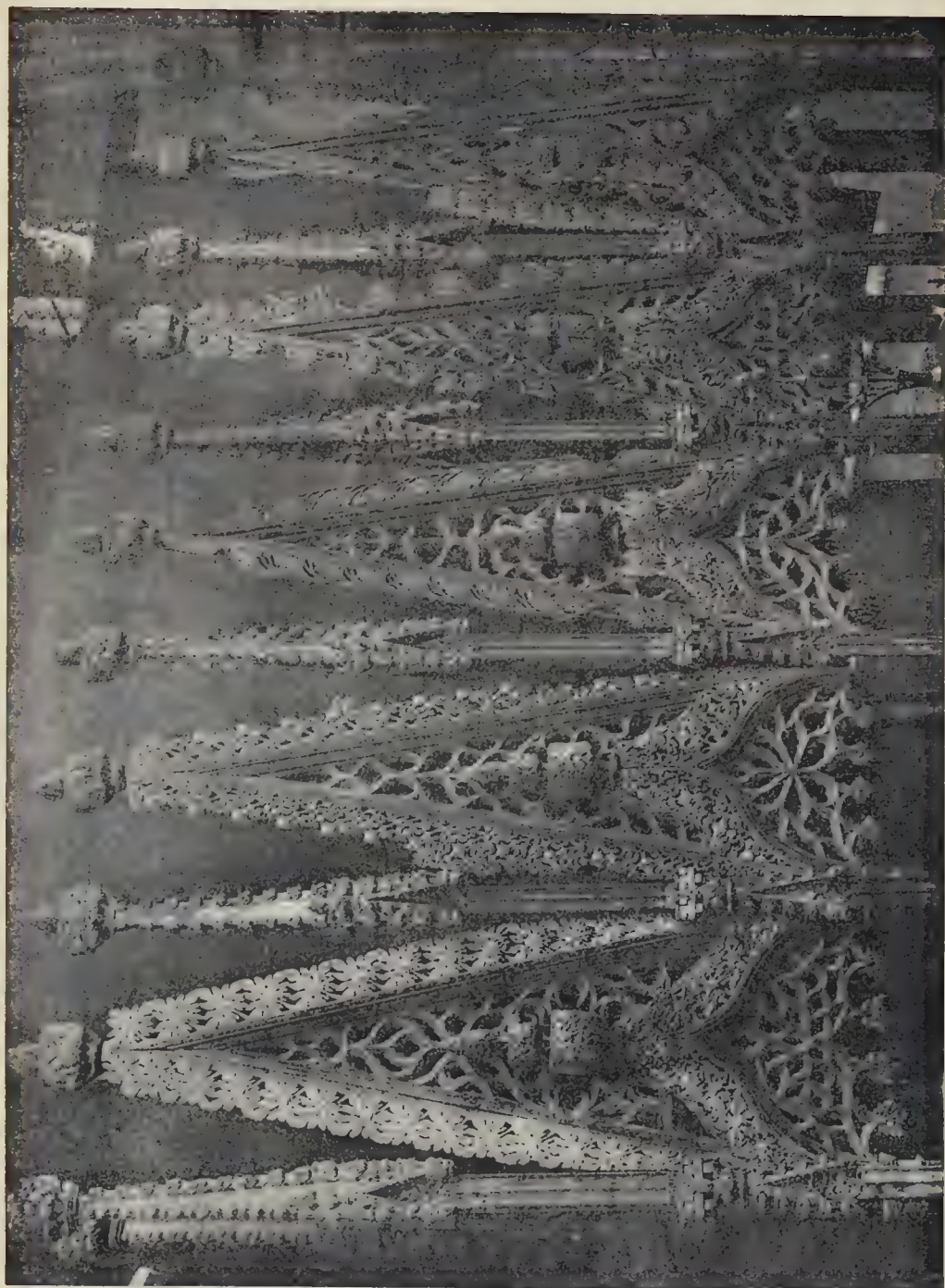


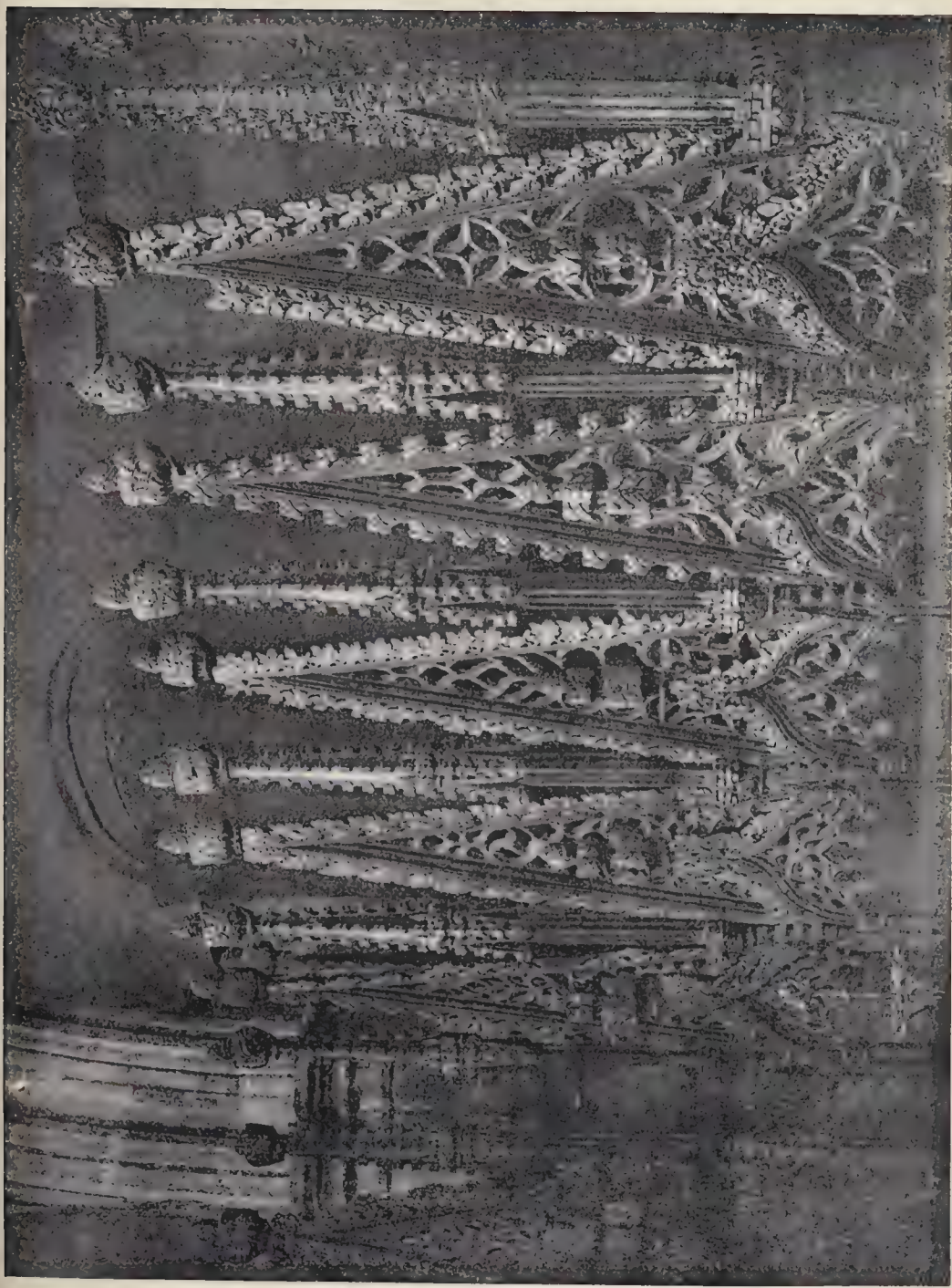


KINGTON: CHURCH
WICK SHIRE: NEW STAIRS
ORGAN CASE & SCREEN

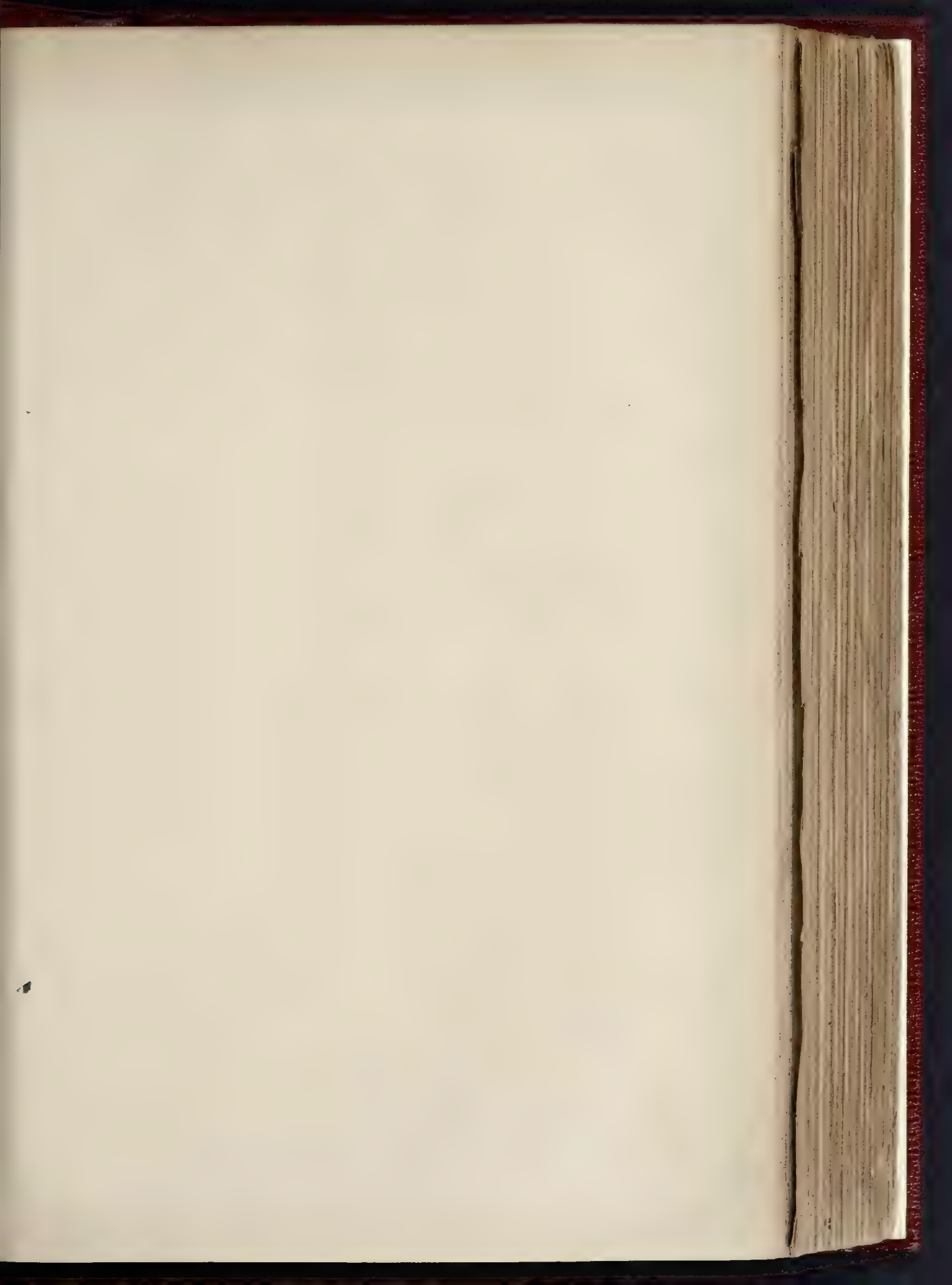


THE BUILDER AUGUST 21, 1897.





CARVED OAK STALL-CANOPIES LANCASTER CHURCH





Bases capital, at first exhumed



General View showing the three bases *in situ*, fallen columns, tiles, &c



Second base from street line, with capital now superimposed



Fragment of Altar.



Fragment of Sculpture.



Brick Influence: Venice.



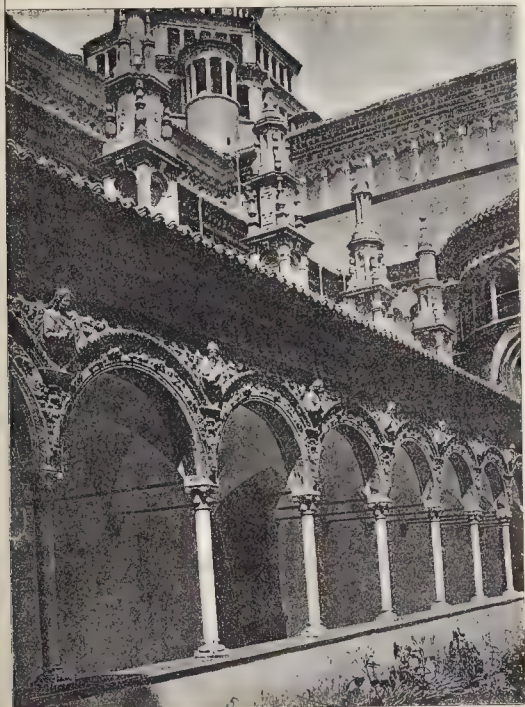
Wood and plaster type: England

ILLUSTRATIONS TO
MR. BANISTER FLETCHER'S
ESSAY
"INFLUENCE OF MATERIALS
ON
ARCHITECTURE."

(From photographs.)



Influence of brick on smallness and repetition of detail
Piacenza



Influence of plastic terra-cotta on richness and smallness
of detail: Pavia.



A Venetian Palace: marble surface colouring and inlay

longed to Furness Abbey. It is in the great ecclesiastical establishment of the neighbourhood that we might expect with most probability to find a piece of work of such exceptional richness and character.

We hope that the excursionists when examining this work, looked at the mouldings of the canopy, which are rather remarkable as examples of mouldings which externally appear to be of the usual character of Decorated work, but in which the hollows have a special section, angular instead of round, as more suitable for working in wood. The section is shown in the chapter on "Mouldings" in Mr. H. H. Statham's "Architecture for General Readers," page 140, as an example of a section of a moulding modified to suit the material.

ROMAN REMAINS IN CHESTER.

We give a sheet of illustrations of the Roman remains recently found in Chester, from photographs made by Mr. W. Matthews Jones, the son we believe of the City Surveyor of Chester. The remains were discovered on the site of some premises in Northgate-street. The line formed by the three bases of columns is approximately at a right angle with Northgate-street, their intercolumniation distance between about 11 ft.

The illustrations show first, the first exhumation, with the portion of a fallen column then found; secondly, the view of the site after further excavation, with the three bases standing in line; thirdly, the base and a considerably defaced capital mounted on it; next a stone, said to be part of an altar, with the letters—

GENIO
V.V.E.
T.VET

and a much worn head of a statue.

It is to be hoped that circumstances will render it possible to follow out the investigation of the ground in the immediate neighbourhood further, and that additional remains in connexion with these may be found.

EXAMPLES OF "INFLUENCE OF MATERIALS ON ARCHITECTURE."

THESE views are given as illustrations to the portion of Mr. Banister Fletcher's essay printed in the present number. The Frari Church, a portion of the Certosa at Pavia, and the Town Hall of Piacenza, as examples of work in brick and terra-cotta; the Venetian Palace as showing the flat treatment induced by a preference for coloured surface material, and Moreton Hall, England, as an example of work executed with timber and plaster and producing its effect in a manner arising naturally out of the treatment and character of the materials.

COMPETITIONS.

TOWN HALL, CARDIFF.—A special meeting of the Town Hall Committee of Cardiff Corporation was held in the Council Chamber on the 14th inst. for the purpose of meeting Mr. A. Waterhouse, R.A., who has been appointed by the Corporation as assessor in the competition for designs and plans for the new Town Hall and Law Courts. The Committee, in conjunction with Mr. Waterhouse, considered some important points in connexion with the conditions of the competition, several technical details being altered as suggested by the assessor. Mr. Waterhouse, who has twice carefully inspected the site, said he was exceedingly pleased with it, and that no other town in the United Kingdom possessed one like it for such a purpose.

COLCHESTER TOWN HALL.—The Municipal Offices (Special) Committee of the Colchester Town Council have embodied in the minutes of their meetings the report of their assessor, Mr. R. Norman Shaw, R.A., on the eight sets of competitive plans received for the construction of a new Town Hall. In the case of the design which the assessor had placed first, the scheme was, he stated, one of exceptional merit, and exceptionally well fitted for its purpose, and most original and striking as an architectural composition. As far as general design and character went, he decidedly preferred the one to which he awarded the second premium, but that and the one he placed third had serious defects in planning. The designs were marked in cypher, and the one placed first proved to be from Mr. J. Belcher, 20, Hanover-

square, W.; the second was from Messrs. Baker, May, & Rickards, London; and the third from Mr. E. W. Mountford, 17, Buckingham-street, W.C. The estimates submitted by the architects in connexion with their respective designs varied from about 31,000l. to 35,000l., these amounts being inclusive of the proposed tower. It was recommended that before any decision was come to, all the plans be exhibited in the Council Chamber for one month.—At the last meeting of the Town Council, Councillor Benham, in moving the adoption of the report, said the opinion of Mr. Shaw and other architects was that from an architectural and economical point of view it would be right to sweep the existing building away and not try to patch it up. Alderman Goody seconded this. Councillor Greenwood moved as an amendment that the Council should be allowed to inspect the plans before the general public. The report was adopted, the amendment being also accepted.—Mr. Belcher's design represents a building of three stories, in brickwork and stone. It is Renaissance in style, and the building is designed to extend from the Corn Exchange round the corner of Stockwell-street to the Public Library. At one corner is a high tower, partly of brick, surmounted with sculptured masonry, with a regal crown as its topmost ornament. The tower is designed to contain bells and a two-faced clock. The basement makes provision for boiler-houses, strong rooms, store-room, room for electric lighting apparatus, police recreation-room, &c. On the ground floor is a large entrance hall, with witnesses' room, a solicitors' room, barristers' room, and the police offices. A mezzanine floor occupies the front portion of the building above the ground floor, and contains offices for the borough officials. Above the mezzanine floor is the Council Chamber, 38 ft. by 33 ft., with a public gallery. On the same floor are two committee-rooms, the Mayor's reception-room, the Town Clerk's office, two robing-rooms, and a waiting-room. Above this floor is the Assembly-room or Moot Hall, 84 ft. by 33 ft.

TECHNICAL SCHOOL, BOOTLE.—In response to the advertisements of the Bootle Corporation inviting competitive plans of a Technical School to be erected at the corner of Balliol-road and Pembroke-road, at a cost not exceeding 15,000l., and offering premiums of 50, 30, and 20 guineas for the three best designs, there have been received twenty-two sets of plans. Mr. W. E. Willink, President of the Liverpool Architectural Society, has been appointed by the Free Library and Museum Committee to act as referee to advise them in the consideration of the plans. There were forty applications to the Borough Engineer for a plan of the site and instructions, and the Committee has resolved that the guinea deposits of those architects who failed to compete be not returned.

PIER IMPROVEMENTS, BLACKPOOL.—At a meeting of the directors of the Blackpool Jetty Company, recently, the design submitted by Mr. R. Knill Freeman, F.R.I.B.A., in a limited competition for the extension of the central pier and the erection upon it of a pavilion and other buildings, was adopted. The engineering works in connexion with the sub-structure will be carried out from the designs of Mr. Thos. Dryden, engineer, Preston.

ARCHÆOLOGICAL SOCIETIES.

CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.—The annual meeting of this Association commenced on Monday at Haverfordwest, and was continued on the four following days. On Tuesday an excursion was made to Burton and district, and on Wednesday to St. David's. On Thursday objects of interest in Haverfordwest were inspected in the morning, and at midday an excursion was made to Robeston Wathen. On Friday the members were to visit Maenclochog and district, or make an excursion to Llangwarren. Public meetings were held in the Temperance Hall, Haverfordwest, on Tuesday and at the same hour on Friday. At the first-named meeting the President delivered his inaugural address, and, at the second, papers on local history and antiquities were read. We hope to publish a report of the proceedings next week.

HOTEL, ABERYSTWYTH.—A new hotel has just been opened at Aberystwyth, which has been erected from the designs of Messrs. Even and J. Alfred Harper, architects, of Birmingham. The hotel is built of native stone, and is in the Renaissance style

Correspondence.

To the Editor of THE BUILDER.

CARDIFF NEW TOWN HALL AND LAW COURTS.

SIR,—As will have been seen from your advertising columns the two preceding weeks, Cardiff contemplates the erection of a Town Hall and Law Courts on a scale befitting its importance as a centre of wealth and population.

For this purpose the Corporation have lately purchased from the Marquis of Bute a finely-timbered park of some 60 acres. This magnificent site is bounded on its south by the "Feeder," an artificial, but beautiful river by which the waters of the Taff are carried to the docks. There is a singular charm about this rapidly flowing stream, here entirely over-arched by trees, with the lawn and garden around the ruins of the Grey Friars' monastery on the one side and the park aforesaid on the other.

The spot appropriated to the buildings in question is within a stone's throw of "The Feeder," and not three minutes' walk from the centre of the life of Cardiff; yet scarcely a trace of the near neighbourhood of a great town is visible from it. This is partly accounted for by the fact that the grounds of Cardiff Castle bound the park to the west with only a road and canal intervening. It struck the writer on visiting Cardiff that the Corporation had secured an unrivalled site for their future municipal buildings.

It is to be hoped, therefore, that something worthy of the opportunity may result from the competition which has been determined upon for the buildings in question. The time allotted for the work is short, but from the circumstances of the case cannot be extended. The conditions are, I think, more favourable than usual.

A. WATERHOUSE.

20, New Cavendish-street, Portland-place, W.

Some of our readers may remember that in the article on Cardiff in our issue of March 13 ("Architecture of our large Provincial Towns: V.") we drew special attention to the beautiful effect of the artificially formed stream the "Feeder," like a canal full of running water, both at the point near the site for the new Town Hall, and at another point more within the town, where it runs past a terrace of small houses. The terms of the competition are, as Mr. Waterhouse truly says, more favourable than usual, and it seems likely to turn out a model competition. In remarking on the need of a new Town Hall, in the article referred to, we observed that "on whatever site the new Town Hall is ultimately built, we have little doubt that an effort will be made to render it a really worthy addition to Cardiff architecture," and the advertisement of the Corporation is a satisfactory confirmation of our prediction.—ED.

TENDERING.

SIR,—I am one of four builders who were privately invited to tender for a job of about 1,000l., each builder having to take out his own quantities, the result being that my tender was the lowest, although it was not accepted. Can any one inform me whether I can legally make a charge for the trouble and expense I was put to over the matter, which, for the fact of being asked to tender and then not accepting me, although lowest, clearly shows it was for their benefit only? I think it is quite time that the builders combined together to protect themselves in some way against this only too common occurrence. REGAEL.

Our correspondent cannot recover anything. An invitation to tender may or may not be accepted, as the builder to whom it is sent may think desirable. It is clearly established by legal decision that a person who invites tenders is not bound to accept the lowest tender. A builder, therefore, who sends in a tender has to run the risk of his time being thrown away if it is not accepted. We take it that the prudent builder discounts the profit on the job in which his tender is accepted by the loss on an unaccepted tender, and that when a business is well managed, the loss of time on an unaccepted "tender" is merely the item on the debit side of the year's trading account.—ED.

FOUNDATION OR COMMEMORATIVE STONES.

SIR,—Apart from technical criticism, probably every visitor to the new Gallery of British Art at Pimlico will admire its handsome and ornate appearance as a whole. But I could not help re-

marking the somewhat mean and altogether inadequate appearance presented by the two commemorative stones; one to the donor, the other to the opener of the building. They form the basis of two columns opposite the entry to readily catch the eye. Yet these, the most important stones surely in the building, appear to be of the commonest material, of a by no means even hard character.

Considering the very object and whole *raison d'être* of such stones, should they not rather be altogether exceptional, not only in place, and design, and size, but also in material? Their purpose is specially to hand down to succeeding generations the names of the founders or builders, in grateful recognition of national benefits conferred. Such being the undoubted case, one would have thought that all architects would have made a special point of seeing this idea carried out. Should they not always be of some costly or precious material, as marble, plain or coloured, granite, or porphyry, or the like? For a single stone, for such an enduring purpose, could any kind be too handsome or too indestructible?

Instead of this obvious arrangement (as it seems to an unprofessional mind), we see these stones of the very commonest material, generally, I suppose, the same as used in the building. I have repeatedly observed this myself in churches, town halls, and other public buildings. It seems to be the exception where anything beyond a common block of building stone was used.

One of the best I remember seeing is the large one in the Ophthalmic Hospital, at Blackfriars Obelisk. It is a fine piece of red granite, with the inscription and two coats of arms well cut and handsomely gilt.

It seems quite an opportunity thrown away of making an interesting and effective little adjunct to the façade or other position. If I had not so often observed this strange oversight, I should not have alluded to the New Gallery instance. CAIUS.

DANTZIC OAK FOR WINDOW SILLS.

SIR.—Will any of your readers state their experience of Dantzic oak in window sills, or say whether they have used with good results any other wood than English oak for this purpose?

Dry English oak is now very difficult to get in large quantities, and unless it is well seasoned it is certain to twist and crack in work. G. T. H.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER V.—MODES OF MEASUREMENT.

Setting Slopes.—Average the widths of the openings, and keep various descriptions of slopes separate, stating whether tile cheeks and any special work required.

Setting Copings.—Give size of coping, and include setting of furnace work, state also size of brick setting and the shape (whether with circular front) and describe whether pointed or faced with an arch of description of brick different to the bulk of the work, or rendered in cement.

Flues Cored and Parged.—If of exceptional lengths take an average, not otherwise.

Chimney Pots, giving size and description, or stating p.c. or l.p., and include the flaunching.

Cramps for Door Frames.—Give size, and length, and description. Although this is smiths' work, it is generally billed in the bricklayer.

Frames Bedded and Pointed.—Keep door and window frames separate, also in sizes as "ordinary" frames, "large" ditto, and "extra large" ditto. "Large" over 24 ft. superficial, and "extra large" over 36 ft. superficial. If over 48 ft. superficial the size should be stated.

It is a good plan as a variation of the foregoing to average the girths of the frames. The girths in the case of door frames being the length of the head and jambs, and in the case of window frames of head, jamb and sill and put same in one item, keeping, of course, the door and window frames separate. The sills of window frames are usually bedded in white lead.

State whether bedded in lime and hair, or cement and hair, also whether pointed one or both sides, and whether either or both sides next stonework, and if screeded.

Hoop Iron Bond.—This is measured by the foot run, making an allowance for laps, and afterwards weighted, and appears in the bill, in cwt. occasionally a note is inserted at the end of the item in parenthesis giving the number of yards lineal.

Pavings, per yard, Superficial.—If brick.—Give description, state whether flat or on edge, if herring bone, and also whether set in mortar or cement. If laid herring bone take the girth of the room by 3 in. as a superficial dimensions

and add to the bulk as an allowance for waste.

If tile.—Give full description both as to size and quality, and state whether laid in mortar or cement. In the case of ornamental and tessellated pavements, give the p.c. price, and include, with the item, for package, carriage, and laying, and take a cement bed for the tiles, giving the thickness. All p.c.s. should state to factory or in London or otherwise, to enable the builder to make the proper allowance for carriage. It is also well, even where there is a p.c. price given, to give the description; this gives some clue as to the amount of labour in laying.

State if paving to falls, and take an item of cutting at intersection of falls at *per foot run*.

All rectangular cutting in pavings is included with the item (with the exception above noted) which should state this, and also the fact that the item is "measured net"; but raking, cutting, and waste is taken *per foot run*.

Asphalte, per yard superficial, giving description and thickness, and describing if to falls. Where there are asphalt skirtings, take these at *per foot run*, giving the height and thickness, and note that the joint of brickwork must be raked out for the turn in of the top edge; embody this in the description. Take mitres, &c.; also take asphalt fillet at junction of skirting with paving at *per foot run*.

Tile wall lining, per yard superficial. Give size and full description or p.c. as described for pavings. Take the lengths as multiples of the widths of the tiles, include cuttings, or take net and take an item *per foot run*, as "cutting and waste at internal angle." Take any items of cutting and fitting as numbers, and also take angle beads, cappings, &c., *per foot run*, with the angles, returned ends, &c., as numbers.

Facings, per foot superficial, take these as extra over ordinary brickwork over all the surfaces showing, including in reveals, describing the bricks and the pointing, both as regards colour and form, also state whether the pointing is done as the work proceeds, or whether the joints are raked out and afterwards pointed.

In gauged work describe whether set in putty or in shellac for carving.

In the case of glazed facings, owing to the great cost of the bricks, it is usual to make an allowance of $2\frac{1}{2}$ in. at each end of the wall to pay for the extra material for bonding.

With half brick ($4\frac{1}{2}$ in.) walls whether faced one or both sides, and one brick (9 in.) walls faced both sides, include also the brickwork, and measure at *per foot superficial*. Keep circular facing separate, giving the radius.

Where, as is sometimes the case, there are bands or quoins of facings varying from the bulk, take these at *per foot superficial* (taking the average width of the quoins by the height) and deduct from the general facing and describe as "in bands" or "in quoins" as the case may be.

It is frequently better to bill the quoins at *per foot run* giving the averages as showing one average face in. wide, or two faces each average in. wide, or one face average in. wide, and return in. wide, as the case may be.

Arches, per foot superficial.—Measure the girth of the soffit by the width and the average girth of the face by the height, and describe whether in rings, axed or rubbed and gauged; and also the shape, whether flat, segmental, semicircular, pointed, &c. Note.—Deduct from the facing the area of the face of arch, and describe the arches as "Extra over ordinary brickwork."

Moulded and splayed cuttings, per foot superficial, if over 12-in. girt.

Cuttings, per foot run.—Take "Raking, cutting, and waste" (stating in what facing it occurs), to all rakes (such as gables) where the raking joint is exposed. Cuttings in facing include the cutting $\frac{1}{4}$ in. through from the face of the wall; therefore, where rough cutting has been taken, deduct the length by this width from the rough cutting. Take a similar item at the springing of arches, except where this is horizontal, as "Raking, cutting, and waste to skewbacks," and the girth of the crown of the arch as "Circular cutting and waste."

Squints and birdsmouths, per foot run.—State the kind of facing in which these occur, and note that in glazed facing, and in bricks that will not "rub," they will have to be purpose made. State the number of moulds required for these (one for each variation).

Moulded angles, splays, &c., to jambs and

arches, per foot run, if under 12-in. girt.—State if cut and rubbed or moulded, and give the girths. If moulded and can be selected from catalogue give number and maker's name. Keep circular work separate and number mitres, stops, &c.

Moulded Strings and Cornices, per foot run.—Take extra brickwork for the projection, and describe these as "extra over ordinary brickwork," deducting the facing for the height of the course or courses. State whether all headers, and describe the pointing. Describe whether cut and rubbed, or moulded, if the latter, and can be selected from catalogue, give the number and maker's name.

A cornice of more than one course is better taken complete as a series giving the height and projection, and stating the number of courses. Frequently a sketch in the margin is advisable in this case. Describe the pointing. If the string or cornice is circular on plan, state this, giving the radius; and, if circular on elevation, as a label to an archway, describe this also, as it is frequently necessary to have narrow bricks to keep a good line. Number mitres, returned ends, &c.; also short lengths as in breaks around pilasters.

Plinth Cappings, per foot run.—Take as described for strings, and take the extra brickwork below capping for the projection. It is not usual to increase the footings for this, so, unless otherwise shown or described, take from the footings. Note that the length of this extra brickwork is longer at each external, and shorter at each internal, angle, by the projection of the plinth; and that at each external angle there will be an addition, and at each internal angle a deduction, of the facing to the extent of twice the projection of the plinth by the height of the facing. Note that, owing to the "give and take" of the angles where the plinth runs entirely round a building, and where the angles are all right angles, however much broken up by projections, there will never be more than an allowance for four external angles required.

Overailing Courses, per foot run.—As previously described in ordinary brickwork, but an allowance must be made for facing to underside, and also for the extra at the angles as described to plinths.

Pilasters, per foot run; either take extra brickwork and facing for the projection, and describe the item as "extra labour," giving the width of projection, or take the item as "extra labour and material," giving width, &c., as last described.

Brick Copings, per foot run, and include the labor and material, describing the bricks, and if with tile creasing one or both sides, and include cement fillets one or both sides, as the case may be.

Number small items, such as cutting and fitting to stone moulding under 12 in. girt, corbels, window aprons (if small), key blocks, and all those items where a measurement does not give the contractor a proper idea as to the value of the work.

Underpinning.—Measure the individual items for this as previously described, but keep all separate as in underpinning. It is usual to include the strutting and planking with the excavations. In measuring the excavating allow beyond the face of the wall a width of not less than 2 ft. as working space and deduct this from the ordinary excavating. Take an item of cutting off old footings and concrete and take on the top of the underpinning a superficial item of the length by the thickness of the wall as "wedging up with slates and cement (or whatever else is particularly specified) on top of underpinning."

It is often advisable to keep all the items of underpinning together at the end of the bill under a heading stating that "The following is in underpinning," and state that the work is to include for being executed in short lengths and also for the strutting and planking and needling and anything required for the safety of the work.

OBITUARY.

MR. WILLIAM TOMKINSON.—The death has just taken place of Mr. William Tomkinson, building contractor, of Liverpool. Deceased, who had reached the age of sixty-two years, joined his father's building firm when a young man, and eventually became senior partner in Tomkinson & Co. This firm has carried out several large contracts in the city. In 1877 Mr. Tomkinson was President of the Liverpool Master Builders' Association, and he occupied the position of President of the Liverpool Amateur Photographers' Association in 1892.

MARY'S CHAPEL, CARMONEY, BELFAST.—The new Roman Catholic chapel erected in Carmoney, and which has been named St. Mary's-on-the-Hill, was dedicated by the Roman Catholic Bishop of Down and Connor on the 15th inst. The building measures 92 ft. in length by 32 ft. in width. It is built in the Early English style, the materials used being selected local stone, relieved with Dunganstone dressings to doors, windows, and buttresses. It is entered on the western side by a recessed doorway in the tower, with inner doors to nave, which is lighted by seven lancet windows, with cusped heads, together with two large two-light windows in front gable. All the windows of the chapel are filled with cathedral glass of selected design. The woodwork used in the building is of selected pitch-pine. Mr. J. J. O'Shea was the architect, and Mr. John Fegan the builder.

MUSIC HALL, PADDINGTON.—On the 17th inst., Mr. John Aird, M.P., laid the foundation stone of the new Metropolitan Theatre of Varieties, Edward-road. The new building will stand on the site of the old house. A part of the original structure has been preserved, but the auditorium will be reconstructed, and the seating capacity of the house will be increased to 3,000. The stage will be enlarged, and new dressing-rooms provided. An entirely new frontage is to be erected. Mr. Frank Matlam is the architect.

SANITARY AND ENGINEERING NEWS.

PROPOSED BRIDGE OVER THE ST. LAWRENCE.—The construction of a long span bridge over the St. Lawrence River at Quebec has been discussed for many years, but until recently no very great interest has been taken in the scheme. Two designs for the structure are now, according to the *Engineering Record*, under consideration, the first being for a cantilever bridge, the central opening for which would be 1,450 ft. long. There would be two side spans, each 500 ft. long, making the total length of the structure 3,400 ft., and it is proposed that this bridge should cross the river a few miles above Quebec. Provision would be made for a carriage way as well as a double line of rails, the level of which would be about 150 ft. above high water. The estimated cost of the work is three-quarters of a million sterling. The second project is by the City Engineer of Quebec, and is almost the same as the proposed one, but with a few modifications. The structure would be 4,800 ft. in length, composed of two end spans of 600 ft. long and three suspension spans of 1,200 ft. each, supported upon piers built on caissons, sunk by the pneumatic process. This bridge which is estimated to cost rather more than a million sterling, would be for a double line of rails, and would also be constructed to carry a carriage way.

RESERVOIR, PERTH.—A new reservoir, situated about three miles to the south-west of Perth, and adjacent to the present reservoir, was opened on the 9th inst. by Lord Provost Dewar. The work, designed and carried out under the instructions of Mr. Alexander Davidson, water manager, Perth, was executed by the contractor, Mr. Peter Girty, Dundee. It is erected on the Burghmuir, about 2½ miles from the pumping station, and at an elevation of 320 ft. The size of the reservoir is 121 ft. square by 21 ft. 9 in. deep. The reservoir when full holds 1,956,084 gallons.

DRAINAGE OF LIVERSIDGE, YORKSHIRE.—On the 10th inst. an inquiry was held at Liversidge, on Mr. W. O. E. Meade-King, on behalf of the Local Government Board, with reference to an application of the District Council for sanction to borrow £7,000 for drainage purposes, and £3,000 for the purchase of land and the provision of a refuse destructor. Mr. Mitcheson, clerk to the Council, stated the facts bearing upon the application, and evidence in support was given by Mr. Charles Gott, C.E., of Bradford; Mr. Godfrey Horsfall, Surveyor to the Council; Mr. S. Smkinson, architect and surveyor; Mr. Ernest Sykes, a representative of the Horsfall Refuse Destructor Company; and others. The drainage works contemplated are in the Old Corn Mill-lane, Liversidge Hall-lane, Leeds-road, Valley-road, and Huddersfield-road, and will practically complete the drainage of the township, upon which, with outfall works, about 40,000 ft. has already been spent.

BILSTON WATERWORKS.—The Chairman of the Bilston Urban District Council (Mr. R. A. Harper) opened recently the waterworks buildings at The Bratch, Wombourn. The water now being supplied to Bilston from Wombourn is drawn from the red sandstone strata, 150 ft. below the surface. Two wells have been sunk at the locality known as The Bratch, and the water is pumped through these, and then forced along iron pipes to a covered reservoir situated on the south-western slope of Goldthorn Hill, Wolverhampton. From this reservoir the water travels to Bilston by gravitation. There is a rise of about 300 ft. from The Bratch to Goldthorn Hill, and a slope of varying degree from the latter place to Bilston and Cosely. The premises at The Bratch include engine-house, well-house, boiler-house, machine fitting and repairing shop, and stores. The plant includes two boilers, two engines, and two sets of pumps, with the usual accessories. All the machinery is in duplicate, to prevent the cessation of supply in case of breakdown. The total cost of the scheme is 45,000 l. The whole of the work has been designed and carried out by Mr. Baldwin Latham, of Westminster. Mr. C. L. N. Wilson (Town Surveyor of Bilston) has acted as resident engineer, with surveillance over all the work. The work has been apportioned among the following contractors:—Messrs. H. Willcock & Co., Wolverhampton, buildings at The Bratch; Mr. John Hughes, Dudley, construction of the wells; Messrs. Thorneycroft & Wareham, Burton, the engines; Mr. Herbert Holloway, Wolverhampton, the pipe track; Mr. Henry Roberts, Swan Village, the Wombourn mains; and Mr. Henry Hill, Maidenhead, the reservoir. The length of the mains from Wombourn to Bilston is about 6½ miles.

SEWERAGE SYSTEM, DOUGLAS.—At a special meeting of the Douglas Town Council recently, the plans of the scheme of Messrs. Stevenson & Bursall,

of London, for the reconstruction of the Douglas sewerage system, at a cost approaching 50,000 l., was approved. The tender of the Stanton Ironworks Company, Limited, Nottingham, for the supply of iron pipes in connection with the scheme, for 3,481 l. 11s. 3d., was accepted.

PROMENADE IMPROVEMENT, BLACKPOOL.—The Borough Surveyor of Blackpool has submitted to the members of the Council a scheme for the widening of the promenade. The scheme provides for a footpath 10 ft. wide on the east side; a carriage way of 55 ft.; an island footpath 10 ft.; a raised tract for a double line of trams, 20 ft. 0 in.; and a promenade footpath of 42 ft. The total estimate is about 350,000 l. The scheme is divided into three sections, the respective cost of each being 117,806 l., 98,061 l., and 132,444 l.

STAINED GLASS AND DECORATION.

WINDOWS, ST. SAVIOUR'S, CHELTENHAM, GLOUCESTERSHIRE.—This church, erected by the late Mr. Crowther, of Manchester, has just received five new stained glass windows, in which the object aimed at was a mosaic of colour. They are, therefore, very much broken up. The subjects are the four Evangelists and our Lord as Priest and King. The artists were Messrs. Percy Bacon & Bros., of London.

WINDOW, GRANTHAM CHURCH, LINCOLNSHIRE.—At the Parish Church at Grantham a stained-glass window has just been inserted, the work being carried out by Mr. C. E. Kemp, of London. The figures are four of the great fathers of the Church—St. Ambrose, St. Jerome, St. Gregory, and St. Augustine.

MEMORIAL WINDOWS, THORPE ACHURCH, NORTHAMPTON.—As a memorial to Lord Lichfield, who has been a benefactor of the church, Thorpe Achurch a stained east window, also two smaller windows at the west end. The windows were made by Messrs. Powell, Whitefriars, London.

MEMORIAL WINDOW, WINCHESTER CATHEDRAL.—The south window of the Lady Chapel at Winchester Cathedral, which has been filled with stained glass in a memorial to Bishop Anthony Wilson Threlkeld, eighty-fourth Bishop of the Diocese, was dedicated on the 14th inst. The window, which is by Mr. C. E. Kemp, contains representations of scenes in the life of our Lord in which the Virgin Mary appeared, and of scenes in the lives of the Saints. At the bottom of the window are an inscription, the arms of the See, and Bishop Thorold's family arms.

WINDOW, CONINGSBY CHURCH, LINCOLNSHIRE.—A stained-glass window, by Messrs. Clayton & Bell, has just been placed in the chancel of Coningsby Church. The subject of the window is "Martha and Mary," with a scene below representing "The Raising of the Widow's Son."

FOREIGN.

FRANCE.—The manufactory of Sèvres has been producing a certain number of busts of the Emperor and Empress of Russia, which the President of the Republic is to offer to their majesties. The President also takes with him a laurel branch in hammered gold, to place on the tomb of Alexander III.; it has been executed by the Mason Falize, and is a most delicate bit of artistic workmanship.—M. André Boufflet, the painter, is commissioned to go to Russia to sketch one of the fetes to be given at St. Petersburg in honour of M. Faure, with a view to a picture at next year's Salon.—The Leprieux prize at the Ecole des Beaux-Arts has been awarded to M. Gégoffin, sculptor, and to M. Duquesne, architect; the latter has also been the recipient of the Delaunoy prize. The Pigny and Lussion prizes have been awarded to M. Garnier, and the Cambacérès prize to M. Roger as painter and to M. Magnon as sculptor.—The new Law Schools designed by M. Lheureux are to be opened in November.—M. Schuler has been nominated architect-in-chief of "Monuments Historiques" for the departments of Vosges and of Meurthe-et-Moselle.—MM. Morin-Gousiaux and M. Le Cardonnay have obtained the premiums in the international competition opened by the Municipality of Trieste for plans for a lunatic asylum in that town.—The restoration has just been completed of the Louis XIII. portion of the Château d'Amboise, left by the Duc d'Anjou as a home for his former dependents or servants. The complete restoration of the Château will be completed in 1899, so that our readers who want to see it had better do so at once.—It appears that the town of Rouen has entered into negotiations with M. Lenoir, the sculptor, to produce them a fine equestrian statue of Joan of Arc.—M. Heubès, architect has been commissioned by the municipal council of Saint-Dié (Vosges) to design and carry out a new church to be built on the site of the ancient church of St. Martin.—M. Choret, Inspecteur des Bâtiments Civils, has just completed the construction of the College of St. Germain-en-Laye, a building of monumental aspect and admirably planned. It has cost about 1,100,000 francs.—The death is announced of M. Léprieux, an old Paris architect.

BULUWAYO.—The Association of the Master Builders and Bricklayers, at Buluwayo, met on July 6, when an arrangement was agreed to whereby

fixed rates of wages will be paid for periods of not less than six months; and also that if either party gives any alteration they must at the completion of the term give the other six weeks' notice in writing of their determination. The bricklayers' wages for the ensuing six months have been fixed at 30s. per diem.

GERMANY.—The new Treasury Buildings at Munich have now been completed from the designs of the Court Architect Herr von Hofmann, and the modern appliances which have received a first prize in equipment are considered to be particularly practical.—Considerable works are being taken in hand at Hamburg in connexion with the harbour of 1888. About 300,000 l. is to be spent during the course of the next few years on warehouses and sheds, besides another 600,000 l. which was voted last month, for embankments, locks, &c.—A number of Government architects have received State travelling studentships to the amount of 90 l. each, and a number of architects' assistants have received similar studentships at a value of 45 l. each.—Among the architects who have received distinctions at the Munich International Art Exhibition were those of Mr. Geyers, of Amsterdam, who has received a first medal, and that a second medal has been awarded to Messrs. Emmanuel Seidl, Martin Dufleur, and Hocheder, all of Munich.—We regret to record the death of another important official in the Railway Works Department of the Prussian Government. Herr Herman Franz, who held the title of Geheimer Ober-Baurath, died, according to the *Centralblatt der Bauverwaltung*, at the age of seventy. He had held a number of important positions.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Archibald D. Dawney, of London and Cardiff, has converted his business into a limited company, the present members of which are himself and three sons, a brother, and a manager, who have for some years assisted him in the business. Mr. Archibald D. Dawney will be consulting engineer and managing director.

ABERDEEN NEW GENERAL POST-OFFICE.—Official intimation has been made to the Town Clerk that the Postmaster-General has purchased, as a site for the new General Post-Office in Aberdeen, a piece of ground extending from Deeside to Grosvenor-street. A fully-equipped East End office will also be provided. The new site measures 3,200 square feet, and the costs is 11,000 l.

ELECTRIC LIGHTING AND STREET IMPROVEMENTS, SUNDERLAND.—On the 11th inst., at the Sunderland Town Hall, Mr. W. O. E. Meade-King, M.Inst. C.E., Local Government Board Inspector, held an inquiry into the subject-matter of the Council's application for power to borrow 2,300 l. for electric lighting purposes and 16,275 l. for street improvements. There were present—Mr. F. M. Bowey (Town Clerk), Mr. R. S. Rounthwaite (Borough Engineer), Mr. J. F. C. Snell (Borough Electrician), and others. Mr. Snell said the Electric Lighting Act was passed in 1889, the area being the Borough, which covered 3,875 acres. The extension proposed was mostly needed for private lighting, although some of the streets were to have lights. They were going to place forty-eight public arc lamps of 600 nominal candle-power. At present there were but two arc street lights, compared with 13,575 eight candle-power private lights.

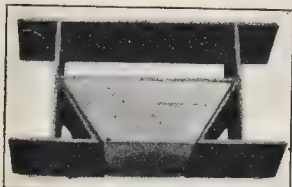
LANCASHIRE MASTER BUILDERS.—A meeting of master builders was held at the Queen Hotel, Huddersfield, recently, in order to consider the advisability of forming a federation of the masters of the county. Those present included masters from most of the Yorkshire cities and towns. A deputation from the Lancashire Federation of Master Builders attended and explained the objects of such an amalgamation as that proposed, emphasising the success that had attended its working in Lancashire. Since its establishment, it was stated, strikes had been less frequent, and the relationship existing between masters and men had been greatly improved. After hearing the remarks of the deputation, the meeting decided in favour of the desirability of forming a federation of the masters engaged in the building trades in the county of Yorkshire, and steps were taken in that direction indicated, preliminary rules being adopted on the basis of those in operation in connexion with the Lancashire federation. The idea of the promoters, as expressed at the meeting, was to promote a federal work of the Surveyor's department should be done in that department, or in a department by itself, some of the members contending that the architectural work burdened the Surveyor's department, and should not come under the supervision of

ASSISTANT BURGH SURVEYOR, ABERDEEN.—A special meeting of the Finance Committee of the Town Council was held on the 13th inst., to consider the relationship of the office of City Architect to the Burgh Surveyor's department, and the matter of the filling up of the vacancy caused by the resignation of Mr. Lynam, Assistant Burgh Surveyor. A long discussion took place as to whether the architectural work of the Surveyor's department should be done in that department, or in a department by itself, some of the members contending that the architectural work burdened the Surveyor's department, and should not come under the supervision of

that department at all. Treasurer Bisset moved that the duties pertaining to the office of Burgh Surveyor were so separate and distinct that it was inexpedient, in the opinion of the Committee, to combine them, and that the Committee recommend the Council to proceed with the appointment of an Assistant Surveyor, and that the question regarding the office of City Architect be deferred for further consideration. Baillie Edwards seconded. Mr. Fleming moved to the effect that the Committee recommend to the Council to establish a separate department to take over the duties of the City Architect, and with this view proceed to the appointment of an Assistant Burgh Surveyor. Mr. James Gray seconded. On a vote, the Treasurer's motion was carried by 7 to 4. The meeting appointed to the vacant office of Assistant Surveyor Mr. Gordon, at present on the Surveyor's staff. It was agreed that the Committee meet the following week to consider the matter of the City Architects.

UNSUCCESSFUL CLAIM AGAINST AN EMPLOYER.—The Judge of the Rochester County Court and a special jury on the 14th inst. investigated a claim for 300l. made by a journeyman carpenter named Varrall against his employer, Mr. Charles E. Skinner, a builder, of Chatham, for the loss of four fingers while at work at a circular saw, which the plaintiff alleged was defective. After hearing evidence, the jury returned a verdict for the defendant, being of opinion that the saw was in good condition, and that the accident arose through the plaintiff's handling the wood and saw unsafely. The Judge said he was glad that by a recent Act of Parliament such cases would be settled by arbitration in future.

A NEW FIXING BRICK.—This is an invention for substituting something fireproof for the ordinary wood fixing-block or plug, especially in brickwork in the vicinity of flues. It consists of a framework of iron divided into two compartments. The back space may be filled in with any fireproof material, while the front portion holds a wooden block, which can be nailed or screwed into in the usual manner. It is also suitable for suspending tele-



graph wires in tunnels, and for firmly securing to walls such things as heavy advertising boards. All that is necessary to be done is to take out an ordinary brick and replace it with the new fixing-brick. But the principal value of the invention, which we think a good one, is that it can be inserted into chimney breasts for holding the skirting boards, as the fireproof cement protects the fixing-block and all adjoining woodwork from the fire of an overheated chimney. The patentee is Mr. W. G. Spratly, of Hammersmith.

DARLINGTON MASTER PLUMBERS.—The master plumbers of Darlington and district met in the Mechanics' Institute recently to consider the advisability of forming an association, to be affiliated with the National Association of Master Plumbers of Great Britain and Ireland. Mr. A. E. Biggs, of Leicester, and past President of the parent association, addressed the meeting at some length, pointing out the importance of unity among a body of tradesmen like the plumbers. Sub-contracting of plumbers' work was unanimously condemned, the opinion being expressed that there should be no one to come between the architect and the plumber. A strong feeling prevailed that all drainage about a dwelling house should be dealt with by an experienced plumber, not only in the mansion, but also in the cottages of the poor, and houses of the mechanic. The necessary formalities having been gone through for the establishment of an association and affiliation with the head department, the officers were elected for the year.

CORNWALL COUNTY COUNCIL.—Mr. Sylvanus Trevel, who has been for some time past the efficient and energetic Chairman of the Sanitary Committee of the Cornwall County Council, has retired from the Council in consequence of his appointment as architect for the additions to the County Asylum, but he has promised his assistance in sanitary matters as before.

PENRYN QUARRIES.—The negotiations in connection with the disputes at these quarries seem at last likely to be successful, and we trust within the next few days to hear of a settlement, the bulk of the men being most anxious to return to work, having been on strike eleven months, and lost about 150,000l. in wages. Trade continues very brisk, but the reopening of the Penryn quarries will displace a large proportion of the foreign slates now being imported.

PETERHEAD BUILDING TRADE.—A meeting of masons, carpenters, plumbers, painters, blacksmiths, and others concerned in the building trade in Peter-

head, was held in the Palace Hotel there recently for the purpose of forming a building trade Association. It was resolved to form an association with Mr. William Stuart, builder, as President; Mr. John Stuart, plasterer, as Secretary; and Mr. John Ferguson, plumber, as Treasurer. The aims of the Association are to put every tradesman on the same level in making estimates for work by the adoption of schedules. Hitherto most of the new work in and about Peterhead has been undertaken from plain measurement and specification, but the trade in all departments have resolved now to insist upon schedules, so that "extras" may be executed at scheduled prices.—*Aberdeen Journal.*

CAPITAL AND LABOUR.

PAISLEY PLUMBERS' WAGES.—An agreement has been entered into between the masters and co-operative plumbers in Paisley whereby an increase of wages of 1/4d. per hour has come into force. The minimum wage is now 6d. per hour, and the working week consists of 51 hours.

BELFAST PLUMBERS' STRIKE.—The plumbers' strike which has been going on in Belfast during the past six weeks was amicably settled on the 14th inst. A meeting of the employers was held at which a deputation of the men attended. The various points in dispute were discussed at length, and as a result of the conference the men are to receive an advance in wages of one halfpenny per hour, and an arrangement was come to with regard to the apprentice question. As a set-off to the concessions made by the masters the men have conceded several points required by the employers. The men who were on strike numbered nearly 300.

THREE TOWNS' BUILDING STRIKE.—The second step towards the complete settlement of the strike in the Three Towns building trade has been arrived at. The dispute with the carpenters was the first to be smoothed away. Now it is the plasterers' turn, and the labourers are alone left in the field against the masters. Several meetings between the Plasterers' Society and the Master Builders Association have taken place lately, and chiefly as a result of a concession on the part of the men, by which employers are permitted to take an extra apprentice on during the last six months of the service of their eldest apprentice, the Association have agreed to the terms of the plasterers. The strike, so far as this body is concerned, has lasted fifteen weeks, although during the past eight weeks it has been merely the semblance of a dispute, as the branch has only recorded an average of eight men on strike, the numbers at times having dwindled down to two or three. Strike pay has been given at the rate of 2s. per week.—On the 14th inst. the Master Builders' Association received a small deputation from the labourers to discuss the advisability of a settlement of their case. The meeting was the result of a suggestion by Mr. Brabham, secretary to the West of England division of the Gasworkers' and General Labourers' Union, and who has been conducting the strike for the labourers. The Association agreed that labourers could be given the increase of wage asked for at the option of employers. They refused, however, to recognise 5 1/2d. an hour as the current rate, or to bind themselves in any way. The men's representatives did not receive the offer with satisfaction, but it is understood that it will be acquiesced in. Several masters who have labourers working for them at less than 5 1/2d. an hour have expressed their intention of raising wages in certain cases.—*Western Morning News.*

MASONS' LABOURERS' STRIKE, HUDDERSFIELD.—On the 14th inst. a meeting of the representatives of the Master Masons and those of the Masons' Labourers' Union was held at the Cherry Tree Hotel, Huddersfield, with the view of coming to a settlement if possible. It is stated that after discussing the points in dispute the masters undertook to concede the 7/4d. an hour advance, and a code of working rules was agreed upon, the labourers' representatives undertaking to withdraw what were put forth as "suggestions," not as "demands," and what were regarded by the master masons as objectionable.

STRIKE OF BRICKWORKERS, OLDBURY.—One of the largest strikes ever experienced in the Black Country brick trade has, it is stated, commenced at Oldbury. About 800 brickworkers have ceased work for an advance in wages of 20 per cent. The men complain that the employers have refused to concede any advance whatever, and have declined to meet the men or their representatives in conference. The female workers in Oldbury district receive only 13s. 4d. for making 18,000 bricks, which are sold for 30s. per thousand, and therefore the men consider that the wages should be increased.

JOINERS' STRIKE, KILMARNOCK.—The operative joiners of Kilmarnock have come out on strike. Three months ago they applied for an advance of 1/2d. per hour, the present wage being 8d. The employers have replied through their secretary that the state of trade does not warrant an advance.

THE BUILDING TRADE IN LEITH.—The masons in Edinburgh and Leith struck work about a fortnight ago for a reduction of hours to forty-five per week. While a number of small firms granted the demand, the larger ones held out. On the 17th inst.

the situation was complicated by the carpenters and joiners having made a similar demand. They ask that the new arrangement should come into force when the present arrangement terminates.

LEGAL.

THE CORPORATION OF SOUTH SHIELDS AND BUILDING PLANS:

APPLICATION TO A DIVISIONAL COURT.

MR. R. C. GLENN, on the 12th inst., applied to a Divisional Court of Queen's Bench, composed of Justices Lawrence and Collins, on behalf of Mr. Thomas Edward Davidson, for a rule nisi for a *mandamus* calling upon the Corporation of South Shields to approve certain plans of buildings which the applicant proposed to erect. The plans were disapproved by the Corporation on the ground that no back street was provided to give a second access to the proposed buildings, and that certain cesspools were not indicated. Counsel stated that no mention of such requirements could be found in the by-laws.

Mr. Justice Collins asked whether the *mandamus* ought not to be for the Local Authority to re-hear the applications, and not for them to come to a particular conclusion and approve the plans.

Mr. Glenn replied that the Court could make the order asked for, and referred their lordships to the cases of *Regina v. The Corporation of Newcastle* and *Regina v. The Teignmouth Rural District Council*, in which the Court granted a rule for a *mandamus* to compel the respondents to approve plans.

Their lordships accordingly granted a rule nisi.

THE LONDON BUILDING ACT.

ON the 10th inst., at the South-Western Police-court, Mr. Francis gave a decision in a summons against Mr. J. L. Schiefer, a builder of Grove Mansions, Clapham Common, issued at the instance of the London County Council. The defendant was fined 10s. last March for erecting wooden structures at the rear of the mansions without the leave of the Council. As they were still allowed to stand he was further summoned for the recovery of the cumulative penalties. That summons, however, was dismissed, the magistrate being of opinion that the Council had proceeded under the wrong section of the Act. The Council accordingly issued a summons under Section 170, the effect of which is a magisterial order empowering the Council to enter the premises and demolish the illegal structure, and charge the defaulter with the expenses.

Mr. Chilvers supported the summons for the Council, and Mr. W. R. Warren, the defendant's counsel, raised the plea that his client, having parted with the property since his conviction in March, had no longer control over the structures.

The magistrate said the section of the Act clearly intended to reach the premises without reference to the owner or the occupier. Certain buildings were condemned, and the important thing was to demolish them. If the defendant would not do it, no question of ownership could stop the Council from carrying out the order of condemnation. He gave his decision in favour of the Council with two guineas costs.

On the application of the defendant's counsel, his worship agreed to grant a case for the consideration of a higher court.

MEETINGS.

SATURDAY, AUGUST 21.

Decor and Exterior Architectural Society (Plymouth, Devonport, and Stonehouse Branch).—Excursion to Cable House. Leave Promenade Pier, Plymouth, 2.45 p.m.

Northern Architectural Association.—Students' Sketching Club excursion.

MONDAY, AUGUST 23, TO SATURDAY, SEPTEMBER 4.

Laundry, Engineering, and Houseless Carriage Exhibition.—Agricultural Hall. Exhibition open from 10 a.m. to 10 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

19,419.—**ARTIFICIAL STONE:** *A. McLean.*—In order to produce an artificial York "flagstone," inventor grinds inferior qualities of York stone to a fine powder, mixes this with Portland cement or other material, and subjects to great pressure in porous moulds.

21,172.—**PAINT AND OTHER BRUSHES:** *A. C. Kugler.*—To secure ferrule without riveting or compressing it, inventor make a small hole transversely through shouldered portion of handle, passes a steel wire through, and turns down ends. Brushes are tied firmly round core at outer end of shoulder; ferrule is then pushed over bristles.

21,336.—**WINDOWS AND THEIR FRAMES:** *J. McNab.*—Inventor claims in connection with sliding and hinged sash windows, hinges for lower sash with engaging bolts, a device for securing detachable window cords, an angle piece, &c.

21,375.—**TILE MANUFACTURE:** *W. Hewitt.*—Invention consists essentially in an improved apparatus for the manufacture of tiles, wherein a circular block, having a series of ribs or projections upon its surface for forming undercut recesses in tiles, is arranged to have a slight rotary motion on its axis to disengage said ribs from the recesses which they form in the tiles. Modifications are detailed.

Pochar.—67, 69, and 71, Arcadia-st., ut. 55 yrs,	£40
g.f. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 83	

Oakfield-rd., &c.—Four plots of building land, f. 24 10 (even), Oakfield-rd., f. 1, 2, 150l. 1,200
Chingford.—Whitehall-lane, enclosure of land, 4 a. 3 p. 3 f. 1,000
By DOWSETT, KNIGHT, & SONS.
Ryde, Isle of Wight.—"The Theatre Royal," lifehold renewal lease, g.r. 2d, f. 100. 2,500
By BUCKLAND & SONS.
Camden Town.—34 and 36, St. Paul's-rd., ut. 47 yrs., g.r. 16d, f. 90l. 400
Westbourne Park.—33, South-row, ut. 85 yrs., g.r. 7d, f. 100. 300
By EDWIN EVANS.
Twickenham.—1 and 3, Sydney-villas, ut. 74 yrs., g.r. 10d, f. 95l. 350
Redhill, Surrey.—Main-road, enclosure of land, "Park View," ut. 74 yrs., g.r. 17d, f. 80l. 350
By LEVENS, SON, & HOARE.
Beckenham, Kent.—3, Brackley-rd., ut. 63 yrs., g.r. 2d, f. 110l. 1,295
By G. STOCKINGS.
Leyton.—1, Thornhill-rd., and 3, Grange Park-rd., f. 2, 6 f. 100. 600
Bethnal Green.—24, 25, and 26, Menem-st., f. 7d, f. 100. 600
22a, 24, 24a, and 31, Moss-st., f. 7d, f. 100. 600
By POWERS, ELLIS, & CO.
Stoke Newington.—46, Church-st., enclosure of land, 20 and 20, Barn-st., f. 6d, f. 50l. 215
Barn-st., f. 6d, f. 50l. 215
By F. ARMAN.
Stoke Newington.—1, Manor-st., ut. 74 yrs., g.r. 11d, f. 65l. 625
By T. B. WESTACOTT.
Kensington.—27, 29, and 31, Willes-rd., ut. 24 yrs., g.r. 4d, f. 40l. 920
By FLICK & SON.
Hanwell.—Vork-pk., "Vine Hurst," c. 1, 2d, f. 1,010
"Springfield House," and "The Spring Field," 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578, 1580, 1582, 1584, 1586, 1588, 1590, 1592, 1594, 1596, 1598, 1600, 1602, 1604, 1606, 1608, 1610, 1612, 1614, 1616, 1618, 1620, 1622, 1624, 1626, 1628, 1630, 1632, 1634, 1636, 1638, 1640, 1642, 1644, 1646, 1648, 1650, 1652, 1654, 1656, 1658, 1660, 1662, 1664, 1666, 1668, 1670, 1672, 1674, 1676, 1678, 1680, 1682, 1684, 1686, 1688, 1690, 1692, 1694, 1696, 1698, 1700, 1702, 1704, 1706, 1708, 1710, 1712, 1714, 1716, 1718, 1720, 1722, 1724, 1726, 1728, 1730, 1732, 1734, 1736, 1738, 1740, 1742, 1744, 1746, 1748, 1750, 1752, 1754, 1756, 1758, 1760, 1762, 1764, 1766, 1768, 1770, 1772, 1774, 1776, 1778, 1780, 1782, 1784, 1786, 1788, 1790, 1792, 1794, 1796, 1798, 1800, 1802, 1804, 1806, 1808, 1810, 1812, 1814, 1816, 1818, 1820, 1822, 1824, 1826, 1828, 1830, 1832, 1834, 1836, 1838, 1840, 1842, 1844, 1846, 1848, 1850, 1852, 1854, 1856, 1858, 1860, 1862, 1864, 1866, 1868, 1870, 1872, 1874, 1876, 1878, 1880, 1882, 1884, 1886, 1888, 1890, 1892, 1894, 1896, 1898, 1900, 1902, 1904, 1906, 1908, 1910, 1912, 1914, 1916, 1918, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, 1936, 1938, 1940, 1942, 1944, 1946, 1948, 1950, 1952, 1954, 1956, 1958, 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978, 1980, 1982, 1984, 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024, 2026, 2028, 2030, 2032, 2034, 2036, 2038, 2040, 2042, 2044, 2046, 2048, 2050, 2052, 2054, 2056, 2058, 2060, 2062, 2064, 2066, 2068, 2070, 2072, 2074, 2076, 2078, 2080, 2082, 2084, 2086, 2088, 2090, 2092, 2094, 2096, 2098, 2100, 2102, 2104, 2106, 2108, 2110, 2112, 2114, 2116, 2118, 2120, 2122, 2124, 2126, 2128, 2130, 2132, 2134, 2136, 2138, 2140, 2142, 2144, 2146, 2148, 2150, 2152, 2154, 2156, 2158, 2160, 2162, 2164, 2166, 2168, 2170, 2172, 2174, 2176, 2178, 2180, 2182, 2184, 2186, 2188, 2190, 2192, 2194, 2196, 2198, 2200, 2202, 2204, 2206, 2208, 2210, 2212, 2214, 2216, 2218, 2220, 2222, 2224, 2226, 2228, 2230, 2232, 2234, 2236, 2238, 2240, 2242, 2244, 2246, 2248, 2250, 2252, 2254, 2256, 2258, 2260, 2262, 2264, 2266, 2268, 2270, 2272, 2274, 2276, 2278, 2280, 2282, 2284, 2286, 2288, 2290, 2292, 2294, 2296, 2298, 2300, 2302, 2304, 2306, 2308, 2310, 2312, 2314, 2316, 2318, 2320, 2322, 2324, 2326, 2328, 2330, 2332, 2334, 2336, 2338, 2340, 2342, 2344, 2346, 2348, 2350, 2352, 2354, 2356, 2358, 2360, 2362, 2364, 2366, 2368, 2370, 2372, 2374, 2376, 2378, 2380, 2382, 2384, 2386, 2388, 2390, 2392, 2394, 2396, 2398, 2400, 2402, 2404, 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2420, 2422, 2424, 2426, 2428, 2430, 2432, 2434, 2436, 2438, 2440, 2442, 2444, 2446, 2448, 2450, 2452, 2454, 2456, 2458, 2460, 2462, 2464, 2466, 2468, 2470, 2472, 2474, 2476, 2478, 2480, 2482, 2484, 2486, 2488, 2490, 2492, 2494, 2496, 2498, 2500, 2502, 2504, 2506, 2508, 2510, 2512, 2514, 2516, 2518, 2520, 2522, 2524, 2526, 2528, 2530, 2532, 2534, 2536, 2538, 2540, 2542, 2544, 2546, 2548, 2550, 2552, 2554, 2556, 2558, 2560, 2562, 2564, 2566, 2568, 2570, 2572, 2574, 2576, 2578, 2580, 2582, 2584, 2586, 2588, 2590, 2592, 2594, 2596, 2598, 2600, 2602, 2604, 2606, 2608, 2610, 2612, 2614, 2616, 2618, 2620, 2622, 2624, 2626, 2628, 2630, 2632, 2634, 2636, 2638, 2640, 2642, 2644, 2646, 2648, 2650, 2652, 2654, 2656, 2658, 2660, 2662, 2664, 2666, 2668, 2670, 2672, 2674, 2676, 2678, 2680, 2682, 2684, 2686, 2688, 2690, 2692, 2694, 2696, 2698, 2700, 2702, 2704, 2706, 2708, 2710, 2712, 2714, 2716, 2718, 2720, 2722, 2724, 2726, 2728, 2730, 2732, 2734, 2736, 2738, 2740, 2742, 2744, 2746, 2748, 2750, 2752, 2754, 2756, 2758, 2760, 2762, 2764, 2766, 2768, 2770, 2772, 2774, 2776, 2778, 2780, 2782, 2784, 2786, 2788, 2790, 2792, 2794, 2796, 2798, 2800, 2802, 2804, 2806, 2808, 2810, 2812, 2814, 2816, 2818, 2820, 2822, 2824, 2826, 2828, 2830, 2832, 2834, 2836, 2838, 2840, 2842, 2844, 2846, 2848, 2850, 2852, 2854, 2856, 2858, 2860, 2862, 2864, 2866, 2868, 2870, 2872, 2874, 2876, 2878, 2880, 2882, 2884, 2886, 2888, 2890, 2892, 2894, 2896, 2898, 2900, 2902, 2904, 2906, 2908, 2910, 2912, 2914, 2916, 2918, 2920, 2922, 2924, 2926, 2928, 2930, 2932, 2934, 2936, 2938, 2940, 2942, 2944, 2946, 2948, 2950, 2952, 2954, 2956, 2958, 2960, 2962, 2964, 2966, 2968, 2970, 2972, 2974, 2976, 2978, 2980, 2982, 2984, 2986, 2988, 2990, 2992, 2994, 2996, 2998, 3000, 3002, 3004, 3006, 3008, 3010, 3012, 3014, 3016, 3018, 3020, 3022, 3024, 3026, 3028, 3030, 3032, 3034, 3036, 3038, 3040, 3042, 3044, 3046, 3048, 3050, 3052, 3054, 3056, 3058, 3060, 3062, 3064, 3066, 3068, 3070, 3072, 3074, 3076, 3078, 3080, 3082, 3084, 3086, 3088, 3090, 3092, 3094, 3096, 3098, 3100, 3102, 3104, 3106, 3108, 3110, 3112, 3114, 3116, 3118, 3120, 3122, 3124, 3126, 3128, 3130, 3132, 3134, 3136, 3138, 3140, 3142, 3144, 3146, 3148, 3150, 3152, 3154, 3156, 3158, 3160, 3162, 3164, 3166, 3168, 3170, 3172, 3174, 3176, 3178, 3180, 3182, 3184, 3186, 3188, 3190, 3192, 3194, 3196, 3198, 3200, 3202, 3204, 3206, 3208, 3210, 3212, 3214, 3216, 3218, 3220, 3222, 3224, 3226, 3228, 3230, 3232, 3234, 3236, 3238, 3240, 3242, 3244, 3246, 3248, 3250, 3252, 3254, 3256, 3258, 3260, 3262, 3264, 3266, 3268, 3270, 3272, 3274, 3276, 3278, 3280, 3282, 3284, 3286, 3288, 3290, 3292, 3294, 3296, 3298, 3300, 3302, 3304, 3306, 3308, 3310, 3312, 3314, 3316, 3318, 3320, 3322, 3324, 3326, 3328, 3330, 3332, 3334, 3336, 3338, 3340, 3342, 3344, 3346, 3348, 3350, 3352, 3354, 3356, 3358, 3360, 3362, 3364, 3366, 3368, 3370, 3372, 3374, 3376, 3378, 3380, 3382, 3384, 3386, 3388, 3390, 3392, 3394, 3396, 3398, 3400, 3402, 3404, 3406, 3408, 3410, 3412, 3414, 3416, 3418, 3420, 3422, 3424, 3426, 3428, 3430, 3432, 3434, 3436, 3438, 3440, 3442, 3444, 3446, 3448, 3450, 3452, 3454, 3456, 3458, 3460, 3462, 3464, 3466, 3468, 3470, 3472, 3474, 3476, 3478, 3480, 3482, 3484, 3486, 3488, 3490, 3492, 3494, 3496, 3498, 3500, 3502, 3504, 3506, 3508, 3510, 3512, 3514, 3516, 3518, 3520, 3522, 3524, 3526, 3528, 3530, 3532, 3534, 3536, 3538, 3540, 3542, 3544, 3546, 3548, 3550, 3552, 3554, 3556, 3558, 3560, 3562, 3564, 3566, 3568, 3570, 3572, 3574, 3576, 3578, 3580, 3582, 3584, 3586, 3588, 3590, 3592, 3594, 3596, 3598, 3600, 3602, 3604, 3606, 3608, 3610, 3612, 3614, 3616, 3618, 3620, 3622, 3624, 3626, 3628, 3630, 3632, 3634, 3636, 3638, 3640, 3642, 3644, 3646, 3648, 3650, 3652, 3654, 3656, 3658, 3660, 3662, 3664, 3666, 3668, 3670, 3672, 3674, 3676, 3678, 3680, 3682, 3684, 3686, 3688, 3690, 3692, 3694, 3696, 3698, 3700, 3702, 3704, 3706, 3708, 3710, 3712, 3714, 3716, 3718, 3720, 3722, 3724, 3726, 3728, 3730, 3732, 3734, 3736, 3738, 3740, 3742, 3744, 3746, 3748, 3750, 3752, 3754, 3756, 3758, 3760, 3762, 3764, 3766, 3768, 3770, 3772, 3774, 3776, 3778, 3780, 3782, 3784, 3786, 3788, 3790, 3792, 3794, 3796, 3798, 3800, 3802, 3804, 3806, 3808, 3810, 3812, 3814, 3816, 3818, 3820, 3822, 3824, 3826, 3828, 3830, 3832, 3834, 3836, 3838, 3840, 3842, 3844, 3846, 3848, 3850, 3852, 3854, 3856, 3858, 3860, 3862, 3864, 3866, 3868, 3870, 3872, 3874, 3876, 3878, 3880, 3882, 3884, 3886, 3888, 3890, 3892, 3894, 3896, 3898, 3900, 3902, 3904, 3906, 3908, 3910, 3912, 3914, 3916, 3918, 3920, 3922, 3924, 3926, 3928, 3930, 3932, 3934, 3936, 3938, 3940, 3942, 3944, 3946, 3948, 3950, 3952, 3954, 3956, 3958, 3960, 3962, 3964, 3966, 3968, 3970, 3972, 3974, 3976, 3978, 3980, 3982, 3984, 3986, 3988, 3990, 3992, 3994, 3996, 3998, 4000, 4002, 4004, 4006, 4

LONDON.—For the erection of a steam laundry and stabling, Finsbury Park, N. Mr. R. Midworth, architect, Bank Chambers, Finsbury Park. Quantities by Messrs. J. E. Goodchild & Son, 31, Finsbury-pavement

Laundry	£256	Stevens	£2,061
Laundry	8,543	Lidstone	1,997
Kirby	2,480	Low	1,999
Lidstone	2,081	Hunt	1,989
Wilkinson	2,470	Pavey (accepted)	1,799

LONDON.—For fitting up the kitchen department of the Western Hospital, Segrave-road, Fulham, S.W., for the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C. 3. No quantities

Chenets, Jackson, & Co., Ltd.	£1,810	T. W. Brooke	£1,058
Busham & Sons, Ltd.	1,492	Moorwood, Sons, & Co., 15 ..	997
Burn Ben	1,370	Southampton-row, W.C. 2 ..	977
J. & T. May	1,799	Accepted	

LONDON.—For the erection of boundary walls, fences, and gates, at the site of the Tooting Bec Asylum, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C. 3. No quantities

Thos. Gregory & Co.	£3,459	McCormick & Sons	
W. Johnson & Co., Ltd.	3,370	Northampton-street, Essex-road, N.	£3,770

* Accepted.

LONDON.—For rebuilding the "Anti-bake" public-house, Jubilee-street, E., for Mr. Walter Martin. Mr. Ernest H. Abbott, architect, & Warwick-court, High Holborn, W.C. Quantities by Mr. Alfred Johnson, 20, Imperial-buildings, Ludgate-circuit, E.C. 4.

John Anley	£1,483	W. Ansell & Co.	£1,350
Hall, Bedford, & Co.	1,485	A. E. Symes	1,344
Robert Eddie	1,488	T. Wontner Smith	1,297
Alfred Fordham	1,419	Son	1,295
Samuel Salt	1,395	T. Russell	1,268

LONDON.—For the rebuilding of the "Duke's Motto" public-house, Jubilee-street, Whitechapel, E., for Mr. Walter Martin. Mr. Ernest H. Abbott, architect, & Warwick-court, High Holborn, W.C. Quantities by Mr. Alfred Johnson, 20, Imperial-buildings, Ludgate-circuit, E.C. 4.

John Anley	£1,510	W. Ansell & Co.	£1,372
Hall, Bedford, & Co.	1,490	A. E. Symes	1,340
Robert Eddie	1,488	T. Wontner Smith	1,297
Alfred Fordham	1,427	Son	1,295
Samuel Salt	1,423	T. Russell	1,268

POCKLINGTON (Works).—Accepted for additions, &c., to the grammar school Messrs. Demaine & Brierley, architects, 13, Lendal, York.

Brick and Stone Work, and Carpentry, and
Joinery.—T. S. Ullathorne, Milgate, Selby £4,254 2 3
Slating.—Sharp & Harper, Bath-road, Water-
 lane, Leeds. 28 10 0
Plastering.—Johnson & Sons, Miffield, Yorks. 38 10 0
Plumbing and Glazing.—Hy. Hopkins,
 Petergate, York. 66 0 0
Painting.—Bellerby & Son, Petergate, York. 95 0 0
 £5,607 10 3

RAYADER (Radnorshire).—For the erection of a church, Careg-dda, Eian Valley, for the Birmingham Corporation. Mr. S. W. Wilson, architect, Rhayader. Quantities by architect—
 E. Davies & Son

STOURBRIDGE.—For erecting an infant school, Careless Green, Stourbridge, for the Wellcote School Board. Messrs. J. H. Hickton & H. E. Farmer, architects, Walsall—
 Bishop & Son

TAUNTON.—For the erection of six almshouses, St. James' street, for the Trustees of the Taunton Town Charity. Mr. J. Houghton Spencer, architect, 8, Hammett-street, Taunton—
 F. W. Russell

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
 TEAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
 HATTON GARDEN, and 29, BAY STREET,
 FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
 THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
 Telephone, 89, 774 Holborn. Telex Address: "SNEWIN, London."

WALSALL.—For the erection of a factory in Marsh-street, Walsall, for Messrs. Taylor, Son, & Whitehouse. Quantities by Messrs. Hickton & Farmer, architects, Walsall—
 Robert Harris

WALSALL.—For erecting two houses in Westbourne-road, Walsall, for Mrs. Hickton. Messrs. Hickton & Farmer, architects, Walsall—
 W. H. Mallin

WATFORD.—For the erection of a new copper house and sundry engineering work at the Brewery, Watford, for Messrs. E. J. & C. Healey, Limited. Messrs. Scamell & Colver, brewery engineers and architects, 31, Great George-street, Westminster, S.W. Quantities by Messrs. R. L. Curtis & Sons, 110, London Wall, E.C. 4—
 C. Brightman

Building Work.
 C. Brightman

Decorating Work.
 Messrs. Bennett, Sons, & Shears, Limited.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests of course with the authors.
 We cannot undertake to return rejected communications.
 Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.
 Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who reserves the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 9s. per annum PREPAID, all parts of Europe, Australia, New Zealand, India, China, Ceylon, &c., 10s. per annum. Remittances payable to DOUGLAS FOURDRINER should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 191, per annum, 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
 SLATER and TILER.

ESTIMATES GIVEN FOR
 SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
 Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
 BETHNAL GREEN SLATE WORKS,
 BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.

BATH,
 FOR ALL THE PROVED KINDS OF
 BATH STONE.
 FLUATE, for Hardening, Waterproofing,
 and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Douling Stone Co.
 (Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Douling Stone Co.).
 Chief Office:—Norton, Stoke-under-Ham, Somerset.
 London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C. —The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO., LITHOGRAPHERS.

Employ a large and efficient Staff especially for Bills of Quantities, &c.

4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W. "QUANTITY SURVEYORS' TABLES."

For 1897, price 6d. post paid. In leather 1/- Post 1/1 [ADVT.]

SZERELMEY STONE LIQUID.

THE TEST OF TIME.
 OVER FORTY YEARS' GENERAL EXPERIENCE
 HAS PROVED THAT

SZERELMEY STONE LIQUID

ABSOLUTELY WATERPROOFS AND PRESERVES BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.
 Adopted by Governments and Public Bodies throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE French Asphalte COMPANY.

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS,

DAMP COURSES, AREAS, ROOFS, WASHHOUSE AND DAIRY FLOORS,

&c., &c.

This Asphalte was chosen to be laid at Sandringham, on the new

General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

COPPER AND ZINC ROOFING. F. BRABY & CO.

LONDON. LIVERPOOL. GLASGOW. BRISTOL.

352 to 364, Euston-rd., N.W. 6 & 8, Hatton Garden. 47 & 49, St. Enoch-square. Ashton Gate Works, Coronation-rd.

WIELE MONTAGNE SOLE MANUFACTURING AGENTS.
 NO SOLDER. NO EXTERNAL FASTENINGS.

Particulars on Application. Chief Offices: Fittery Works, EUSTON ROAD, LONDON, N.W.

The Builder.

VOL. LXXIII. No. 2847.

AUG. 28, 1897.

ILLUSTRATIONS.

Nottingham Architecture:—

The Prudential Assurance Company's Offices. (Mr. A. Waterhouse, R.A.)	Double-Page Tone Block.
The Guildhall. (Messrs. Verity & Hunt)	Single-Page Tone Block.
University College. (Messrs. Lockwood & Mawson, with later additions by Mr. Heazell, F.R.I.B.A.)	Single-Page Tone Block.
Nottinghamshire Banking Company's Offices. (Mr. Watson Fothergill)	Single-Page Ink-Photo.
Daily Express Office. (Mr. Watson Fothergill)	Single-Page Ink-Photo.
A Street in Nottingham	Single-Page Ink-Photo.
St. Catherine's Church. (Mr. R. Clarke)	Single-Page Ink-Photo.
Warehouse, Middle Pavement. (Mr. A. N. Bromley, F.R.I.B.A.)	Single-Page Ink-Photo.
Higher Grade Schools, High Pavement. (Mr. A. N. Bromley, F.R.I.B.A.)	Single-Page Ink-Photo.

Blocks in Text.

Nottingham Architecture:—

St. Mary's Church	Page 165
House in Smithy-row	" 163
Tower of St. Barnabas R.C. Cathedral. (Pugin)	" 163
King John's Chambers. (Mr. Howitt)	" 163

Nottingham Architecture (continued).—

Collin's Hospital, Park-street	Page 164
The Corner of a Warehouse.—Messrs. Brewin & Baily, Architects	" 164
Warehouse, Stoney-street. (Mr. Howitt)	" 165

CONTENTS.

The Architecture of our Large Provincial Towns	161	Competitions	173	Foreign	175
Notes	165	Architectural Societies	173	Miscellaneous	175
The Colchester Town Hall Competition	167	Rejection of Lowest Tenders	173	Capital and Labour	176
The Cambrian Architectural Association	168	Dantzic Oak for Window Sills	173	Meetings	177
Nottingham Architecture	170	"Use of Slates in London"	173	Recent Patents	177
Notes on the British Association Meeting at Toronto	171	Student's Column: Quantities and Quantity-Taking. VI.	173	Some Recent Sales	177
Manchester Ship Canal	171	Obituary	174	Prices Current of Material	177
Archaeological Societies	173	General Building News	174	Tenders	177

The Architecture of our Large Provincial Towns.

IX.—NOTTINGHAM.



THE ancient town of Nottingham, situated nearly in the centre of the kingdom and on the south-western extremity of the forest of Sherwood, has now, with a population of close upon a quarter of a

million inhabitants, extended beyond the limits of the sandstone rock hills which it originally occupied, and is spread over a considerable portion of the flat meadow land watered by the river Trent. The town, therefore, consists in part of a level plateau, with—especially in the older and more hilly portions—many steep streets.

Like many towns which have grown up on mediæval foundations, the older and busiest portions of the town are lacking in anything like important thoroughfares, and as far removed from anything approaching the "Haussmann" ideal of town planning as can possibly be conceived.

But beyond the disposition of the streets, there is little left of greater antiquity than the eighteenth century, notwithstanding the importance of the place in Saxon, Danish, Norman, and mediæval times. Even earlier than the commencement of reliable history it would appear that Nottingham was a place of some importance, for there are still to be seen the ruins of what is supposed to have been one of the four quadrangular temples erected by the Druids in Britain.

Probably the oldest work now existing in the town is to be seen in the Church of St. Peter, the south nave arcade of which is evidently of early thirteenth century date. This portion of the church, however, is practically all that is left of that period, for the north nave arcade, and the walls of the remainder of the church are, as regards the detail, of Perpendicular work dating probably from about 1420 A.D.

The western tower, occupying as it does a striking position on rising ground, owes much of its effect to the entire absence of string courses or horizontal mouldings. Save for the possession of the remains of Early work which we have mentioned, St. Peter's Church must, however, yield the palm for architectural importance to the Parish Church of St. Mary, the mother church of Nottingham. This church is cruciform in plan, with a fine central tower, which we illustrate, and in size is of importance worthy of its position, being about 210 ft. in length. The south porch, which is clearly an addition to the original structure, though apparently of earlier date, is supposed to have been removed here from Lenton Abbey at the time of the Dissolution. The Church of St. Mary was, about the year 1100 A.D., granted with its lands, tithes, and appurtenances, to the Abbey of Lenton; hence there is a considerable degree of probability about the suggestion. An excellent reredos and well-designed screen were erected in May, 1885. In the north transept there are the remains of a fine alabaster tomb with rich canopy and formerly possessing two brasses, and there is also a canopied tomb with a mutilated figure in the south transept; but the monuments in the church were for the most part destroyed by the Puritans, who did considerable damage to the building and its decoration, when the old stained-glass windows were smashed; but, unlike many churches of that date, the interior does not possess that flood of light which one might imagine from the external appearance; a result apparently due partly to the massive character of the tracery and partly to the dirt which has accumulated on the windows.

The Church of St. Nicholas was destroyed during the Parliamentary war, but was rebuilt in 1678, and enlarged and altered in 1756 and 1783. Its architectural interest is small.

Of the more modern ecclesiastical buildings in Nottingham, the Roman Catholic Cathedral, dedicated to St. Barnabas, was built from the designs of Pugin between 1842 and 1844. It is scarcely of cathedral

dimensions, the length being 190 ft. east to west and the width 83 ft., while the central tower and spire, of which we give a sketch, rise to a height of 164 ft. The detail is based upon Early English work, and is a striking example of the difficulty of suitably treating wood-work and furniture on the lines of Early work, the general character being thin and meagre. The church is decorated throughout in polychromy, but this is not altogether satisfactory. One must remember, however, that it represents the work of more than half a century ago. Behind the high altar is the Lady Chapel, on the north side is the Chapel of St. Alkmund, and on the south that of St. Thomas, of Canterbury and the Venerable Bede, whilst on the south side of the choir is the richly decorated Chapel of the Blessed Sacrament. One of the best effects internally is the vista from the west looking through the chancel and past the high altar into the Lady Chapel beyond.

St. Andrew's Church and All Saints' Church, both in the northern part of the town, appear to be examples of the church building work of the seventies. In the former the treatment is based on Early French detail and is excellent in composition, whilst the latter is based upon Early English work, the most satisfactory feature of the design being the well-proportioned tower and broach spire at the west end. The chapel in the church cemetery is near these churches, and is a well-designed piece of work. This cemetery is often called the "Rock Cemetery" from the curious rock caverns therein, which are supposed to have furnished the origin of the town's name as "Snottingham," and which assist in giving a remarkably picturesque character to the cemetery. Of still more recent date is the newly-erected Church of St. Catherine, which is illustrated (see lithograph), and is a good example of modern work designed by Mr. R. Clarke. The exterior is carried out in rough squared rubble of a reddish colour, with dressings of freestone, apparently Ancaster, with slate roof. Internally there is the nave and aisles with four-bay arcades, and a good-sized chancel with two-bay arcades to the aisles on each side, that on the south side being

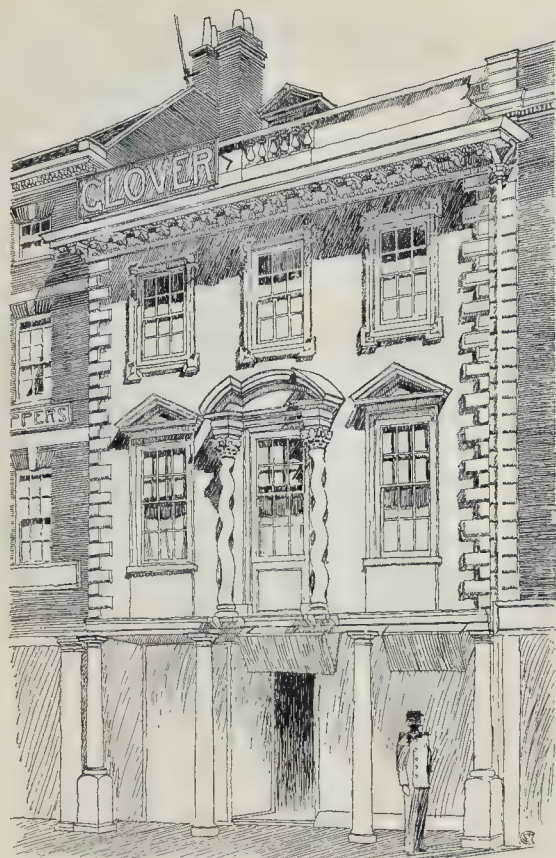
*St. Mary's Church.*

arranged as a morning chapel, and the north side for organ chamber and vestries. The interior is treated with cream-coloured oolitic stone (? Ancaster) and grey plaster walls. The roof is open timbered with collar and curved braces, whilst the floor is of wood block with red tiled passages, and the chancel is laid with marble in red and white squares. Sedilia and piscina are each in their proper places on the south side of the chancel which is inclosed by a wrought iron dwarf screen on a stone septum wall. The font looks at present somewhat curious, being

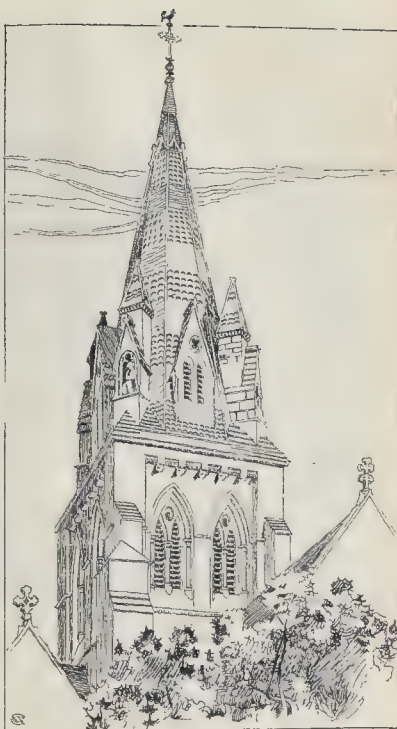
left in rough block stone, ready for some kind friend to make a donation towards its completion.

In the centre of the town is the market place, one of the largest in England, a long irregularly shaped area, round which, and in the streets leading to it, is some of the oldest domestic work. The so-called Exchange on the east side of the market place, built in 1724, and altered during the early part of the present century, is of little architectural interest, but passing through the archway beneath one reaches a picture-

esque part of the old town, the shambles, where was the birthplace of Henry Kirke White, Nottingham's poet. From here Cheapside and Poultry are reached, with two or three gabled houses of seventeenth century date but not much detail. Most of the work hereabouts is of the eighteenth century, at which period there rose in Nottingham the fashion of bringing forward the front walls of the houses over the footway, reminding one somewhat of the Chester "rows," but more exactly of the colonnaded part of the High-street at Winchester. The



House in Smithy-row



Tower of St. Barnabas R.C. Cathedral. (Pugin.)

"Flying Horse Hotel" illustrates the commencement of this practice very clearly. The older part of the house stands back with its gabled front on the interior line of the footway, but the additions made in the eighteenth century have been brought forward on columns, in the fashion adopted very extensively in Nottingham at that time. A good example of some of the eighteenth century work is the house of which we show a sketch, in Smithy-row or Greyhound-street; for it is one of the peculiarities of Nottingham that the same street or thoroughfare has several names in a very short distance, and opposite sides of the same street bear different names. Next to the house which we illustrate is another of similar date with well designed niche and panel. In Castle Gate several houses furnish good examples of that particular phase of eighteenth century work which we are accustomed to associate with the name of the Brothers Adam, and if the visitor should pursue his researches by passing under an archway at No. 39 Castle Gate he will find there an example dated 1664, with moulded cornices and strings, illustrating one type, at any rate, of seventeenth century work in Nottingham.

Nottingham, by the way, is a delightful place for the architectural student to poke about in, sketch-book in hand, amongst the older parts of the town. In looking for old

work he will not, of course, omit to visit the famous Nottingham Castle. Although the gate-house is of more ancient date, the castle itself was built by the Duke of Newcastle between 1674 and 1680. This was burnt by the rioters in 1831, but the building has been repaired, and is now occupied by the Corporation Art Museum—a museum which may be said to be a kind of South Kensington on a smaller scale.

The museum is worth a visit for its evidences of old Nottingham skill in the "arts and crafts," the wrought ironwork being especially interesting, as is also a curious oak doorway of Elizabethan date, removed from Battle Lane. Pottery and lace are also well illustrated, and there are some pictures and drawings that throw light on the topography of Nottingham.

An interesting thoroughfare for the seeker after old work in Nottingham is the series of streets leading from St. Mary's Church, towards the Castle, known as High Pavement, Middle Pavement, and Low Pavement. Here may be seen the County Hall, erected in 1770, and though the façade consists chiefly of blank wall and doorways, it is an excellent piece of sober design.

In Middle and Low Pavement are some good eighteenth-century houses, with doorways and ironwork worth sketching, and an old hostel, the "Old Postern House," which

marks the former position of one of the town gateways.

Nottingham is rich in almshouses, the finest architecturally being Collin's Hospital, in Park-street (see sketch on next page), and whose history is given on the tablet on north side thus:—"This Hospital by the appointment of Abel Collin late of Nottingham Mercer deceased who in his life was of an extensive Charity to the Poor of all Societies; and at his death by his last Will and Testament left a competent Estate for erecting and endowing the same was by his Nephew and Executor Thomas Smith begun and finished in the year 1709.

ΑΠΟΘΑΝΟΝ ΕΤΙ ΑΛΛΕΙΤΑΙ.*"

On the east elevation is a fine tablet with the arms of Collin, and on the south front a sundial. If only the woodwork of the windows were painted white we should have a perfect specimen here of eighteenth century work.

Another "Collin's Hospital," in Carrington-street, built between 1830 and 1834; the Corporation Almshouses, built 1814; and Lambley's Hospital in the Derby-road, are lacking architectural interest. The Cullen Memorial Homes, in the suburb of Carrington, erected in 1878, are quiet and pleasant in treatment of red brick and moulded stone mullions.

The most modern work of Nottingham is to be seen in the opportunity afforded by the clearing away of some old, dilapidated, and insanitary property, and the formation of two new streets, known as King-street and Queen-street, which run from Upper Parliament-street, and converge towards the market

* "Being dead, he yet speaketh."



Collin's Hospital, Park-street.



place. On the very splendid position formed by the junction of these two new streets is one of the Prudential Assurance Company's stately blocks, erected from the designs of Mr. Alfred Waterhouse, R.A. (or should it not be Messrs. Waterhouse & Son? for we think we can detect the influence of Mr. Paul Waterhouse in some of the detail). We illustrate this building, which is carried out in terra-cotta of a dark tint, with red terra-cotta bricks, and the basement of unpolished granite. The roof of the tower at the angle is carried out in lead. On the opposite side of King-street the Borough Club should be noticed—a well-designed building closely based upon the phase of Renaissance with which Mr. Colcutt has made us familiar. On the one side of this building has been carried out a somewhat elaborate design in red brick and half timber with big gables, a central tower, and red roofs that make their mark in any general view of Nottingham. On the other side is another block of shops and offices which, from the character of the detail, we recognise as being designed by Mr. Arthur Marshall, an excellent example of modern work based upon French detail of the Flamboyant and François Premier period. Facing the Prudential Assurance offices on the other side are the important buildings still in course of erection by her Majesty's Office of Works for the purposes of the Inland Revenue and Post Office. There is much good detail in the design, especially in the carving, but the proportions suffer from what we may best describe as lankiness, an effect largely produced by the uncomfortably excessive height given to the dormers and the incoherency of proportion between the centre and the wings. The design being based mainly upon Renaissance lines, the treatment of the stair is very unfortunate, especially in the brutal way in which the quasi-medieval treatment is chopped in half to fit in with the horizontal lines.

A little to the north of these buildings with which we have been treating one comes to Sherwood-street, adjoining which are some of the most important public buildings in Nottingham, the new Guildhall, which we

illustrate, erected by Messrs. Verity & Hunt, whose designs were selected in open competition, a building which is a remarkable instance of skilful planning for the purpose, and whose architectural treatment can be judged by our readers from the illustration which we give. It is carried out, as may be surmised, in the modern French neo-Grec feeling which we are accustomed to associate with the detail of the late Mr. Verity. On the other side of Sherwood-street, and facing Shakespeare-street, is the imposing block of buildings occupied by the University College, Free Library, and Public Natural History Museum and Technical School. These buildings were erected from the designs of Messrs. Lockwood & Mawson, and the College was opened in 1881. As our illustration shows, the design is in the phase of Gothic which was somewhat fashionable during the "seventies" for public buildings, and is certainly an excellent example of the type of design in vogue at the time. Nottingham, indeed, is fairly well supplied with examples of the Modern Gothic era, some examples of which we illustrate, such as the *Nottingham Express* office, built, in 1876, from the designs of Messrs. Watson & Fothergill, who are also the architects of the Nottinghamshire Banking Company's premises, of which we give a view. Possibly, nowadays, the immediate neighbour of the *Express* office, the "Coach and Horses Tavern," with its eighteenth century curly gables and its quiet if not strikingly beautiful treatment, would find more favour with our newest enthusiasts. Other examples of the Gothic work of the seventies which may be mentioned as being worthy of consideration are the *Nottinghamshire Guardian* office, of quiet and restrained design, situated in Sherwood-street, and the Albert Hall, *vis-à-vis* to the east end of the Roman Catholic Cathedral, which is neither quiet nor restrained, but an excellent design, admitting the possibility of the use of florid French Gothic as a basis of modern work. This building was erected in 1874.

The influence of the Gothic era dies hard in Nottingham, as it can be clearly traced in

the Poor Law Offices, opened in 1887, opposite the University College. The use of semicircular arches and Renaissance mouldings does not prevent the design from being on Gothic lines in the main, whilst the treatment of red brick and stone with polished granite shafts is distinctly in the earlier fashion of the century.

Even during the "seventies" Gothic was not quite supreme in Nottingham, as the group of buildings which we illustrate in Victoria-street will show (see lithograph), giving the Nottingham Joint-Stock Bank, the Imperial Insurance building now partly occupied by the School Board, and the old Post Office. The new bank is, of course, quite modern, and, as may be seen, is of quiet design, carried out in polished red granite on the ground floor, and cream-coloured sandstone above. The older buildings are carried out in stone now, especially in the case of the Post Office, almost black from the partiality which the building stone used in Nottingham seems to have for the smoke inseparable from all large towns. Another good example of somewhat similar type is Messrs. Samuel Smith & Co.'s bank at the south-east corner of the market-place, erected in 1878 from the designs of Mr. Geo. R. Isborn. This is a severe astylar building with refined detail, based on Italian Renaissance work. The façade somewhat suffers from the real entrance being tucked away round the corner in a narrow side street. The Municipal School of Art, opened in 1864, is a curious example of design, supposed to be based on Italian Renaissance of florid Venetian type. But any artistic merit it may possess is spoilt by the various details, such as the immense urn-like finials, tiled frieze, and tiled roof to the tower, in vivid colours, green, red, and yellow. Other educational buildings in Nottingham are also somewhat unfortunate in design, such as the High School for Boys in perversion of the style of the Tudor period, with battlements, long light mullioned windows, and other misunderstood detail; which makes one regret that the fine position and the considerable size of the building are but lost opportunities. The High School for Girls near it, in



Warehouse, Sloney-street. (Mr. Howitt.)



King John's Chambers. (Mr. Howitt.)

brick and stone, is of a nondescript style of design, with a quasi-modern French feeling rather unhappily carried out. As an example of more modern and more satisfactory school design, we illustrate the Board schools by Mr. Bromley (see lithograph).

The modern domestic work of Nottingham is to be found chiefly in the suburbs, and although there is much, as may be expected, that belongs to villadom, one occasionally comes across some instances of pleasing and satisfactory designs. In the suburb of Carrington we noticed a very charming house at the corner of Magdala-road and Mansfield-road, which we are inclined to attribute to Messrs. Brewill & Bailly.

In the business portion of the town, particularly what is known as the Lace Market, there are, of course, numerous examples of warehouses, one or two of which we illustrate.

In Bridle-smith Gate one may see two modern works which are in decided antithesis, the first a pretentious and imposing building in pink brick, with big gables fulfilling its purpose as it rears its head above the ascent of St. Peter's Gate, and calls attention to the shop of Messrs. Smart & Brown. A little further along in the same street is the modern building for Lloyd's Bank, of quiet design based upon domestic Tudor work with mullioned and transomed windows carried out in red brick and stone. Each of these is suited to its purpose, and expresses its intention, and is, therefore, right in design, albeit one is an example of blatant advertisement, the other of dignified retirement.

Thus in Nottingham, as elsewhere, there is architecture good and bad, old and new; but less that is good, less that is important than the size of the soi-disant "Queen of the Midlands" might lead one to expect.*

* The next of this series of articles, on the architecture of Sheffield, will appear in our issue of October 9.

NOTES.

The Architectural Association has perhaps never given a programme of papers of so much varied interest as that which is announced for the Session 1897-8. The artistic and the practical side of architecture are equally well represented. Mr. Baggallay takes the fascinating subject of "Composition in regard to Public Buildings" (January 14), on which he is sure to have something valuable to say. The historical and pictorial aspect of architecture will be illustrated by Mr. Belcher in a paper on "Hampton Court Palace" (February 4), and by Mr. Hippolyte Blanc in a paper on "Scottish Ecclesiastical Architecture in the Thirteenth and Fourteenth Centuries" (March 11), both with lantern illustrations; these are certain to prove very popular evenings. Mr. H. B. Creswell is to read a paper on that fertile subject of discussion, "The Morality and Economy of Competitions" (April 22). Mr. F. W. Troup will read a paper on "Leadwork, Plain and Decorative, with practical illustrations" (February 25). The larger and more important subjects on the practical side of architecture and building are represented by a paper on "Practical Lessons from the Paris Bazaar Fire" (October 22), by Mr. E. O. Sachs, who probably knows more about this particular fire calamity and its conditions than any one else in London; by one on "Constructional Steelwork" (March 25), by Mr. T. C. Cunningham; and one on "Foundations as Applied to London Buildings and Riverside Foundations" (May 20), by Mr. A. T. Walmisley; there is rather a tautology in the title, which might be amended, but Mr. Walmisley's experience with dock and harbour works will give special value to his treatment of the subject. "The Planning of High Schools and Endowed Schools for Girls" (December 3), by Mr. J. Osborne Smith, will draw attention to a special problem in

planning on which there is a good deal to be learned. The lighting of buildings is to be treated in two papers on the same evening. (May 6), "Interior Lighting, Reflected Lights, &c.," by Mr. W. Eckstein, and "Electric Lighting as applied to Architecture," by Mr. Tom. Ekin. Mr. Searles-Wood contributes (December 3) a paper on "Some New Materials for Use in Building," and on the same evening Mr. Flint Clarkson is to give a paper on "Classification of Trades," the special point of which we shall find when we hear it—it is sure to have a point. A subject which has not had sufficient attention from architects, "House Painting," will be treated by Mr. L. A. Shuffrey (December 17). The opening address of the new President, Mr. Hampden W. Pratt, will be delivered at the Annual General Meeting on October 8, when there is no doubt he will be supported by a large attendance of members.

We received too late for publication last week, a short note from Mr. Penrose in reference to the long anonymous communication about the dangerous state of the Parthenon which appeared in the *Times* a few days ago. Mr. Penrose says:—"I consider that the writer who sent the communication about the Parthenon published in the *Times* of the 14th inst., gave a very unnecessarily alarmist account of the temple, and I should be glad if you would refer your readers to the report you gave in the *Builder* of my paper read to the Royal Institute of British Architects on May 17 ult." Mr. Penrose's paper on the subject was reported in our issue of May 22 of this year, and those who want reliable information as to the state of the Parthenon remains will be more likely to get it from an exceedingly practical architect like Mr. Penrose, whose knowledge of the building is quite exceptional, than from the correspondent of a daily paper. In fact, the

letter of the *Times* correspondent struck us as only one of the kind of rather sensational and exaggerated communications which get published in newspapers at this time of year, when ordinary political excitement is quiescent, and something is wanted for people to read.

THE French "Union Centrale des Arts Decoratifs" has organised a competition the object of which is to produce the best designs for the various objects of every-day use in modern life—the fittings of the household generally, such as furniture and utensils of all kinds; also personal ornaments, jewellery, and dress-stuffs. The object is not merely to furnish designs for costly and luxurious interiors, but also to suggest the artistic treatment of cheaper productions, such as may be available for the masses. In short, it appears that the "Union" is endeavouring to start the same movement which Morris and his firm started in England, and to which the Arts and Crafts Society endeavoured to give a fresh impulse. There is certainly room for such a movement in France. The objects admitted into the competition, which will be judged by the management of the "Union Centrale," will in the year 1900 be collectively exhibited in some place set apart for the purpose. It is considered likely to be a popular scheme in France, where there has been a turn lately in favour of industrial art, partly started by the action of the Exhibition Committee of the Champ de Mars *Salon* in giving a special place to art of this class in their annual exhibitions.

THE Centralblatt der Bauverwaltung of Saturday last contains the New Building Act for Berlin, which was dated on the 15th inst., and has come in force from that date. The Act is practically in the form of a set of regulations issued by the general police administration of the capital in accordance with the Prussian law of 1850, which defines the powers of that body as regards all matters "pertaining to public safety and the general welfare of the community." The new code is divided into four parts, of which the first comprises the general regulations for construction and the various restrictions as to air and light, whilst the second treats of the supervision of buildings, the third as to their occupation, and the fourth concludes with some paragraphs as to the general executive. There are forty-four paragraphs in all, most of which, however, have numerous sub-divisions. We shall on a future occasion give particulars of the New Building Act, which, we should at once say, has met with considerable opposition, both from property owners and the municipality, and hence promises to cause as much friction as was the case with the old Berlin Building Act of 1887.

The Brussels Congress. In connexion with the Architectural Congress at Brussels there will also be a Congress of Builders and Contractors on the 30th inst., lasting for two or three days. This Congress has been more particularly organised to afford the employers of labour in the building trades an opportunity for discussion on various general questions relating to contracts and tenders, and should be of more particular interest to the large contractors

who compete for contracts offered by foreign Governments. The Architectural Congress, which commences this (Saturday) evening, will be attended to-morrow by the King of the Belgians, who has notified his intention to hear the paper by M. Dewaele on the preservation and restoration of the public buildings and monuments.

Who is to be Master in the Shop? THE spirited letter by Mr. Charles Markham in the *Times* of Monday, in reference to the dispute in the engineering trade, puts with blunt plainness the real issue of the strife between managers and men. "The present strike," he observes, "is really a fight between employers and the Union on the question of who are to be the masters in the shops." He draws attention to the fact that in Union shops a man is not allowed to work at two machines on piecework even if he desires to do so, and it is for his own benefit. Mr. Markham considers that a man who is paid a fair daily wage must do whatever work he is set, "and if I tell him to work more than one machine he must do so or leave my employment." That is the plain common sense of the matter, and, as Mr. Markham observes further on, "any man who allows the Union to run his business will only have himself to thank when he is ruined."

The Penrhyn Quarries. It is satisfactory to learn that, as we predicted in our last issue, the dispute between Lord Penrhyn and the quarry employes has at last been amicably settled; but it is to be hoped the fact will not be lost sight of by labourers of all kinds who are tempted to indulge in strikes, that the men have practically had to acknowledge themselves in the wrong, and have accepted almost identically the same terms as they refused three months ago. All this cessation of work in the intermediate period has therefore meant so much absolute loss to the men engaged in the strike, as well as to the owners.

Manchester Ship Canal. WE give in another column the Report of the last half-year's work by the Chief Engineer of the Manchester Canal. The affairs of the canal seem to be slowly creeping forward; the General Report states that the gross revenue was 16,115*l.* larger than in the corresponding half-year of 1896, though the increase has been reduced by "unusual and exceptional expenditure," partly arising from legal cases and from compensation for damage by fire to a steamer. The dock sheds have been in a congested state, as accommodation had to be provided in them for the storage of a large quantity of grain for a long period; and until the grain elevator is ready the dock traffic will be worked under difficulties. The grain elevator is contracted for to be ready in January.

Wiring Rules. THE rules just issued by the Institution of Electrical Engineers for wiring for the supply of electrical energy embody the chief precautions and requirements thought necessary to secure satisfactory results. They are drawn up in such a manner that they can be used as a general specification in ordinary cases, and, as they are in accordance with the latest practice, they will prove very useful. Conduit systems are stated to be preferable to wood casing, but no hint is

given as to the relative merits of the various kinds of conduits, as, for example, whether plain or insulated steel piping is the better. We are glad to see that the superfluous fuse in ceiling roses is attacked; the wonder is that it has survived so long. In describing the insulation test it would have been more explicit if it had been stated definitely that the house mains were put in parallel before the test to earth was made. The table given of the sizes of wires and of the thickness of insulating covering required for them will prove useful in practice, although it has only been calculated empirically. A new and important rule points out the necessity for the switch connected to the middle wire of a three-wire system making contact before the other two switches. The neglect of this rule has caused great damage to lamps in the past. In the three-wire system, also, trouble is often caused by the middle fuse breaking connection when the load on the two sides of the system is very unequal, the pressure on the side on which there is the fewer lamps often being sufficient to burn them all out. Some mention of this ought to have been made in these rules. Consumers who have had trouble from this cause are usually driven to putting a thicker fuse on the middle conductor.

Portland Cement Imports, U.S.A. How is it that the British exports of Portland cement to the United States have dwindled so much during the last twelve months? For the year ending 1896, the imports in the United States from this country amounted to 297,000,000 lbs., while for the year ending May, 1897, they were only 174,000,000 lbs. In these two periods the imports from Belgium remained nearly stationary, falling only three millions in a total of 237,000,000, while Germany's contribution has fallen only 73,000,000 in a total of 482,000,000. In other words, while Belgium's trade has diminished less than 2 per cent., and Germany's only 15 per cent., our trade has been reduced nearly 42 per cent. If this reduction is due to increased activity in the building and engineering trades at home, there is no cause for complaint; but if it is due to the better quality and cheaper prices of foreign cement, it is high time that British manufacturers made an effort to regain the lost ground.

Manchester Sewers. EARLY this year we drew attention to some of the defects and deviations from the contracts which had been discovered in the new sewers in Manchester. In certain cases the defects have been made good at the contractors' expense, and deductions have been made in respect of the deviations. In others, however, legal proceedings have been taken. The result of such a trial would be interesting, but after all, a matter of this kind is one which, as Sir John Harwood suggests, can be best dealt with by arbitration before a competent engineer. This settlement of contracts is, however, only a small matter in comparison with that of sewage-disposal, which still fronts the Manchester City Council. As pointed out in our article, a scheme had been prepared for conveying the unfiltered tank-effluent in a tunnel and emptying it into the Mersey at Randall's sluices, a little below Warrington, but the position of the outfall had been subsequently altered to Woollas-

ton Weir, a little above Warrington. Objections have been raised to this scheme, as we anticipated, and a scheme of filtration has now been prepared, the estimated cost of the fifty acres of crushed-clinker filters being 275,000*l.*, and the annual cost of working (including the renewal of the filters every fourth year at one-third of the original cost), 31,820*l.* These are bills which the citizens of Manchester are not prepared to face, and something like a deadlock has occurred on the Rivers Committee. Why not construct the effluent tunnel to Weston Point, a little beyond Runcorn, and ship the sludge from the tanks to sea, as Salford is doing? The additional length of tunnel from Woolaston to Weston Point would be only about ten miles, and, although the first cost would be considerable, a great saving in working expenses and renewals would be effected, and the Irwell and the upper and narrow reaches of the Mersey would be entirely freed from Manchester sewage, while the lower and broad reaches would be no worse than at present, and would undoubtedly be improved if the sewage were discharged only for a short time at the beginning of each ebb-tide.

ACCORDING to Dr. St. George Mivart's report to the Local Government Board "On the Prevalence of Diphtheria in Holywell Parishes, and on the Sanitary State of those Localities," there are few districts in England or Wales of which the sanitary condition has occupied the attention of the Local Government Board more frequently, or with less satisfactory result, than the tract of flat marshy land extending along the south bank of the Dee estuary from Chester to the Point of Air, where there has been a prevalence of epidemic illnesses during the past twenty-five years. Generally speaking, the dwellings are of a poor description, and the paving of yards is very bad and irregular in almost all cases, so that pools of liquid filth are found close to the doors of dwellings. There is no public water supply, and the parish remains in this matter in the same condition as it was twenty years ago. The two principal sources of supply of drinking water are St. Winifred's Well and a well known as Roff Tob. From the former most of the inhabitants of the northern end of the town obtain their drinking water, which they have to carry up a steep hill unless they pay for this work being performed by other persons. The "Roff Tob" is situated on a slope some forty yards below the cemetery, and is a shallow well, formerly nothing more than a dipping place, but now covered in; the wall adjoining it had apparently been used as a urinal. Besides these two, there are a number of shallow dip wells in the place, every one of them exposed to pollution. Drainage is in the same condition as described years ago, first by Dr. Blaxall, and later by Dr. Parsons. The old main brick sewers running down the hill still exist, and discharge into the stream coming from St. Winifred's Well; they have no ventilation or means of inspection. Whatever sewage matter passes into St. Winifred's stream flows into it in a crude state. In regard to excrement and refuse disposal, in this respect matters are in the same state as they were twenty years ago, or worse. The removal of privy contents and house refuse is left entirely to the

individual householders, and is grossly neglected. It is added that some of the worst nuisances in the place are to be found within a few yards of the District Council's offices.

THE syllabus of the Glasgow School of Art for the coming term is noticeable for the amount of space and attention devoted to architecture. It includes classes on building construction, specifications, architectural drawing, sketching, measurement, ornament, the historical development of architecture, architectural design (subjects in which are set monthly by visiting architects), perspective, sciography, geometry, &c.; a remarkably complete course for a general Art School. The efficiency of the school is indicated to some extent by the proportion of medals awarded to its pupils in what are called the "National Competitions," as compared with seven other schools of art in leading towns. We do not attach too much importance to the "National Competitions;" but so far as they are a test Glasgow stands decisively highest. It is to be hoped, however, that this will not lead to a too great strife for getting art prizes as the main object of the students' efforts.

THE concluding chapters of Mr. Fletcher's essay will be given in our next, as there is not space for them in the present issue.

THE September number of the *National Review* will contain an article by Mr. H. H. Statham on "The Treatment of Ancient Buildings," going into the whole question of what may be called the *morale* of architectural "restoration," and distinguishing the kind of interference with an ancient building which is justifiable or unjustifiable, according to the special circumstances of the case.

THE COLCHESTER TOWN HALL COMPETITION.

EIGHT sets of drawings, submitted in a limited competition, for a new Town Hall and complete Municipal Offices for Colchester, are now on view at the old Town Hall. The proposed building is to occupy the same position as the present one, which stands on the north side of the High-street, with the Corn Exchange adjoining it on the west, and some small shops on the east. But the site is to be enlarged, both by taking in the ground occupied by these shops, so as to give the new building a frontage to West Stockwell-street, and also by an extension towards the north-west. The recently-erected public library limits the site on the north-east in such a way that the space actually available resembles the letter L. Between the library and the shops, at the junction of West Stockwell-street with High-street, is another newly-erected public building, the police-station. The treatment of this has been a problem variously solved by the competitors. Some of them propose to incorporate it, more or less as it stands, in their new building, while others would prefer to sweep it away and to distribute the police-offices over other parts of the site. One other local circumstance had to be considered in planning: the necessity of providing a side entrance from the Corn Exchange, which, as before noticed, forms the western boundary of the site.

The authors of the designs exhibited are in alphabetical order as follows:—Messrs. Baker, May, & Rickards, of London, Colchester, and Clacton-on-Sea; J. Belcher, London; Binyon & Burges, Ipswich; J. M. Brydon, London; H. T. Hare, London; E. W. Mountford, London; Beresford Pite, London; and W. Scargill, Colchester. In our last issue we gave an abstract of the report of the assessor, Mr. R. Norman Shaw, R.A., with a general description of Mr. Belcher's design, to which the

first premium was awarded. Mr. Belcher shows a fine, stately-looking plan, and of his design generally it may be said that it combines dignity with efficiency. It is impossible to say the same of the work of Messrs. Baker, May, and Rickards, selected for the second premium. The winners of this distinction owe it solely to a cleverly-handled perspective view, to which the rest of their drawings appear hung on as something perfunctory and comparatively unimportant. They have just done enough planning to justify the existence of their perspective, which is itself a medley from several well-known examples of Mr. Norman Shaw's own work. Mr. Mountford, who receives the third premium, submits much better work, and in many points comes quite on a level with Mr. Belcher, but he has not in this instance put forth his best skill in planning. Mr. Brydon also cannot be said to have produced an entirely satisfactory plan, but his work throughout is of excellent quality, and fully deserving of a premium. But passing to the design sent in by Mr. Hare, an impartial critic can have no hesitation in saying that this is the one design which really fulfils every requirement of the competition. In numerous practical points of the greatest, it is hardly too much to say of vital importance, this design shows an understanding of the varied needs of the building unequalled by any of the others. Artistically, it holds its own with the best of them. Compared with the first-premiated design, it is every whit as dignified, considerably more graceful and refined in detail, and much more appropriate to the situation.

Among the remaining designs that of Mr. Pite is very noticeable, and is undoubtedly the most poetical composition of the whole series. There is, however, an airy unsubstantiality about it suggestive either of a grand idea imperfectly worked out, or of a boldness positively alarming; it is like a cloud-castle, and could hardly be expected to commend itself to any ordinary Town Council for actual adoption. To this nothing could be in stronger contrast than the thoroughly practicable, but commonplace, tame, and characterless design of Messrs. Binyon & Burges, destitute alike of faults or virtues. Of Mr. Scargill's design, it can only be said that he would have better consulted his reputation if he had not exhibited it.

The awards in this competition are likely to cause considerable surprise, not only among the competitors themselves, but among all architects who take the trouble to consider them. There is, happily, of course not the slightest suspicion or ground for suggesting, conscious unfairness or partiality towards any particular competitor. Everything in this case is unquestionably open and honourable. Yet a verdict has been given, in regard to the second premium especially, such as we firmly believe no jury of intelligent and open-minded architects could have arrived at. It used to be a subject of complaint that inferior competitors won undeserved success by means of showy perspectives, captivating the untrained eyes of amateur committee-men. A "professional assessor," it was hopefully supposed, would look into the essential qualities of the work submitted, and would give a judgment founded on reason instead of caprice. Yet, if many competitions are to be adjudicated on after the manner of this one at Colchester, architects will discover that the new system is as unsatisfactory as the old, meretricious draughtsmanship being just as likely to succeed. The proper duty of an assessor must surely be to ascertain, without sparing himself laborious analysis and comparison, which of all the designs before him will give his employers the building best fulfilling their legitimate requirements, and, having done so, to distribute any further rewards at his disposal to the competitors whose work comes nearest in general merit. Mr. Norman Shaw seems, however, to confuse his functions with those of the hanging committee of an exhibition. He allows his outward vision to be attracted by pretty drawing, and more especially by a pleasantly familiar style, and with him, at any rate, the objectionable practice of "playing-up" to the assessor's known, or supposed predilections, which more judicial minds duly discount, seems to obtain its reward. Nothing else could account for the extraordinary and undue weight attached in this competition to mere pictorial effectiveness.

A good result, however, may ensue if justifiable disappointment should pave the way to the establishment of a system by which competitions shall be decided, not, as at present,

according to the sometimes whimsical fancies of a single assessor, who may or may not have a full sense of his responsibility, but by a representative jury of architects, as is frequently the case in France and Germany. Such a method would ensure that the individual qualities of all the designs would be thoroughly sifted and their comparative merits carefully balanced. It may, perhaps, be objected that unanimous verdicts would be rare, though of this we are not certain, were such a system in regular operation; but a majority Report would, at any rate, carry as much weight with the public bodies—with whom, after all, rests the final decision—as does that of a single-handed assessor; while a unanimous recommendation would of necessity carry still more, and, we venture to think, would neither be questioned by the profession nor disregarded by the public.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.

THE fifty-first annual meeting of this Society was held at Haverfordwest during the week commencing the 16th instant. There was a larger attendance than usual; the heavy rains of the week fell for the most part during the night; and the programme of excursions, drawn up by an excellent local committee, was varied and interesting. Amongst those present were the Venerable Archdeacon Thomas, F.S.A., the Rev. Chancellor Davey, of St. David's, the Rev. Canon R. Trevor Owen, F.S.A., Professor John Rhys, LL.D., Principal of Jesus College, Oxford; Mr. S. W. Williams, F.S.A., Mr. R. Cochrane, F.S.A., Hon. Sec. of the Royal Society of Antiquaries of Ireland; Mr. F. C. Penrose, ex-President of the Royal Institute of British Architects; Sir John Williams, Bart., Mr. Edward Owen, Mr. Henry Owen, F.S.A., Mr. Edward Laws, F.S.A., Mr. J. Romilly Allen, F.S.A., &c. The President of the meeting was Sir Owen H. P. Scourfield, Bart., whose father, then Mr. Scourfield, was President at the former meeting of the Association at Haverfordwest in 1864.

Of all the counties of Wales, Pembrokeshire is without question the richest in the various classes of remains that fall within the purview of an archaeological society. It boasts in St. David's a cathedral of the first order in every respect but that of magnitude; in Pembroke it has a castle of the highest interest and importance, though hardly rivaling the great Edwardian fortresses of North Wales or the splendid ruins of Caerphilly. Its churches fall into two main divisions, corresponding with the geographical distribution of the county between Englishman and Welshman, and, though conforming in each of those areas to a common type, possessing in almost every instance features that well repay the attention of the ecclesiastical antiquary. The chief drawback is that the greater number of those seen in the course of the present meeting have been ruthlessly restored at different periods. The county possesses no ruins of a monastic establishment comparable to those of Strata Florida or Vale Crucis. With the exception of the establishment of the Knights of St. John at Slebech, now the property of a gentleman bearing the un-English name of the Baron de Rutzen, the monastic houses were small and of little importance. As permission to examine the few existing remains of Slebech was refused, the visitors had to content themselves with the ruins of the Augustinian priory at Haverford, as the only specimen of this class of remains that came in their way. Its examples of domestic architecture compare both in antiquity and in importance with those of most English counties; whilst the many races who have successively occupied its soil have provided the antiquary with an endless number of puzzling questions upon the contributions of each to the ethnology and history of Pembrokeshire.

But to the antiquary the distinctive character of Pembrokeshire lies in the number of the earliest inscribed stones found within its borders, those, that is, containing merely the names of the individuals whom they commemorate, the inscription being cut upon a rough untrimmed boulder in characters that almost defy decipherment by reason of their rudeness. In many instances the stone, in addition to the inscription in Roman letters, bears another in Ogam characters. These inscribed stones are the earliest documentary evidences, so to speak, of man's existence in Pembrokeshire, and, even before St. David's noble pile or Carew's stately ruins, must they be regarded as

the crowning contribution of Pembrokeshire to the sum of human knowledge on the history of man and of man's activities in Britain. They are not artistic, nor, so far as concerns the stones which bear only a simple inscription, have they anything to do with art in any of its manifestations. But their importance is evident, and the labours of Professor Rhys and Mr. Romilly Allen in their discovery and elucidation have excited such interest as to have turned every Pembrokeshire man into an Ogam hunter. The finds of this nature that have taken place during the past few years have been no less astonishing in their number than they have been important in character. They are somewhat outside the province of this publication, but we are none the less impressed with the value of the discoveries that, by reason of the enthusiasm which has been aroused, are being constantly announced. We can only hope that the interest of Pembrokeshire men in the antiquities of their county will not confine itself to one class of remains, but will display itself in equally important and more generally fascinating subjects than that of old stones.

However, by reason of the number of these objects, the presence of experts in their elucidation, and the general anticipation that fresh examples would turn up, the interest of the Haverfordwest meeting may fairly be described—with, of course, the exception of St. David's—as centering around inscribed stones. It was natural that it should be so, and even so there remained enough of the usual objects of archaeological concern to charm the most exacting visitor.

The excursions commenced on Tuesday, the 17th instant, when the first move was made to a fine encampment called Walwyn's Castle, of the kind usually termed British. The earthwork, which crowns a small eminence, follows the conformation of the hill, and is peculiar in being divided into two unequal parts by a straight vallum and fosse. Tradition has connected the camp with Gwain, one of the knights of the Arthurian legend, and has even given him burial in the adjoining churchyard. The name is, however, much more likely to be that of a later adventurer who adapted the British post to his own requirements.

The church stands within a few yards of the camp. A recent restoration, following, perhaps, upon former restorations, has left nothing of the original structure except some dubious parts of the base of the tower. A genuine old Norman font, which still exists, has given way to a nondescript modern example. The next place visited was a fine earthwork, undoubtedly constructed with a view to defence rather than for refuge. It bears the modern name of Romans Castle, but it was stated that it appears in mediæval documents as *Romas* or *Romas Castle*. It is rectangular in shape, with the corners rounded off, and is in fair preservation, except upon one side which has been destroyed by the agriculturist. It might well have been occupied and adapted by the Romans, but was certainly not constructed by them; it is more probably of Danish origin.

At Steynton Church the visitors found the restorer had been at work with a vengeance. To describe the edifice would be quite useless; it is to all intents and purposes a modern church, and, in the absence of direct information upon the point, it is impossible to decide whether its details are reproductions of the originals. It is stated that during the restoration a couple of cromlechs—by which *istvaens* must be meant—were discovered beneath the nave of the church, and some animal bones found in one of the piers; but no reliable account was given of these finds, and, pending its appearance, the exercise of a little wholesome scepticism may be pardoned. Here the company came upon the first inscribed stone, which had been contrived "a double debt to pay," for it recorded not only the Goidelic name "Gendili," but also that of a churchwarden of the present century, who had appropriated the uncovered space on the slab of, it may be, a great Celtic chieftain, and thus secured for himself an adventitious chance of immortality. Burton Church is of great interest. It has a tower of the regular Pembrokeshire type, the nature of which we cannot describe in more accurate terms than those of the late Mr. E. A. Freeman. "The genuine Pembrokeshire tower," he observes, "is generally of considerable height, but in breadth there is a great variety, some being remarkably slender, while others are no less conspicuous for extreme massiveness. Perhaps generally their peculiar

character, especially the absence of buttresses, produces a combined effect of massiveness and height, which is extremely effective, and which causes them to resemble in some degree the Anglo-Saxon towers of England. Not being divided into stages, they depend, in a more direct manner than usual, upon their actual proportions, and I may add, are among the most difficult I know of to sketch with accuracy." [As a matter of fact they are easier to sketch than most church towers, but it is a point on which Freeman, who with the pencil was one of the worst blunderers that ever pretended to sketch and could not, was no judge.] "The buttress is entirely excluded, but a square staircase turret most commonly occupies one corner. This is, however, very often of extremely slight projection, sometimes not much more than that of the double flat pilaster common in Northamptonshire. There seems to be no general rule as to its position. The towers generally batter very perceptibly, and the lower part of the wall has often a still greater inclination, as is also sometimes the case in other parts of the churches. A rough corbel table, like those in castles, supports the parapet, which is almost always embattled. The belfry windows are of various kinds, single, double, or treble; square-headed, round-headed, or pointed; but they are almost always small and narrow, sometimes not getting beyond the character of mere slits. No other windows in the towers ever pretend to any higher character, except a few occasional west windows of various styles and shapes. Western doorways are not common, and, when found, are usually blocked." This description of the distinguishing features of the Pembrokeshire churches in the English portion of the country will suffice for all the instances seen by the Association. As to the date of these steeples, the same observer was of opinion, some of them being coeval with the rest of the buildings, whilst others are, in many cases, palpable additions to earlier churches, "that they are of all dates, all dates that is within 'castle times,' built in all manner of centuries from the first to the last Harry." Burton Church is of the late twelfth or early thirteenth century. It consists of a nave and chancel, to the latter of which a south aisle was added in the second half of the latter century. This aisle, which no doubt constituted a small chapel, is lighted by six long and extremely narrow windows having square heads. The intervening piers and arches are continuous—there is no break of any kind. There are north and south transepts and a double hagioscope. The font is Norman with cushion capitals. A tomb of the Wogan family occupies the chancel. The incumbent slab bears a cross ragule with two shields, of earlier date than the body of the tomb. Benton Castle, said to be a small baronial castle of the period of Henry III., was to have been visited, but the majority of the party lost their way in a dense wood. After a good deal of aimless wandering, they gave up the quest of the castle and made for Llangum Church, where the principal objects of interest are two effigies occupying the entire end wall of a northern chapel. One is that of a knight in the costume of 1350; the other, perhaps a lady, is more defaced, but appears to be of about the same period. From the position of the hands, which are broken off, the figure would seem to have been holding a chalice, and it is by no means certain that the effigy is not that of an ecclesiastic. The figures repose under two ogee canopied recesses of highly elaborate design, the front being also richly wrought. The knight is said to have belonged to the Roche family, but on what authority does not appear. This chapel is divided from the nave by two arches of late Decorated character, and in the east wall is a piscina with an overhanging canopy.

Wednesday was devoted to St. David's Cathedral. This beautiful edifice, and the ruins of the bishop's palace and St. Mary's College which adjoin it, have been so adequately described in Jones and Freeman, and have had one issue of the *Builder's* series devoted to them, that it is unnecessary here to do more than record that the party were met on their arrival by the Rev. Chancellor Davey. They proceeded at once to the cathedral, and having seated themselves in the nave, the reverend gentleman gave a brief sketch of the history and architecture of the building. After luncheon, the majority of the party having reassembled in the cathedral, Chancellor Davey passed from point to point, entering fully into details of the various additions and

reconstructions which the noble pile has witnessed. Adjoinment was afterwards made to the ruined palace built by Bishop Gover (1328-1347). The first part of the structure to the left of the entrance gateway is usually called a chapel, though without any apparent reason for the identification. The chapel is situated at the western end of the building, and it is not easy to suppose that there was a second. Some of the party under the charge of the Dean went so far as the Chapel of St. Non, the mother of St. David. This is a small edifice, 32 ft. by 21 ft., of the kind so frequently met with in Ireland. Close by is the well associated with the saint, and still revered for the efficacy of its waters in rheumatic and scrofulous affections. The coast line around St. David's is dotted over with prehistoric camps and hut dwellings, which also came in for examination by a few.

It should be mentioned that it was intended on the way to St. David's to call at Roch Castle, a striking ruin that dominates the view for miles around, but the programme was overloaded, and Roch Castle had to be jettisoned. This was much to be regretted, for the visitors lost the opportunity of making acquaintance with a baronial stronghold that appeared from a short distance to have strong affinities with the barons' castles of Ireland—for instance, Askaton—several of which were visited by the Cambrian Association during the Killarney meeting of 1892. It was the day of rude stones, and castles were at a discount. So the visitors were driven on to the church of Brawdy, about midway between Haverfordwest and St. David's. Here there was a harvest of enormous uncouth monoliths, garnered within the churchyard through the munificence of Mr. Henry Owen, who had rescued them from walls, gates, and other undignified situations, had purchased them outright where that was possible, had removed them to Brawdy churchyard, and thus formed the nucleus of what may eventually blossom forth into a Welsh national museum. Brawdy Church is in the Welsh district of Pembrokeshire. It has no tower, and consisted originally of simple nave and chancel. This is the regular type of Welsh church found throughout the remoter districts of the Principality. It has sometimes been enlarged, at some places by the construction of a nave aisle, at others, more especially in Pembrokeshire, by throwing out a transept on one side or the other, sometimes on both. Brawdy is an instance of this, a southern transept having been added to the main building, the date of which is fixed by the original Norman corbel table still seen within the church above the transept opening.

On Thursday morning the party proceeded to do the various objects of attraction in the town of Haverfordwest. Their first visit was to the castle, now transformed into the county gaol, and, therefore, practically inaccessible. It crowns the height upon which the town is built, and must have been one of the strongest Welsh fortresses of the Middle Ages. On its eastern side the rock falls sharply away, making it impossible of direct attack, and from the same reason rendering its exterior examination difficult. It seems to have been of quadrangular shape, with three-quarters engaged towers at each angle, two of which have disappeared. The chapel was placed in a square projection on the eastern side, where it was less exposed to damage from the enemy by reason of the fall of the rock, as was the arrangement at Kidwelly. The great hall adjoined the chapel, and was built along the protected eastern side. The remains of several late transitional Decorated windows are still to be seen. The interior arrangements have been completely altered, and it is now impossible to make out the external line of defences with which it must have been connected. The castle played a considerable part in the Welsh wars, though its strength and position must have made it impregnable before the period of cannon; it figured in the great struggle of the seventeenth century, and, after its capture, was intended to have been razed to the ground, as is proved by a letter from Cromwell in the Corporation archives, but it was saved from that untoward fate to fall a victim to the even more cold-blooded treatment of a Conservative Home Secretary. From the castle the visitors proceeded to St. Martin's Church. The tower is of the square Pembrokeshire type, but of mean proportions, and it is topped by a short spire that formed no part of the original design. Its proximity to the castle

obviated the necessity of making the tower of the size and strength that would be required for a defensible structure. The interior has been thoroughly restored and lavishly decorated. A small but beautifully proportioned fourteenth century sedilia and piscina have been painted and gilded. The church of St. Mary's is a remarkably fine edifice, having nothing in common with the other churches of the district. The oldest portion is the west end, which is of the thirteenth century, but there are also traces at the eastern end of an earlier building than the present. In the latter half of the fourteenth century the interior was entirely reconstructed, the chief feature of the work then undertaken being the beautiful arcading between the nave and the newly-constructed north aisle. The late Mr. Christian in his report to the Restoration Committee in 1882, observed that the two north arcades in the nave and chancel respectively are lovely specimens, not only of general proportion, but of rich, bold, and delicate mouldings, and very excellent sculpture. In the Perpendicular period followed another restoration, when the body of the church was raised, and a fine clearstory added in nave and chancel; the flat roof of that period was also adopted; the tower was altered and rebuilt and vaulted internally; this vaulted chamber has on its eastern side a beautiful Early English lancet. The church has both a north and a south porch. In the westernmost pier of the nave is a small recess called a confessional. Near it is an effigy said, by the late Mr. Bloxam, to be that of a pilgrim, and to be of a class so rare that that great authority knew of only one other example in this country, namely, at the church of Ashby de la Zouch. The figure is much mutilated, so that the details can be made out only with difficulty. The individual certainly appears to have on the left side the wallet or scrip of a pilgrim, which bears what seem to be the scallop shells of St. John of Compostella. Some of the members were, however, disposed to combat Mr. Bloxam's conclusions, and the verdict of "not proven" may, perhaps express the state of the case. The church of St. Thomas the Martyr has undergone a restoration that has swept away whatever mediæval features it might have possessed internally. The tower may be of any date; it is a grand landmark, being seen for miles around. A small piece of sculpture of the crucifixion is let into the western wall of the tower, and the church contains a fine slab of the late thirteenth or early fourteenth century with an inscription to a Richard le paumer. The body of the slab is occupied by a cross with floriated head, above which is the head of the person commemorated.

The ruins of an Augustinian priory, beautifully situated on the banks of the Cleddau, about half a mile south of the town of Haverfordwest, were next visited. Sufficient remains to permit of the tracing out of the line of the church, and the general plan of the conventional buildings. A small sum of money expended in judiciously conducted excavations would probably result in interesting discoveries. Every particle of ashlar has been removed, and the fallen walls lie about in huge and shapeless masses. It is surprising that the attention of Pembrokeshire antiquaries has not been directed to the history of this monastic house. Documents exist at the Record Office from which it would surely be possible to fill the historical hiatus between its foundation and its fall. The priory is first mentioned about the year 1200, and as the masonry resembles that of Talley, in Carmarthenshire, founded about the same period, it is probable that that date coincides with the establishment of the Augustinians in Pembrokeshire. It was valued at 1231. 11s. 1d. at the Dissolution.

The party next drove to an early fortification, called, *par excellence*, the Rath (pronounced locally with the open a, as in "fate") as the grandest and most complete work of the kind in the district. Its situation is unsurpassed, commanding, as it does, an uninterrupted view over more than half the county. The area within the rampart is about five acres, and this has been divided into two unequal parts by an irregular vallum and ditch. This would seem to point to its occupation by at least two successive races, the later of whom, finding the original camp too large for strictly warlike purposes, circumscribed its area by constructing the wall and ditch referred to. The outer vallum is very complete, and from the bottom of the fosse rises in places to a height of about twenty feet. A spring of good water contributed

to make this a post of the utmost importance to the early races which struggled for precedence in Pembrokeshire, and there can be no doubt that it was successively occupied by Briton and by Dane, and, it may be, by Norman. Traces of a building in dry masonry are perceptible at the north-east angle, but it is impossible to conjecture its use. The entrances face the north and west, but whether they are the original portals cannot be ascertained without careful investigation.

From the Rath the visitors drove to the site of the castle of Wiston. This castle forms an admirable example of the manner in which a naturally strong position was occupied and adapted by successive peoples, and without doubt affords the key to the true history of many other defensive posts the details of which have been destroyed or only partially developed. At Wiston can be traced the original British entrenchment, the term "British" being generically used of all the races and peoples that had their home in Pembrokeshire prior to the appearance of the Normans. Next is the smaller enclosure, probably strengthened along the walls by stakes or a palisade, and having a large conical mound defended by a deep fosse at one corner of the camp. It may have had rough defences of masonry, though at Wiston there is no sign of these. Finally comes the stone castle of the Norman feudatory of the great Earl of Pembroke, who seems to have been a knight named Wiz, a member of the great family of Guise; he was a benefactor to the abbey of St. Peter's, Gloucester, and is reported to have been the founder of the monastic establishment of Slebech. He died prior to 1135. The tower of Wiz or Wizo consisted of a circular keep which he erected on the Danish mound. It was attacked by Llywelyn ap Iorwerth in the thirteenth century, and does not seem to have been re-occupied. The interior of the ruined keep is choked with rubbish, the removal of which would probably reveal portions of the lower chambers. The church of Wiston has a fine Perpendicular east window; there is a piscina and an aumbry that have belonged to an earlier edifice. The tower has passed through the restorer's hands. Lawhaden Castle is a monument at once of the enormous temporal power of the Bishops of St. David's, and of the disgraceful negligence of its present owners, the Ecclesiastical Commissioners. It is difficult to make out what it was in the days of its splendour, owing to the condition into which it has been permitted to fall. It was clearly, however, a castle of great strength, of noble proportions, and of somewhat unusual design. It bears signs of occupation by successive bishops, who probably altered its originally military character to the requirements of milder generations. Bishop Vaughan (1509-1520), the builder of the beautiful chapel at St. David's that goes by his name, built out into the castle quadrangle a square edifice of two stories, which appears to have been intended for a porch to the original chapel, with rooms above. It is much to be deplored that the architectural and documentary history of this grand pile has not been taken in hand. Lawhaden Church is one of the most interesting edifices visited during the meeting. The church consists of a nave and chancel; the latter has a south aisle, forming a chapel dedicated to St. Hugh, divided from the chancel by two Norman archways, with the cable moulding to the piers, and with corbels of grotesque heads. There is a small quasi-transept at the upper end of the south side of the nave. The font is of the regular Norman style, a little more elaborated than the general run of the fonts previously seen. The tower, which is detached, stands on the south side of the church. A cross of very early date, probably Norman, has been fixed in the exterior of the east end. Pictou Castle, the residence of Sir Charles Phillips, Bart., was next visited. It is said to have been inhabited without intermission from the period of its construction down to the present time. Though necessarily much altered and considerably enlarged with more or less regard to its original features, it still retains much of the appearance of a mediæval castle. The ground plan is a rectangular oblong, with drum towers at the four corners and one in the middle of each of the longer sides. The vaults are now occupied by the servants' quarters and usual offices. It dates from the time of Edward I.

Friday was quite a triumph for the inscribed stones section. The party divided, one body going northwards for the high ground of the

Preceilly district, where Ogams are plentiful. Amongst those seen were the celebrated Voteporigis stone, perhaps the most important "find" of this nature that has yet occurred in Britain. The other party went off in much the same direction, that is, towards the northern or Welsh division of the county. The first halt was at Rudbaxton Church, a small edifice consisting of nave and chancel, with a south aisle to the chancel and extending two bays into the nave. The piers are of Norman type, but it is by no means sure that they are of Norman date. The font is unquestionably Norman. The eastern end of the south aisle is occupied by a late seventeenth-century tomb, erected to the memory of a Mrs. Haward; anything more artistically atrocious cannot well be imagined. Spital Church, once appropriated to the Hospitallers of Siebach, offers a welcome exception to the manner in which church restoration has been carried out in Pembrokeshire. The chief object of interest is the Norman font of Caerliff stone (with which the cathedral of St. David's is built), and displaying the peculiar St. David's mouldings. Ambleston Church possesses a tower of military character, which was entirely altered in detail during the Perpendicular period. St. Dogwell's, like Rudbaxton, consisted only of a nave and chancel, to the latter of which a northern chapel was subsequently built. The piers of the arches would readily be taken to be Norman, and they possess the cable moulding of that period; but the arches they support are two-centred Perpendicular arches, with shallow mouldings. Mr. S. W. Williams, however, suggested that the explanation of the discrepancies that met them at St. Dogwell's, and that had puzzled them on several previous occasions, was to be found in the adoption, by the local workmen employed to restore the churches during the great period of Welsh church restoration in the fifteenth and early sixteenth centuries, of forms of construction and of ornament that they saw in genuinely ancient churches, and which they combined with the forms peculiar to their own date. A great authority, already cited, observes in respect to the apparent anomalies so frequent in these Pembrokeshire churches: "Perpendicular details cannot be assigned to the twelfth century without capsizing all architectural history, but apparent Norman details may be assigned to the fifteenth without supposing anything more extraordinary than a very old-fashioned taste in the architect or in the district." At the angles of the Perpendicular mouldings at St. Dogwell's are small heraldic shields, bearing no doubt the arms of the neighbouring families, which are most probably the work of the fifteenth century restorers. Letterston was the last church visited; it possesses no features of interest beyond a remarkable piscina surmounted by a cross ragule now inserted in the church porch. Between Ambleston and St. Dogwell's is the site of the supposed Roman station of Ad Vicesimum, the sole authority for which is the discredited Itinerary of Richard of Cirencester. The circumvallation of the camp can be made out quite clearly, and it unquestionably has all the appearances of a genuine Roman work. Professor Rhys, fresh from the examination of the undoubted Roman encampment at Ardorch in Scotland, was strongly of opinion that the present is a genuine example. A few Roman tiles have been turned up by the plough, but no record exists of the discovery of coins or inscriptions. The high road cuts the camp into two almost equal halves. From Letterston a few of the "inscribed stonors" trudged as far as Llangwarren to witness the literal "unveiling" of a new example which had been discovered walled up in some farm premises. The stone came up to the fondest hopes of its admirers, for it was found to add another item to the gradually lengthening list of Goidelic proper names; and it was unanimously agreed that the Haverfordwest meeting of the Cambrian Archeological Association had not been held in vain.

METHODIST CHAPEL, &c., CARLTON, NOTTS.—The foundation stone has just been laid at Carlton of a new Methodist Chapel and Sunday School. Messrs. R. C. and E. R. Sutton are the architects. It is estimated that the new chapel will cost about 2,600*l.*, besides extras. It will be built of red brick, with stone facings, and will seat 450 persons; with a preacher's vestry and lecture-room large enough for week night services, with seating accommodation for about seventy persons. The Sunday School and class-rooms are to provide accommodation for 300 scholars, and the whole of the buildings will be heated with hot water.

Illustrations.

NOTTINGHAM ARCHITECTURE.

THE illustrations in this issue are confined to examples of the architecture of Nottingham, which is the subject of the first article.

The view of the Prudential Assurance Company's offices forms our central illustration, not of course that it is to be regarded as the central erection of the city (though it is one of the most important of the street buildings), but inasmuch as it is the most striking illustration of those which have been put at our disposal, being reproduced from one of Mr. Waterhouse's large and effective water-colour drawings, now in the possession of the Prudential Assurance Company at their London office; and we have to thank them for their courtesy in lending it to us. The building stands on one of Mr. Waterhouse's favourite corner sites—at least his buildings so often occupy these corner and triangular sites that there seems to be more than chance in the selection—with the angle emphasised in the effective manner which we so frequently meet with in his buildings.

The Guildhall, by Messrs. Verity & Hunt, and University College, by Messrs. Lockwood & Mawson (architectural firms which have both ceased to exist), are reproduced from photographs, as also the street view in Nottingham (showing four prominent buildings the titles of which are added at the foot of the view) and the views of the Nottinghamshire Banking Company's offices and the *Daily Express* office, both by Mr. Watson Fothergill.

The view of the schools in High Pavement is from a drawing lent by the architect, Mr. A. N. Bromley (President of the Nottinghamshire Architectural Society), as also the illustration of the warehouses in Middle Pavement by the same architect.

The illustration of St. Catharine's Church is from a photograph lent by the architect, Mr. R. Clarke.

NOTES ON THE BRITISH ASSOCIATION MEETING AT TORONTO.

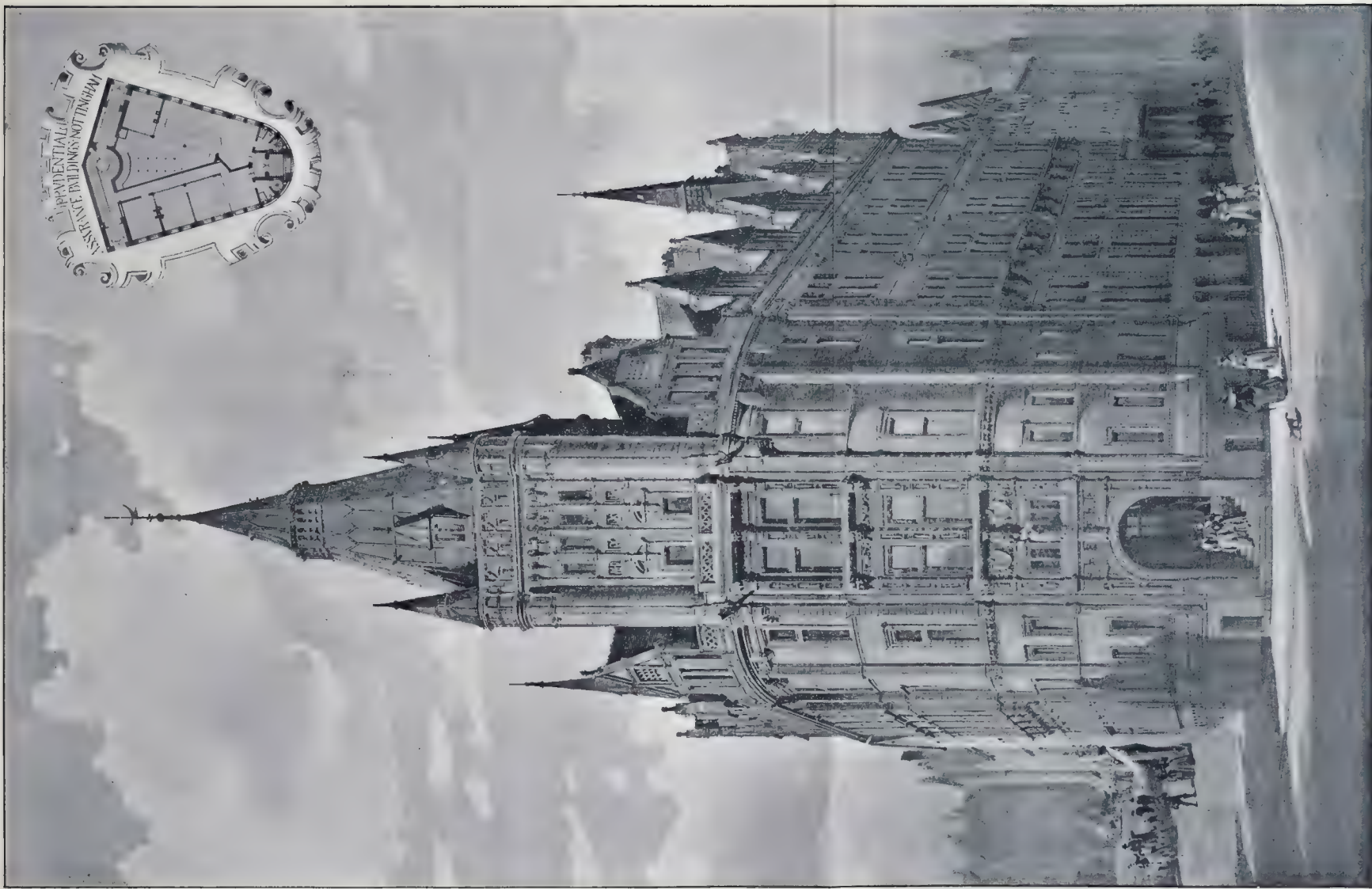
In his address as President of the Geographical Section, Mr. Scott Keltie urged that it was a mistake to suppose that the work of the geographer in Europe was completed. It was true that nearly every country in Europe had been, or was being trigonometrically surveyed, but there were districts in the Balkan peninsula—Albania for instance, which were as vaguely known as Central Africa. But even when a country was fully mapped, it was only then that the work of geographical research fairly began.

The student, with a satisfactory map of a definite district as his guide, would find on the spot abundant occupation in working out its geographical details, the changes which had taken place in its topography, and the bearing of its varied features upon its history, its inhabitants, its industries. This kind of work had been in progress in Germany for over ten years, under the auspices of the Central Commission for the Scientific Geography of Germany. In a less systematic way we had similar monographs by French geographers. One or two attempts, mainly by teachers, had been made in England to do similar work, but the impression generally produced was that the authors had not been well equipped for the task. In England the Royal Geographical Society had initiated a movement for working out, in a systematic fashion the regional geography of the British Islands on the basis of the one-inch maps of the Ordnance Survey. It was a strange thing that the geography of the mother country had never yet been systematically worked out. Taking the sheets of the Ordnance Survey map as a basis, it was proposed that each district should be thoroughly investigated, and a complete memoir of moderate dimensions systematically compiled to accompany each sheet, in the same way that each sheet of the Geological Survey map had its printed text. It was a stupendous undertaking, that would involve many years' work, and the results of which, when complete, would fill many volumes. But it was worth doing; it would furnish the material for an exact and trustworthy account of the geography of Britain on any scale, and would be invaluable to the historian, as well as to others dealing with subjects having any relation to the past and present geography of the land.

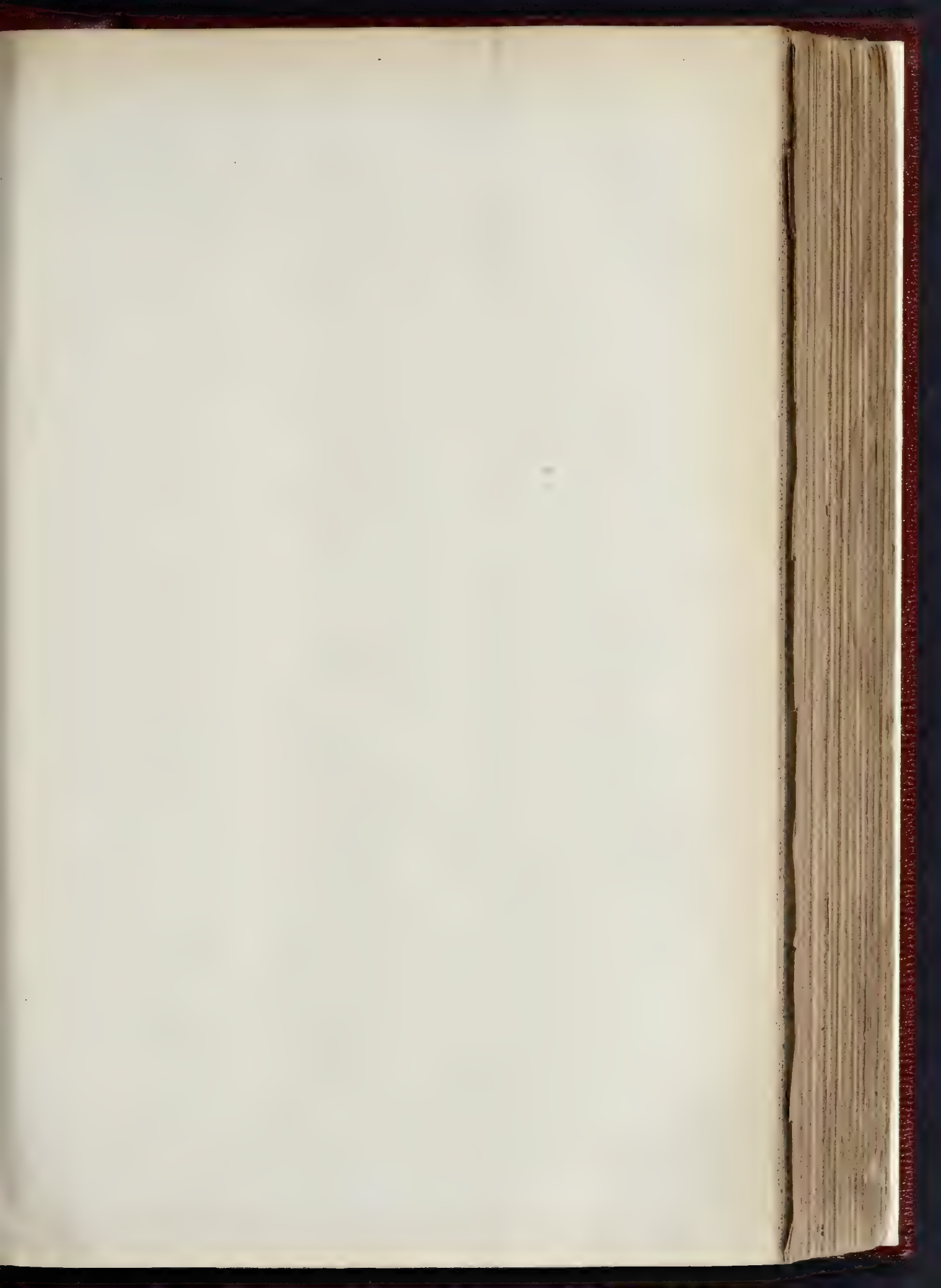
Referring then to other unexplored portions

of the earth's surface, Mr. Scott Keltie mentioned especially Southern and Central Arabia as districts almost unknown geographically; and in the map of Africa there were many spaces to be filled in between the modern lines of exploration. In South America there was really more room for the pioneer explorer than in Central Africa, while the west coast range, with its innumerable inlets, islands, and peninsulas, furnished a fine field for the geologist and the physical geographer. In the whole range of the Andes systematic exploration was required. In short, in South America there was a wider and richer field for exploration than on any other continent. Touching on the recent work done towards north polar investigation, he suggested that Canada might well fit out an expedition for aid in this direction. Antarctic exploration was more especially the task of England, but any efforts in this direction might expect to receive important support from the Australasian colonies, which had so much to gain from a knowledge of the physical condition of a region lying almost at their own doors.

Mr. G. F. Deacon, in his address as President of the Section of Mechanics, devoted a great deal of his attention to the question of the training of engineers. The greatest men among the engineers and inventors of the latter part of the eighteenth century and the first half of the nineteenth century were brought up in pursuits quite distinct from the work of their after lives. There were scarcely any means whatever, beyond the original thought and dogged perseverance of the worker, by which those men could attain the knowledge they used with such effect. Men of no less exceptional parts were among us now, but the whole environment of their early work had changed. We had given to the exceptional man a starting point of knowledge which, wisely used, lifted him as high above our heads as of old, but we had given to the average man a comparatively easy means of attaining the same knowledge. Of those who entered the business or profession of the engineer, the enormous majority were not born engineers, and could not, in the nature of things, hope for success unless they took advantage of the best facilities open to them—and from the multitude of facilities how were we to choose? The born engineer would stand head and shoulders above the rest whatever we might do with him; but in order that his energies may be rightly directed at the start, he, too, should have the advantages of that systematic training which to his less gifted brethren was becoming more and more absolutely essential to success. "At the time I began practice," said Mr. Deacon, "the majority of young engineers were left entirely to their own devices so far as the attainment of any scientific knowledge was concerned. As pupils or apprentices, articled or not, they entered an engineer's works or office; for a certain number of years they had the run of the place and some encouragement if they worked well, but it could not, in the nature of things, amount to much more. This was a very necessary, perhaps the most necessary, element of their training; but except to the few who were so constituted that with little or no guidance they could supplement their practical knowledge with the study of principles elsewhere, it was entirely ineffectual in the production of that well-balanced attitude of mind which any person who properly assumes the name of an engineer must hold towards every engineering problem, great or small, which he is called upon to solve. And so strongly have I felt this that in the earlier days, when there were fewer schools of practical science, and when their utility was little understood, I required, wherever the matter was under my control, the insertion into the articles of apprenticeship of a clause by which, at some inconvenience to the office, the pupil was required to attend two sessions at the science classes of Glasgow University, or at some other approved school of practical science; and without this condition I declined to take the responsibility attaching to the introduction into the profession of men who, in their earlier careers, from no fault of their own, had not even acquired a knowledge of what there was to learn, much less of how to learn it. More recently this course has generally become unnecessary; for in Westminster, at least, the young engineer rarely enters an office until he has acquired some knowledge of what he has to learn. He enters, in short, at a much more advanced age than formerly. When it is essential that he should be earning something soon after he



NOTTINGHAM ARCHITECTURE: THE PRUDENTIAL ASSURANCE COMPANY'S OFFICES (MR. A. WALLACE & SONS, R.A.S.)



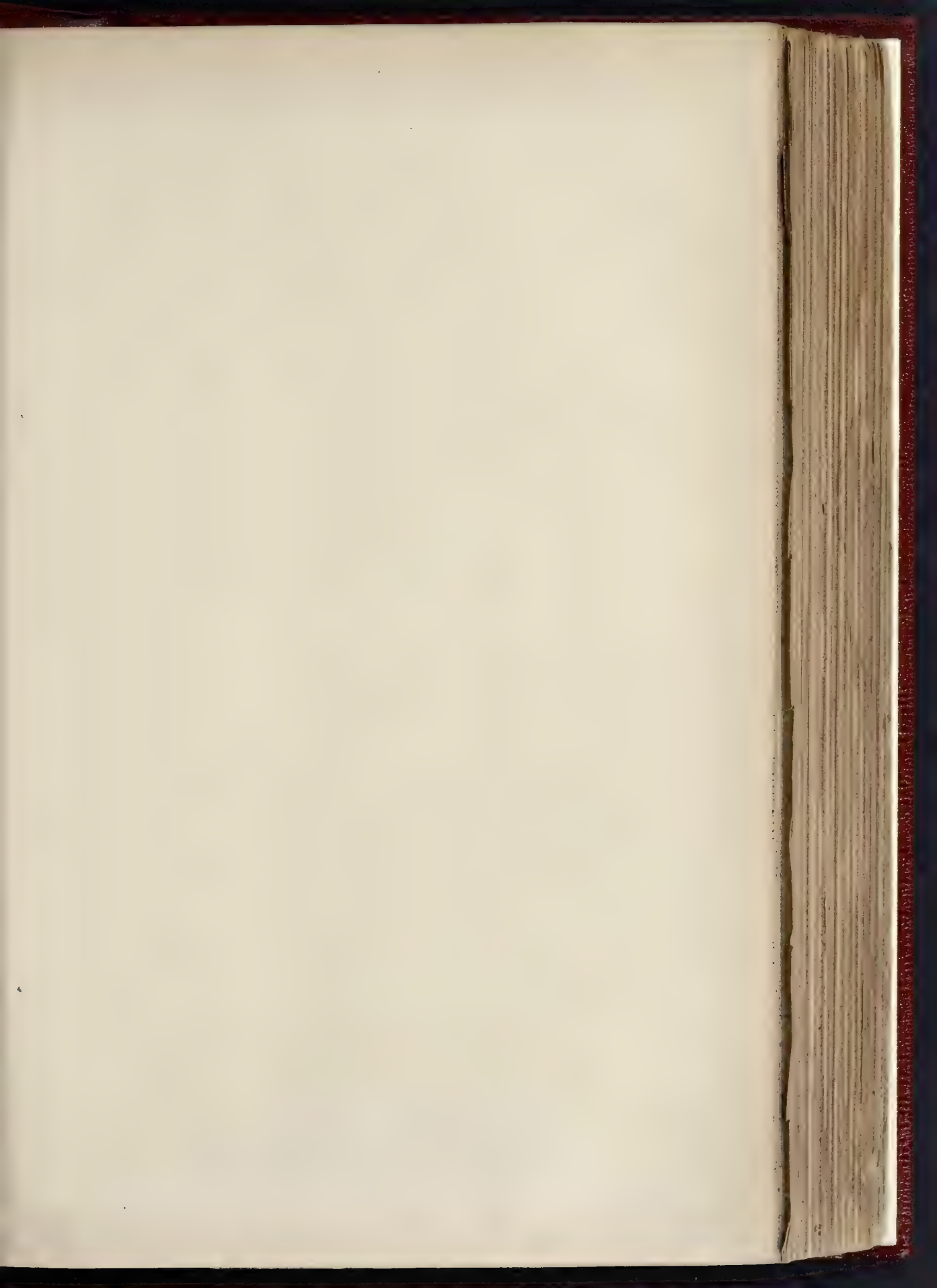
THE BUILDER, AUGUST 28, 1897.



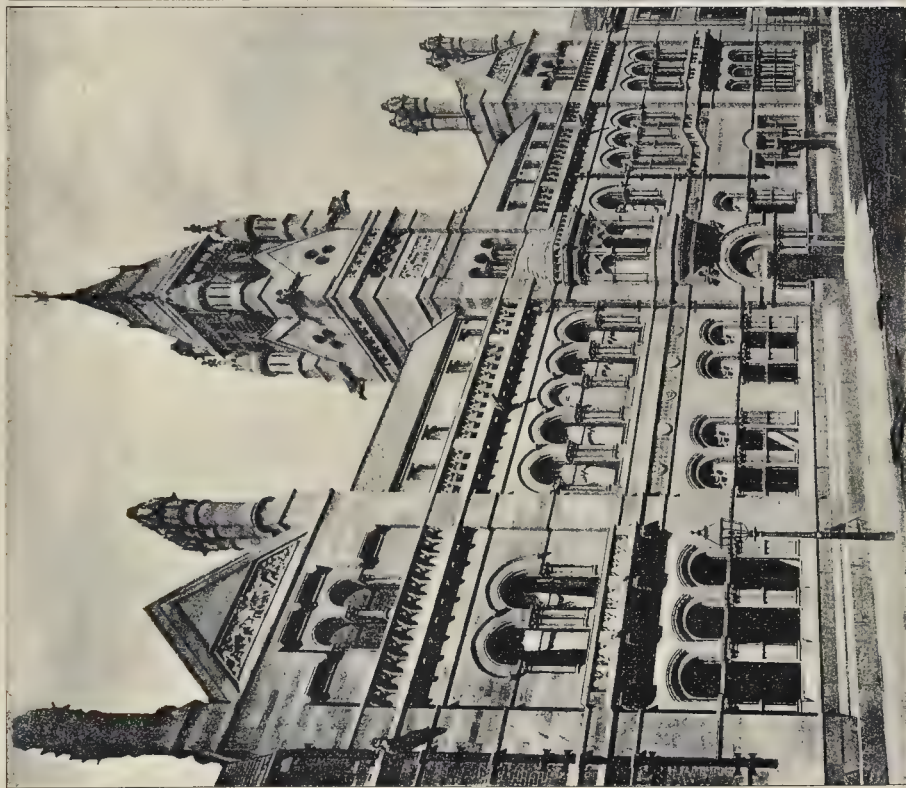
NOTTINGHAM ARCHITECTURE: THE GUILDHALL (VERITY & HUNT).



NOTTINGHAM ARCHITECTURE: UNIVERSITY COLLEGE (LOCKWOOD & MAWSON, with late additions by Mr. HEAZELL, F.R.I.B.A.).



THE BUILDER AUGUST 28 1897



NOTTINGHAMSHIRE BANKING COMPANY'S OFFICES (MR. WATSON FOTHERGILL)



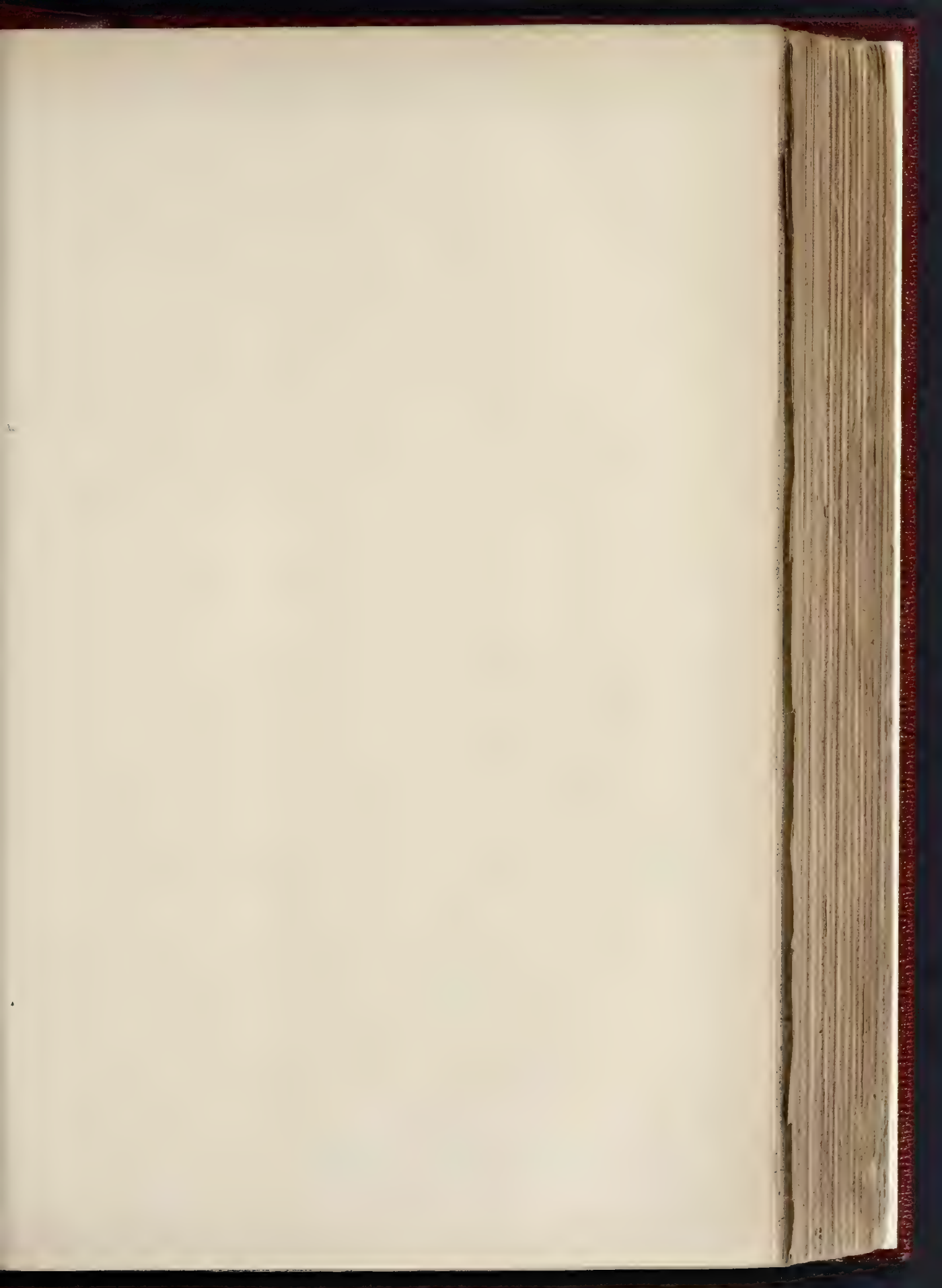
"DAILY EXPRESS" OFFICE (MR. WATSON FOTHERGILL)

NOTTINGHAM ARCHITECTURE



Engraved by J. H. P. & Co. London. Published by J. H. P. & Co. London. New York.

NOTTINGHAM ARCHITECTURE A STREET IN NOTTINGHAM





ST. CATHARINE'S CHURCH (MR. R. CLARKE).



INA PHOTO SPACE & C. 4A'S EAST HANDE & RILEY TESTER LANE E.C.

WAREHOUSES, MIDDLE PAVEMENT (MR A N BROMLEY, F.R.I.B.A.)

NOTTINGHAM ARCHITECTURE



NOTTINGHAM ARCHITECTURE: HIGHER GRADE SCHOOLS, HIGH PAVEMENT (MR. A. N. BROMLEY, F.R.I.B.A.)

NEW YORK: J. H. B. DEL. 1845. PRINTED BY J. H. B. DEL. 1845.

comes of age, anything like a complete training is an impossibility; his work ceases to be general, and his practice is more or less confined in a much narrower sphere than need be the case if the pursuit of further knowledge continues to be his chief duty. But whatever course his circumstances may permit him to adopt, the difficulty of gaining the required knowledge in the time available is a serious one. . . . For the sake of a technical training to follow, this school education is often unduly curtailed, to the great after-grief, in very many cases, of the successful engineer, and not infrequently also of the less-successful engineer, who, in some phases of his professional career, has been only too keenly alive to the self-reproach and sense of inferiority which want of thoroughness or of time, or of both, at school has brought upon him."

Passing on to details of engineering education, he asked—"Are we not in some cases attempting at too early a stage the teaching of subjects instead of principles? Complete subjects, I mean, including the practical working of details which will become the regular study of the student in the office or works of an engineer. It certainly seems to me to be so. I do not say that subject training of this kind at college may not be useful; but we have to consider whether it does not, for the sake of some little anticipation of his office work, divert the attention of the student from the better mastery of those principles which it is so essential for him to grasp at the earliest possible time, and which do not limit his choice in the battle of life to any branch whatever of the profession or business of an engineer, but which, on the contrary, qualify him better to pursue with success whatever branches his inclination or his opportunities or his means may suggest. Not one in a hundred of us can hope to emulate the careers of exceptional men in our profession, but it is sometimes useful to observe those careers, and whenever we do so we find the very reverse of specialisation. The minds of such men are impregnated with the fundamental principles which we may call the common law of our art; it has happened that their practice has been large in certain branches, and small or wanting in certain others, but in any it would have been equally successful. Of no class of men can it be said with greater truth than of engineers that their standard should be sound knowledge of the principles of many things and of the practice of a few."

In regard to the physical and mental training gained laboriously, and somewhat wastefully, at the joiner's bench, in the fitting and turning shops, the foundry and the forge, during the whole course of mechanical engineering apprenticeship, he was convinced that the kind of knowledge which comes of thoughtful chipping and filing and turning and forging, though only applied to a few of the materials with which in after life the engineer has to deal, was quite as important as tables of density and strength to his future sense of rightness in constructive design. The use of such work was not merely to teach one the parts and combinations of any particular machine; in a still higher degree it was the insensible mastery of a much more subtle knowledge or mental power, the application of the senses of sight and touch and force, it might be of other senses also, to the determination of the nature of things.

On a subsequent day, in the same Section, Mr. Gaetano Lanza showed that an attempt to compute the strength of any given column by the various rules and formulæ commonly found in different handbooks, and books written by so-called authorities, would speedily reveal considerable discrepancies, not only in the formulæ, but also in the results. Hence it became a matter of importance to make a careful study of the tests that have been made, under practical conditions, on columns of such sizes and proportions as are used in construction. A summary was therefore given of the principal experiments that have been made of columns of practical sizes. The greater part of the tests contained in the list were made on the United States testing machine at Watertown, Massachusetts. (The details of these tests are published in special yearly reports issued by the Ordnance Department of the United States Government.) Diagrams were presented showing (1) the results of the tests of cast-iron mill columns; (2) the results of the tests of wrought-iron bridge columns, and also em-

pirical formulæ representing in each case the right-hand portion of the curve, which is concave upwards; (3) the results of tests of timber columns. A perusal of all the diagrams showed that, whenever the load on a column is so applied that its resultant acts along the axis of the column, the breaking load per square inch of sectional area is practically constant up to a certain ratio of length to radius of gyration, which in wrought-iron bridge columns varies from 60 to 80, and in a corresponding way in timber columns. For higher values of the ratio of length to radius of gyration the breaking strength per square inch decreases, and the law of decrease can only be expressed empirically in each case. When, on the other hand, the load on the column is eccentric, this must be taken into account in our calculations, and the greatest fibre stress should always be computed by adding the direct stress per square inch to the greatest fibre stress arising from the bending moment due to the eccentricity of the load; and the column should then be so proportioned that the total greatest fibre stress should not exceed a certain allowable fibre stress, which last must be a sufficiently small fraction of the breaking strength per square inch corresponding to the ratio of length to radius of gyration of the column. In the paper the results of the tests and the modes of computation, both for central and for eccentric loads, were treated in detail, and a discussion was given of the theories and formulæ commonly found in the handbooks which are, for the most part, based on the results of Hodgkinson's tests on small samples. Fuller attention was also called to the disagreement of these latter with the facts.

In the course of an interesting paper on "Canada's Metals," Professor Roberts-Austen made some interesting observations on the mobility of the particles of metals. Experimenting on the form of splashes of different metals, he had cast bullets of pure gold and had photographed the splashes they made when they fell into a pool of molten gold, and found that the gold splash and the splash of water or milk were identical. Further, it was shown that when a solid projectile of steel was urged against a steel armour plate with a velocity of some 1,600 ft. a second, the projectile produced in $\frac{1}{20}$ ths of a second a splash of the solid steel plate, which in turn bore strange resemblance to the fluid gold splash. Hence it was evident that solid steel really behaved like viscous fluid, and, knowing this, a valuable indication was gained as to the treatment the metal should receive to fit it for defensive purposes. A steel armour plate might, by the suitable addition of other elements, be either stiffened or made more viscous in order to meet definite conditions. Metallurgists had recognised this, for the addition of one of Canada's metals, nickel, produced some remarkable effects on steel and enabled it to resist the attack of projectiles. Hence the importance to the Empire of Canada's great and almost unique deposits of nickel ore. The investigations of Guillaume on nickel steels were then referred to. It was shown experimentally that steel containing 22 per cent. of nickel expands more when heated than ordinary steel does, while steel with 37 per cent. of nickel hardly expands at all, so that a variation of 15 per cent. of nickel in steel entirely changed the nature of the material. As an example of the extreme mobility of solid metals it was shown that metals will diffuse into each other even when solid, just as gases diffuse into each other, though, of course, with much less rapidity. The experiments shown taught that metals even when solid were not the inert things they were supposed to be, they were really vibrating masses of great complexity.

Professor Milne gave a public lecture on "Earthquakes and Volcanoes;" much of the information given as to seismometry is familiar to our readers; we may quote his description of the causes of earthquakes: after mentioning some of the superstitious ideas of early ages, or of the popular mind of the present day (one or two extraordinary instances of which were quoted), Professor Milne continued:—"The nineteenth-century belief respecting earthquakes is that they are the result of rocky strata being bent—as in the process of mountain formation—beyond the limits of their elasticity. Wherever rocky masses are being folded there we get earthquakes. If these foldings are near an ocean, by capillary action water soaks inwards, a steam pressure is created, and the magma of molten rock and water from time to time finds an exit and we get displays

of volcanic activity. The reason that rock folding exists is that the crust of our earth is not sufficiently strong to support itself above a nucleus which is gradually growing smaller by loss of heat. That which is happening on the surface of our earth is similar to that which would happen to an arch of brickwork of enormous span when the supporting centering was withdrawn. Imagine such an arch supported on a centering carried on piers across Lake Ontario, and then let the supports be gradually removed. The arch would sink, crack, and buckle into ridges as it accommodated itself to the span between the piers. Each crack would represent a geological fault; when it was created the sudden snap would be an earthquake, whilst the hummocks and ridges would correspond to continental elevations and mountain ranges." In regard to the practical aspect of seismology, Mr. Milne observed that instruments which record the unfelt movements of the earth's crust sometimes tell us that cable interruption is due to earthquake action so far from land that it cannot be felt by those on shore. "For want of information of this description in 1888, when three cables connecting Australia with Java were fractured simultaneously, in the former country naval and military reserves were called out, the supposition being that their sudden isolation indicated an operation of war. When it is remembered that this is by no means the only time a British colony has been suddenly cut off from communication with the rest of the world by the breaking of cables, the importance of being able to say whether such interruptions have been brought about by natural or by artificial means cannot be over-estimated."

The practically important subject of world-time or universal time was treated in a paper read before one of the sections, but we regret to have seen no report of it beyond a mere mention that it was read.

In the Mechanics' Section Mr. Aldridge read a practical paper on Electric Tramways. Referring to the objects to overhead wires as being "mainly æsthetic," he admitted, however, that their increasing prevalence could not be overlooked, and that there was therefore incentive to the genius of invention to make improvements in other directions. What was wanted was a cheap and safe ground or conduit system. He concluded by describing his own, in which the continuous overhead wire was done away with, the car itself carrying a short length of wire overhead, and a series of pillars and studs in the roadway feeding the current to the car. The length of the car wire was such as to bridge over the gaps between the studs and pillars. The studs were only live while the car was over them, thus obviating any danger to the ordinary traffic. The current was conveyed to the studs and pillars by an armoured cable buried underground.

The British Association will meet next year at Bristol, and in 1899 at Dover.

The quotations in the above notes are taken from the report in the *Times*.

MANCHESTER SHIP CANAL.

THE following is the Chief Engineer's report as to works executed during the past year:—

"Dredging operations have been carried on in the different sections of the canal without cessation during the last half-year. The quantity of silt brought into the tidal section has been diminished by the closing of the tidal openings, but there does not appear to be any decrease in the quantity of sewage sludge deposited in the upper portions of the canal and in the docks. The closing of the tidal openings was completed in February. No tidal water now flows into the canal except through the locks at Eastham. The wharf at the Warrington Dock entrance and the railway in connexion therewith have been completed and (with the exception of the transporter) are in use. The reconstruction of the upper gates of the 65 ft. lock at Latchford has been completed, the temporary steel gates removed, and the permanent gates fixed in place. The repairs of the damage occasioned by the s.s. *Harold* on April 10, 1895, have thus been completed. A new wharf, 700 ft. in length, with storage accommodation in the open, and railway connexions, has been constructed on the north side of the canal at Irwell Park, Eccles. Immediately above this wharf a jetty is being constructed by the Anglo-Caucasian Oil Company in connexion with the works which are being erected by them for the

storage and distribution of oil. A railway junction with these works, which will form part of the main through line to the docks is being formed. The construction of the cold air stores for the Colonial Consignment and Distributing Company, Limited, on the north side of the canal at Weaste is in progress.

On the south side of the canal below Mode Wheel Locks, wharves and jetties are being constructed by the Liverpool Storage Company, Limited, Messrs. Bagnall & Co., and the Gas Committee of the Manchester Corporation, for dealing with oil in tanks. In the Manchester and Salford Docks the works required for the extension of Trafford Wharf and for the additional floors at the three-storey sheds are proceeding. The work in connexion with the foundations for the grain elevator at Trafford Wharf is being pushed forward day and night. Additional railway sidings at Mode Wheel and other extensions of the Dock Railway have been completed. Several other extensions of the railway system are being carried out. Two new four-wheeled coupled locomotive engines have been delivered at the docks, and are now in constant use. Five new locomotive steam cranes are being constructed, viz.:—Three 3-ton and two 7-ton. Two of the 3-ton cranes have been erected and are at work.

The slopes of the Canal generally are in good condition. The works throughout the Canal have been efficiently maintained, and are in good order."

ARCHÆOLOGICAL SOCIETIES.

BUCKS ARCHÆOLOGICAL SOCIETY.—The members of the Bucks Archaeological Society recently visited Leighton Buzzard. Mr. John Parker accompanied a party of thirty on a trip to Blechley, Newton Longville, and the Brickhills. At Newton Longville he offered a few remarks upon the ancient Clunian Priory once existing here, and upon the manorial history of the parish, and inside the church he read some notes upon the building which had been drawn up by the Rector (the Rev. H. C. Blagden). The heads and figures in the chancel, it was stated, were probably the work of some local mason; several of them being, perhaps, caricatures. He thought the chancel arch dated from the early part of the twelfth century. The opening in the north wall of the chancel had been used either as a ciborium or ambrey. Some old tiles preserved near the pulpit were found in the church in 1881. Some time was spent at Blechley Church, and afterwards the annual business meeting was held, the Rev. E. D. Shaw, vicar of Wycombe, presiding. The report, presented by Mr. Cocks, stated that Mr. James Rutland, of Taplow, a member of their Society, had offered them some of his collection of palæolithic stone implements. Afterwards the party drove to Little Brickhill, where they were entertained by the Vicar and Mrs. Banting, and the former read a paper on the antiquities of the Brickhills.—*Bucks Advertiser.*

COMPETITIONS.

NEWCASTLE NEW INFIRMARY.—The conditions of competition and instructions to architects for plans for the new Royal Infirmary, Newcastle, have just been issued. Amongst the more important items contained in them are the following:—The competition is limited to thirteen architects, who are requested to send in designs for an infirmary containing 400 beds, complete in every respect and standing on the site, a plan of which is furnished to the competitors. It may be necessary to retain for the present the part of the hospital known as the Dobson wing, containing about 146 beds; but the plans must provide for the eventual removal of this wing, and its replacement by equivalent accommodation corresponding with the rest of the hospital, and must show how it is to be utilised in the meantime, so far as its ward arrangements are concerned. It will be necessary to construct the new building step by step, and so as at all times, if possible, to maintain during the construction, not less than the present number of 270 patients' beds, and the necessary accommodation for the working staff at present residing in the hospital. The accommodation for nurses as required in the schedule, though it may be necessary to place it under the same roof as the rest of the building, must be, with the exception of the dining halls and ward sisters' rooms, separated from the working part of the hospital. Special care must be taken to preserve

as much open space as possible between the buildings, and to arrange the pavilions so that the intermediate space lies, for the most part, open to the south east. The principal large wards must be built upon the pavilion system, each bed having a window on either hand. The proposed system of drainage (for surface water and for water from lifts as well as sewage) must be shown on a plan, with gullies, traps, inspection shafts, and ventilators. The sum at the disposal of the committee for the new building, exclusive of that part which shall eventually be substituted for the west wing, is, up to the present time, 100,000l. An estimate must be given of the price per cubic foot at which the designer estimates his building and the entire cost so arrived at. To the author of the design, which, in the opinion of the committee and assessor, is most worthy of it, will be awarded the work of carrying his design into execution at the usual commission of five per cent. This five per cent. commission shall be in payment in full for all services usually rendered by architects. To the authors of the three designs which, in the opinion of the committee and assessor, are next in order of merit, will be awarded the respective premiums of 150l., 100l., and 50l. The committee reserve to themselves the right to adopt any feature from any of the premiated designs. No distinguishing mark, motto, or device is to be put on the drawings, description, statement, envelope, or case, by the competing architects or their agents. The designs will be submitted to Mr. Alfred Waterhouse, R.A., who will advise the committee in their selection.

ARCHITECTURAL SOCIETIES.

DEVON AND EXETER ARCHITECTURAL SOCIETY: PLYMOUTH BRANCH.—By permission of the Earl of Mount Edgcumbe, the members of the Plymouth, Devonport, and Stonehouse Branch of the Devon and Exeter Architectural Society visited Cotehele House recently. The members carefully inspected the house, which is an example of a Tudor mansion, built in the reign of Henry VII. The furniture in the rooms, the collection of silver, brass, and Delft utensils, the old ecclesiastical furniture in the chapel, and extensive tapestries were much admired, as was also the arched timber roof over the great hall.

Correspondence.

To the Editor of THE BUILDER.

REJECTION OF LOWEST TENDERS.

SIR,—Whatever may be the certainty, or the uncertainty of the law, or of judicial decisions, there is certainly a great diversity of opinion upon this subject. I cannot quote cases now, but years ago there were one or two cases in which a builder obtained damages for the cost of his estimate, when his "lowest tender" was not accepted. In one instance a claim was made successfully on account of what might be supposed to be his amount of profit upon the work, had it been carried out by him.

If you invite certain builders to tender, you invite them all upon equal terms, and it is an implied intimation that you consider their character and their competency such as to justify your employment of any one of them, on the condition of his amount of tender being below that of the others. Supposing no special unfitness to appear against him, such as, if false, would constitute a libel, the lowest would be entitled to the contract; as also, on the other hand, he would equally lie under obligation to carry it out, notwithstanding that he might allege to have discovered some miscalculation in it.

On several occasions I have been obliged to resist the expressed wish of an employer or of a committee to allow a builder to revise his estimate after receiving and opening his tender. To speak plainly, it is a dishonourable act to set aside a man who has fulfilled openly and honourably the conditions submitted to him—presumably issued to all alike—in favour of another competitor who may happen to be better known or respected; or in whom some of those concerned may have a personal interest.

If architects should condescend to give their sanction to a dishonourable transaction, it is hopeless to expect builders to do much credit either to their mode of transacting business, or to the execution of their work; to say nothing of their integrity.

Whether the amount for cost and trouble in preparing an estimate be included or not in the amount of tender, or taken as a debit in the year's trading account, a due allowance must be supposed to be made against all ordinary risks involved. But it is absolutely impossible to make any fair allowance

against extraordinary risks of being treated in a mean and dishonourable manner.

Only a few weeks ago it was suggested that I should invite two or three others to tender for a small work in order "to keep down the price" of a local man, who was to be employed—not if he were the lowest, but if his tender were "reasonable." In other words, apart from the legality of such an act (we have long discarded its use for sills of window-frames, and have substituted teak. This wood lies perfectly still in its original position without warp, twist, or shake, and is extremely resistant to the ravages of weather and time. Indian (Moulmein) teak is better than African, but when you specify the former, be sure you get it. If the money can be afforded it is better to have the pulley stiles also of teak. If the cost of teak "outweighs ability" then it is best to put good quality dense clean yellow deal from some of the Northern ports, cut quite free from sapwood. Dantzie deck deals, if they can be got thick enough, would cut up excellently for window sills.

WILLIAM WHITE, F.S.A.

. What ought to be done is one thing; what the law allows is another. We merely stated, in our note to the letter in our last, what was the state of the law, for which we have much better authority than that of Mr. White, who is not a lawyer.—ED.

DANTZIC OAK FOR WINDOW SILLS.

SIR,—On account of the troubles arising from the use of oak, as mentioned in his letter by "G. T. H.," we have long discarded its use for sills of window-frames, and have substituted teak. This wood lies perfectly still in its original position without warp, twist, or shake, and is extremely resistant to the ravages of weather and time. Indian (Moulmein) teak is better than African, but when you specify the former, be sure you get it. If the money can be afforded it is better to have the pulley stiles also of teak. If the cost of teak "outweighs ability" then it is best to put good quality dense clean yellow deal from some of the Northern ports, cut quite free from sapwood. Dantzie deck deals, if they can be got thick enough, would cut up excellently for window sills.

A. & C. HARSTON.

SIR,—Oak of any kind is not good for window-sills, and is still less suitable for window-frames. It is almost sure to twist more or less. The late Mr. Joseph Clarke, F.S.A., used oak in 1879 for a window in the tower of St. Bartholomew's Church, Lostwithiel, Cornwall, and the stuff twisting, not long afterwards, broke all the glass.

Teak may always be used for window-sills and frames with perfect safety. It does not "go" in the least, and, when oiled, tones down into a particularly nice colour.

"G. T. H." is mistaken in assuming it is very difficult to get dry English oak. I could name readily a dozen well-established provincial firms who will gladly supply all that may be required. It is probable, however, that no London timber merchant keeps it in stock nowadays; and in ship-building the demand has almost died out. I saw, however, a couple of rather large brigs on the stocks, built entirely of sturdy (French) oak, so recently as yesterday at St. Servan, in Brittany.

August 24. HARRY HEIMS.

"USE OF SLATES IN LONDON."

SIR,—We notice there has been no reply to F. F. G.'s inquiry in your issue of July 31. We find in "Casell's Popular Educator" (published, we think, in about 1873 or 1874) the following:—

"The mean, low houses of the people were little more than huts, and even in the capital the dwellings of the citizens in the twelfth century were mere sheds of wood, one or two stories high. So frequently were these buildings swept away by fire, that, at the close of that century, it was thought necessary to enact that in future the lower story of all habitations in the City of London should be built of stone, and that the usual thatched roof should give place to tile or slate."

We conclude that slates must have been used in London, or, at any rate, they were known as a building material, towards the end of the twelfth century. This was, however, a surprise to us, as we did not think they were even used, except, perhaps, in the neighbourhood of the quarries, so early.*

Mr. Stotham, senior, the legal representative of the founder of our firm, has repeatedly told the writer that when Mr. Roberts came up to London from Wales at the beginning of this century, he had a post under one of the municipal authorities, and came on the idea that there was a good market for Welsh slates, and, being well in touch with the Welsh quarry managers, made arrangements to import slates; and as he undoubtedly had but little, if any, competition in those days, we think the impression we are under, that this was the commencement of the regular use of slates for roofing purposes in London and district, is likely to be well founded. Doubtless slates from quarries in Westmoreland and Cornwall were used occasionally before Welsh slates were regularly brought to London.

ROBERTS, ADLARD, & CO.

PULPIT, & C., PENSAH CHURCH, WORCESTERSHIRE.—An oak pulpit on a stone base has just been added to this church, and an oak lectern; both are memorial gifts in memory of a former Vicar, and are designed by Mr. A. H. Skipworth. A new two-light window, by Messrs. Heaton Butler & Bayne, has also been put up in the church, the subject being the call of St. James and St. John.

* We fear that "Casell's Popular Educator" can hardly be accepted as an authority as to what happened at the close of the twelfth century.—ED.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER VI.—MASONS' WORK.

Stone Dressings.

BET was frequently the practice in times past to allow in the measurement 1 in. each way beyond the net size of the stone to allow for waste, but the usual practice at the present time is to take the measurement of the stone *net*, the smallest size of the block out of which the work can be obtained, and this fact should be stated in the heading.

One system of measuring is to describe the stone as including *all labour*, keeping the various items separate, according to the labour on the stone under various headings, as doors, windows, cornices, &c., and subdividing as in jambs, heads, sills, arches, &c., describing as "sunk," "moulded," "sunk and moulded," &c., generally at *per foot cube*, but with various items, of which there is any quantity of a similar character, as strings, sills, mullions, transoms, &c., at *per foot run*.

It is sometimes a good plan in following this system to give sundry sketches in the margin of the bill showing the character of the work. The one drawback to this system is the difficulty of properly subdividing the work so as to really give the contractor the exact amount of labour, thus making the items of a somewhat "sporting" character, a state of things that it is the object of a good bill of quantities to avoid. Another disadvantage is the difficulty in the case of any large variation, of arranging under which heading the new items should be placed. It is evident that, taking all things into consideration, the best system is the older one of measuring the stone as a rough block, and taking the labour in detail as will be hereafter explained.

Any stone under 3 in. thick should be measured at *per foot superficial*, and if any of the work is in very small pieces keep this separate and make a note of the fact in the item.

If any stones are hoisted more than 40 ft. above the ground take an extra item for this, giving the heights at 20 ft. intervals thus, "40 ft. to 60 ft.," "60 ft. to 80 ft.," &c.

Keep all stone over 6 ft. in length separate and describe as in "scantling;" if much in excess of 6 ft., state the length. Should any stones be more than 6 ft. in more than one direction, mention the sizes of the stones thus, feet cube stone in ft. by ft. by ft. State whether stone is set in mortar or cement. It is a good plan when one has not a detailed set of drawings to measure from, and where the surveyor has to settle the beds of the stone-work himself, to make a rough tracing of the elevations and mark the jointing on them, numbering each block in succession, these numbers to correspond with those against the items in the dimensions as measured; this will be found of incalculable value for future reference in the event of questions being raised. The aforesaid tracing being attached to the dimensions to be at hand when wanted.

In the cases of strings, cornices, &c., where the jointing is not shown, for the purposes of measurement calculate the stone to be in lengths of 3 ft.

The following is the mode of measurement when the stone is taken as rough block with the labours on same measured separately.

Describe in the heading the finish of the face work, whether "rubbed," "dragged," or "chiselled," or any other finish that the architect may specify:—

Stone per foot cube.—Describe as stone (no labour) including waste hoisting and setting in mortar (or cement).

Beds and Joints per foot superficial.—Take the bed and one joint to each stone and describe as "one face measured for two," or twice the item, and make a note "each surface measured."

Circular Beds and Joints, per foot superficial.—Take this to the backs of voussiors and any beds or joints to convex shape where these are not exposed. The portions exposed will be circular plain face, as hereafter described.

Sunk Beds and Joints, per foot superficial.—Take this wherever the joints are sunk back from square of the stone, such as to the springers of a gable coping or the joints to arch stones.

Circular Sunk Beds and Joints, per foot superficial.—Take this to soffits of voussiors and any beds or joints to concave shape where not exposed.

Half Sawing, per foot superficial.—Take to

the back of the stone where not exposed an item of half sawing except in those cases where the stone is of such a description that sawing is not practicable; in this case take "rough work to backs next brickwork, &c." "Half sawing" is also taken to the front of the stone as a preliminary labour for moulded work, &c.

Plain Face, per foot superficial.—Take this on the exposed face of the stone. If this labour occurs on a surface for which "bed" or "joint" has been previously taken, deduct this surface from "bed" or "joint," or "half bed" or "half joint" according to the system followed in measuring the beds and joints.

Circular Plain Face, per foot superficial.—Take this to the backs of voussiors where exposed and also to those stones wherever the face is circular to convex shape.

Circular Circular Plain Face, per foot superficial.—Take this where the surface is circular, both on plan and section to convex shape, such as the exterior of a dome.

Sunk Face, per foot superficial.—Take this when any part of the exposed face of the stone is sunk below the general surface, such as weatherings, splay, &c.

Circular Sunk Face, per foot superficial.—Take this to any of the last items where the work is circular and also to soffits of arches where exposed and any circular work of a concave form.

Circular Circular Sunk Faces, per foot superficial.—Take this where the surface is circular both on plan and section to concave shape such as the interior of a dome.

Stopped Sunk Faces, per foot superficial.—Take this where the work described as sunk face does not run through, but is "stopped" as at an internal angle or stop.

Circular Stopped Sunk Faces, per foot superficial.—Take as a variation on "circular sunk face" as last described.

Moulding, per foot superficial.—Taking the girt of the moulding by the length.

Circular Moulding, per foot superficial.—Take on arches, circular pediments, also cornices, &c., circular on plan, &c.

Circular Circular Moulding, per foot superficial.—Take this where the mouldings are circular both on plan and elevation as to an arch in a circular wall.

Stopped Moulding and Circular Stopped Moulding, per foot superficial.—Take this where the moulding does not run through, but is stopped as at an internal angle or stop. Note.—That in an "undercut" moulding the work at all angles, both external and internal, will be "stopped."

Rough Sunk Work, per foot superficial.—If the moulding or sunk face is much sunk below the surface of the stone, take this as a preliminary labour. Some surveyors, however, make a note that "all labour to sunk and moulded work includes all preliminary labour."

Bosting for Carving, per foot superficial.—Take this over the rough outline of the shape of the carving.

The following items are measured at *per foot run*.—Plain faces under 4 in. wide; throats, grooves, sinkings under 4 in. wide; mouldings under 6 in. girt; burning in lead flashings (Note.—Groove is generally included with this); working running ornaments, dentils, &c. (Note.—Give sizes of dentils and the width apart); keeping "circular" and "stopped" work separate, as described for the superficial measurements.

Items Billed as Numbers.—Short lengths of sinkings, &c., described to be measured at *per foot run*, are generally numbered when less than 12 in. in length, the lengths averaged and described as stopped one or both ends, as the case may be. Stops, mitres, &c., to sinkings and mouldings, the widths and lengths averaged—describing stops as plain, splayed, or moulded, or against plain face, splayed face, or moulded face, as the case may be. In addition to the foregoing, perforations, as for flues, rain pipes, &c., are numbered, giving the sizes and the thickness of the stones through which the perforations are cut.

Take double cement plugs, where required, to vertical joints (giving the lengths, which are "averaged" by the abstracter), also slate dowels, copper cramps (size and lengths); also lead plugs for screws, letting in and leading ends of railing bars, fangs of hinges, bolt sockets, and all sundries in connexion with the stonework.

Working corbels, modillions, crosses, &c., are taken as an "extra labour." In these cases sketches are advisable, to give the contractor some idea as to the labour involved.

Carving.—As this is not an item for a competitive price, and as architects usually select a special carver to do the work, the best plan is for the surveyor to make a separate bill for the carving, describing the position to enable the work to be traced upon reference to the drawings, and before the bills go to the contractors to get a price for this from the carver. This price is then billed as a "provisional sum," and a note made to the effect that the contractor is to allow the use of all scaffolding, &c., for the carver. In the carver's bill make it clearly understood that the work is to include all models. Diaper work and surface ornament in any large quantity is measured at *per foot superficial*. Running ornament in strings and cornices *per foot run*, whilst corbels, spandrels, caps, &c., are numbered giving the extreme sizes.

ITEMS MEASURED AS INCLUDING STONE AND LABOUR.

Ashlaring, per foot superficial.—Give the average bed, and state the proportion of through stones (if any) in addition. The extra for these through stones is sometimes measured at *per foot cube* as before described, thus leaving the description of the ashlar to cover only the average general bed.

Take raking and circular joints in ashlar at *per foot run*.

Block Walling, per foot superficial.—To be measured as such, giving the thickness where the wall is entirely composed of dressed block stone, i.e., where there is no core or backing. Raking and circular joints in this are measured at *per foot run*.

Filling into Cells of Groining, per foot superficial.—Stating the thickness and including the requisite centring. Take cutting and fitting to groin ribs in this at *per foot run*.

Shafts, per foot run.—To be taken in this form where under 9 in. diameter, measuring the dowels, ties, &c., separately.

Even when the stone and labour are measured in detail, keep any items where the work is in very small pieces, as in "sedilias," "reredoses," and other similar work, separate under a heading, as "the following in sedilia" (or reredos, &c., as the case may be).

WALLER.

Walling, per yard cube, if over 15 in. thick; if under this thickness, measure at *per yard superficial*, describing the stone, and also whether "rubble," "coursed," or otherwise, and describe if in mortar or cement. Keep work below ground and in foundations separate.

Facings, per yard superficial.—If of the same stone as the body of the walls, but a different finish, take as "extra over walling;" but if of different stone take as labour and materials, and deduct the walling.

Quoins, per foot run.—Take these as "extra over facing," giving the sizes and also the description of finish to face.

Arches.—Number these as extra over walling or facing as the case may be, including the cuttings.

DEDUCTIONS IN BRICKWORK FOR STONWORK.

Deduct from the brickwork all that portion of stone bedded in the walls where the stone is not less than 6 in. in height, and keep that behind the stonework separate, as in "backing," as described in "Bricklayer."

Facings to be deducted the sizes of the face of the stone in this case. Describe the facings as "including cutting and fitting to stone dressings," as there will be numerous "straight joints" in the facing next the stonework. Some surveyors measure an item of this at *per foot run*. In the case of cutting and fitting to moulded work, girt the moulding, and if more than 12 in. girt, bill at *per foot run*; if less, number these, mentioning the girt.

YORKSHIRE AND OTHER SIMILAR STONES.

Pavings, per foot superficial.—Give thickness and finish, and describe how bedded and jointed, and include with the item jointed edges.

Landings, per foot superficial.—Give thickness, describing the faces whether tooled, rubbed, or self-faced.

Corbellings, per foot superficial.—As described to landings.

Template Courses, per foot superficial.—If over 6 in. If under this width, *per foot run*.

Edges to the foregoing, per foot run.—To the back edge of a landing next a tile or wood floor take a labour of "back joint."

Take "tooled" or "rubbed" edges, stating the thickness of the stone. If moulded, give the girt of moulding.

If any edges of the stone are sunk back from

the right angle, take as "sunk," stating whether "rough," "tooled," or "rubbed," as the case may be.

If any edges are notched, take a preliminary item of "rough sunk edge," and describe the finishing labour as "stopped," and number the mitres to moulding.

Grooves, throats, &c., per foot run.—Keep "stopped" separate and also "circular."
Steps, per foot run.—State sizes and full description of labour, giving the number of faces rubbed or tooled, and stating when spandrel, and include splays and back joints with the item.

Treads and risers, per foot run.—Give particulars, as last described.

Window sills, per foot run.—Give size and full description, include weatherings and throats and any other labour with the item, and state if tooled or rubbed.

Curbs and copings, per foot run.—State sizes and full description, and include the joints. Take angles "extra" where rebated, rounded, or chamfered, as this includes working the "stop," and the extra labour working up to the stop.

Scantling lengths.—Where any stone is over 6 ft. in length, keep separate as in *Scantling length*, and if much in excess, give the length.

In landings, when over 6 ft. in length either one or both ways, give both dimensions of the stones.

The following items should be "numbered":
—Jointed ends to steps. If a step or sill is in more than one stone take two jointed ends at each joint, unless the joints are plugged, when number complete as "plugged joint." Fair ends to steps, stating if rubbed or tooled. If the joint is not at right angles with the face described as "sunk joint." Ends to sills including the stools for jambs and sloppings to throats.

Ends, mitres, &c., to copings. Mortices for dowels. Perforations for cond plates, &c. All ends of ironwork, &c. let in, and leaded, or cemented, or run with sulphur. Cramps in copings, &c. (including the cramps and the mortices and cement, or running with lead).

Templates and corbels; giving sizes and thickness, and if tooled or self-faced and noting the finish of the exposed edges.

Chimney-pieces.—Plain stone chimney-pieces are often numbered, giving the size of the openings and the sizes and finish of jambs, mantels, and shelf, and include the fixing and the cramps necessary for same.

Ornamental chimney-pieces are usually billed at a p.c. price, or a provisional amount put in the bill. Describe whether this amount includes package, carriage, and fixing with the materials for same.

OBITUARY.

PROFESSOR BURKHARDT.—We regret to record the death of Professor Jacob Burkhardt, who held the chair for Art History at the University of Basel, and whose "Cicerone" to Italy is well known to all travellers. He was the author of numerous historical works, as well as popular guide books. He died in his eightieth year.

MR. JOHN PHILLIPS, C.E.—We regret to announce the death of Mr. John Phillips, which occurred at his residence, 25, Disraeli-road, Putney. Mr. Phillips, who was in the eighty-first year of his age, had long been an inhabitant of Putney, and had taken some considerable interest in its past history. In conjunction with the late Mr. John Roe (Surveyor to the Holborn and Finsbury Commission) he laid down what are said to have been the first egg shaped sewers. In 1847 he gave evidence before the Metropolitan Sanitary Commission. The deceased threw himself with great enthusiasm into any work he undertook. He was for some time a member of the Putney Vestry, and he took considerable interest in the establishment of the Putney Vale Cemetery, where now his grave is made. At various times Mr. Phillips contributed to our columns able and suggestive letters on sanitary matters.

RESTORATION OF LLANDILO-GRABAN CHURCH, RADNORSHIRE.—The Bishop of St. David's has just reopened Llandilo-Graban Parish Church, which has, during the last twelve months, been restored. The architect selected to carry out the renovation was Mr. Ernest Collier (Carmarthen), and the building contract was secured by Mr. Morgan (Erwood). The chancel and the nave have been completely restored, but the restoration of the old tower has yet to be commenced, and the bells hung. The church has been re-slatted, and new flooring laid down—a block floor in the nave, and a mosaic tile floor in the chancel. Modern seats also take the place of the old-fashioned high pews. The sitting accommodation of the church is about 200. The windows were put in by Messrs. E. J. Nott & Co., of Brecon.

GENERAL BUILDING NEWS.

ADDITION TO ST. JOHN'S SCHOOL, ALNWICK.—The following tradesmen have been accepted for the additions to the Roman Catholic School premises in Howick-street, Alnwick:—Masonry, Messrs. M. & J. McDermott; carpentry and joinery, Mr. Chas. Nettleship; plumbing, Messrs. Wilkin & Dickson; slating and plastering, Mr. Thos. Wood; painting and glazing, Mr. James Wallace, all of Alnwick. Mr. M. Temple Wilson is the architect. The new infant school is 30 ft. long and 20 ft. wide, and will accommodate seventy-four infants. The height will be 14 ft. The floor will be laid with pitch pine blocks on concrete, and the walls will be lined with white glazed bricks.

STEAM LAUNDRY, BEXHILL.—This establishment has been erected at Belle Hill, Bexhill-on-Sea. Messrs. Riches & Gray were the architects, and Messrs. W. H. Sanders & Co. were the contractors. The building has a frontage of 60 ft. to Belle Hill, and the depth of the site is 110 ft. It is a red brick building, with stone dressings, and has a chimney 70 ft. high.

CATHOLIC SCHOOLS, LKESTON.—A new Catholic school is being built at Ilkeston to accommodate 150 scholars. Mr. J. Hart, of Corby, Grantham, is the architect, and Mr. A. B. Clarke, of Nottingham, the contractor.

TECHNICAL SCHOOL, BILSTON.—The new Technical School erected on the Willenhall-road was opened at Bilston recently. The plans were prepared by Mr. C. Wilson, Town Surveyor, and the builder was Mr. T. Tildesley, of Willenhall. The school comprises lecture and examination rooms, fourteen smaller class-rooms, workshops, and laboratories.

VICTORIA JUBILEE TECHNICAL SCHOOL, PRESTON.—This building, which is approaching completion, is being erected in Corporation-street, Preston. The joint architects are Messrs. Cheers & Smith, Twickenham and Blackburn, with Mr. James Aspinall, Blackburn. The style is Gothic, and the main frontage is in Corporation-street. It is three stories high, and 150 ft. in length, surmounted by a small turret. The frontage in Edward-street leads direct to the lecture theatre on the first floor. The building is constructed of Accrington red brick with ornamental Cullingsworth (Yorks) stone dressings. The Borough arms are carved on a panel above the main entrance. The building is roofed with green slate. Mr. James Smith has acted as foreman of the works, and Mr. F. Pye is the clerk of the works. The following have carried out contracts:—Principal contractor, Mr. John Walmesley, Preston; ironwork, Messrs. Stephenson & Co., Preston; stonework, Messrs. D. Pullis & Son, Preston; hot water supply, Mr. J. Metcalf, Preston; mosaic tiling, Mr. Macfarlane, Leeds; slating, Mr. J. Bradshaw, Preston; plaster work, Mr. William Crook, Preston; fans, the Blackman Ventilating Company; lead lights, Messrs. Seaward & Co., Lancaster; glazing, Messrs. Heywood, Huddersfield.

ENLARGEMENT OF COTTAGE HOSPITAL, EPSOM.—The cottage hospital at Epsom is being enlarged by the addition of two wings. The architect is Mr. J. R. Harding, who designed the original building, and the building work is being carried out by Mr. Kendall, of Ewell.

SCHOOL, KILSYTH, N.B.—The Burgh School Board have accepted and passed plans prepared by Mr. Hay, architect, Glasgow, for the erection of a new school for the secondary department at a probable cost of 6,000l., and capable of accommodating 600 pupils. The building is to be two stories in height, and is to be built near the present Academy School, and adjoining Shuttle-street.

CHURCH SCHOOLS, GRIMSBY.—A new girls' school in connexion with St. Andrew's parish is in course of erection in Strand-street. The school is being built on somewhat the same method as the Board schools, the work being carried out by Mr. Hewius, while the architect is Mr. F. Skidton.

RESTORATION OF STRATFORD-ON-AVON CHURCH.—An appeal is being made for funds for the restoration of Stratford-on-Avon Church. From the designs of Mr. G. F. Bodley the nave is to be re-seated and the organ remodelled.

NEW WAREHOUSES, BRIDGE-STREET, ABERDEEN.—New warehouses are to be erected by Mr. John Edwards, for Messrs. Bruce, Edwards, & Milne, in Bridge-street, Aberdeen. The total cost of the buildings will be between 13,000l. and 14,000l., and they are being carried out from designs by Messrs. Harper & Sutherland, architects, Aberdeen. The following are the names of the various contractors:—Masons, Peter Bisset & Sons; carpenters, D. Macandrew & Co.; slaters, Mr. McGregor & Shand; plumbers, John Blaikie & Sons; plasterer, George Gibb; painter and glazier, John Whyte; ironwork, M'Kinnon & Co.

NEW BANK ACCOMMODATION, NEWCASTLE.—A branch bank, for Messrs. Barclay & Co. Limited, has just been erected at the corner of Market-street and Grainger-street, Newcastle. Mr. J. T. Cackett, of Newcastle, was the architect, and Messrs. Sopwith carried out the teak and mahogany work, and Messrs. Emley did the granite work, while the structural work was executed by Mr. Maughan.

HALL AND INSTITUTE, FORDHAM.—The foundation-stone of the hall and institute which are being built at Fordham to commemorate the sixtieth

anniversary of the reign of the Queen was laid recently. The building, which is being erected by Mr. H. Bacon, of Fordham, from designs by Messrs. Gordon, Lowther, & Gunton, of London, will contain a hall 56 ft. by 28 ft., a reading-room, and a room for games, each 18 ft. by 14 ft. 6 in., and rooms for the caretaker.

ADDITIONS TO LLANGUNLO CHURCH, RADNORSHIRE.—A new tower and a porch have just been added to the Parish Church of Llangunlo. Mr. Kempton was the architect, and the work has been carried out by Mr. Price, of Builth.

HOSPITAL EXTENSION, STOCKPORT.—An extension of the Infectious Diseases Hospital, Dialstone-lane, Stockport, is now nearing completion. The extension consists of an administrative block, this new building being necessary for the proper accommodation of the master, matron, and nurses. The building, which joins the hospital by a covered corridor, is a two-story tower, and consists of a matron's sitting-room, a common dining-room, nurses' day-room, public waiting-room, committee-room, medical officer's dispensary, and kitchen on the ground floor, while on the second floor are a matron's bed-room, seven other bed-rooms, a linen store-room, baths, and the usual offices. The work has been carried out from the plans of the Borough Surveyor, Mr. John Atkinson. The contractors are Messrs. W. C. Broadhurst & Co.

CONGREGATIONAL SCHOOLS, GREAT BOWDEN, LEICESTER.—The foundation stone has just been laid of new Congregational schools at Great Bowden. The architects for the new building, which adjoins the chapel, and when completed will comprise a two-story tower, are Messrs. Coates & Johnson, of Market Harborough, the contractor being Mr. Garlick, of the same place.

BAPTIST SCHOOL, QUORN.—The memorial stones were laid recently of new school buildings in connexion with the Baptist Chapel at Quorn. The addition adjoins the old school, and will consist of one large room. Mr. Geo. T. North, of Quorn, is the architect; and Mr. J. Horsepool, also of Quorn, the contractor.

SCHOOL, WYTHAM-ON-THE-HILL, GRANTHAM.—A new school is now in course of erection at Wytham-on-the-Hill. It will consist of a room, 32 ft. by 19 ft., a class-room for infants 10 ft. by 16 ft., and a lobby at each end. The building is of red brick, with a plinth of Staffordshire blue bricks at the base. Mr. G. W. Johnson, of Stamford, is the architect, and the contract has been entrusted to Mr. J. Holmes, builder, of Carey.

WESLEYAN SCHOOL, DENHOLME, YORKSHIRE.—On the 21st inst. the foundation stones of a new Wesleyan Sunday school were laid in Denholme. The new building will, it is estimated, cost about 2,200l. The school has been designed by Messrs. Judson & Moore, architects, of Oakworth. When completed the building will provide accommodation for 315 persons in the main hall, but there will also be four class-rooms opening out from the hall.

WORKHOUSE HOSPITAL, SKIRCOAT, HALIFAX.—The foundation stone of the new workhouse hospital at Skircoat, in connexion with the Wesleyan scheme, at a cost of about 96,000l. This will now in course of erection at Skircoat, is shortly to be laid. The building, which was planned by Messrs. Horsfall & Williams, of Halifax, is estimated to cost, when completed, about 120,000l. For the present it is only proposed to carry out a portion of the scheme, at a cost of about 39,000l. An extension provide accommodation for 394 beds. An extension, costing over 32,000l., has also been adopted, and this will afford room for 248 additional beds, making a total of 642. The hospital is being built on the pavilion principle. The plans of the portion of the scheme required to meet present requirements provide for the erection of a large administration block, four two-story oblong pavilions, each containing sixty-two beds, two three-story circular pavilions, each containing sixty-nine beds, and two maternity wards, for alternate use, of four beds each. The lowest story of each of the circular pavilions will be used as day-rooms for convalescents. In addition there will be accommodation for the medical officer, nursing staff, servants and officials. There will be ninety-one beds in the nurses' home and over the administration offices. In addition the plans provide for an electric lighting station, workshop, laundry, operating-room, boiler-house, sanitary blocks, nurses' home, entrance lodge, mortuary, stabling, &c. The extension scheme provides for four two-story oblong pavilions, each containing sixty-two beds, and a residence for the Medical Officer, who, until its completion, is to be housed in the administration block. The circular pavilions will flank the nurses' home on either side. The buildings will be lighted by electric light. This will be generated on the spot. The only place where gas will be introduced will be the kitchen, for cooking purposes. Electricity will also be used for working the lifts, heating plates, and for other purposes. The erection of the building is under the superintendence of Mr. W. Clement Williams, and Mr. Edwin Naylor is contractor for the stonework.

NEW CHANCEL AISLE, HELDON CHURCH, NORTHAMPTON.—The foundation stone for the new chancel aisle to the parish church of Heldon has just been laid. The new building will form a gabled aisle to the chancel on the north side of it, and the windows that were formerly in the side of the chancel and the end of the north aisle of the church, will be

rebuilt into it, together with a new outer doorway and broad arches, opening both into the chancel and into the north aisle. Mr. M. H. Holding is the architect, and Mr. John Bosworth, of Davenport, the builder.

STEAM LAUNDRY, PETERBOROUGH.—A new steam laundry has just been erected for Messrs. Barford & Perkins, Peterborough. The site occupied is at the north end of Park-road. The building, which is of local red brick, is 200 ft. long, 100 ft. wide, and has a frontage of 100 ft. The whole of the rooms are on the ground floor. The designing of the building and the whole arrangement of the machinery has been done in Messrs. Barford & Perkins' offices; Messrs. Hick Bros. were the contractors for the building, and its erection has been superintended by Mr. J. G. Stallebrass, architect.

NEW CHURCH AT DRAUGHTON, NEAR SKIPTON. The foundation-stone of a new church at Draughton, near Skipton, was laid on the 23rd inst. by the Duchess of Devonshire. The new church, which will occupy a site in the centre of the village, has been designed by Mr. B. Enmott, of Addingham, in the Gothic style, and will provide accommodation for 100 worshippers.

REBUILDING THE MERMAID HOTEL, THE MUMBLE, SWANSEA.—A contract has just been entered into by Mr. Henry Billings, of Swansea, for the rebuilding of the Mermaid Hotel from the design of the architect, Mr. H. Tudor Thornley, of Cardiff.

FOREIGN.

FRANCE.—The last remains of the ancient Sorbonne will soon disappear. By the end of next month M. Niquet, the architect of the new buildings, will proceed to take down the last aisle of the old building along the Rue Sorbonne. The ceiling of the new Opera Comique, on which M. Benjamin-Constant is now at work, will be a large composition in which the artist has collected the heroes and heroines of the principal works performed at the theatre—Orpheus, Mireille, Romeo and Juliet, &c.—The first stone of the Mairie at Asnières is to be laid on September 22.—The jury in the competition for the rebuilding of the Villa at Versailles has awarded the first premium to M. Bréas, the second to M. Legrand, and the third to MM. Messtrasse and Berge; all of Paris. M. Bréas was the architect of the Mairie at Suresnes, of which an illustration was published in the *Builder* some years ago.—The restoration of the Church of Saint Nicolas-du-Port (Meurthe-et-Moselle) is shortly to be commenced. The building is classed among the Monuments Historiques, and dates from the end of the fifteenth century; it contains some fine sixteenth century glass.—A statue of Michael playing the dragon, by M. Fréniat, has been placed on the fêche of the ancient church of Mont St. Michel. The work was exhibited at the Champs Elysées Salon.—M. Falguieres has just finished the statue of the late Cardinal Laviege, which is to be erected in one of the public places of Bayonne. The Cardinal is represented standing, a large mantle flowing over his shoulders, the right hand extended, and the left holding a cross. The face, gazing upwards, is very fine in expression and a remarkable likeness.—An International Art and Industrial Exhibition is to be opened at Toulon at the commencement of next month.—The Société Française d'Archéologie is to hold its annual congress this year at Nîmes. At the close of the actual work of the congress an excursion will be made to Villeneuve-lès-Avignon, the old town recently described and illustrated in the *Builder*.—Paris will shortly have some new artesian wells, which were commenced as long ago as 1864, on a site on the Butte-aux-cailles (XIIIth Arrondissement).—The death is announced, at the age of 51, of M. Felix Monmory, a member of the "Union Syndicate des Architectes Français," and who had done important work in artistic journalism, having been a contributor to Chabot's "Dictionary of Architecture," to the *Revue Générale de l'Architecture*, and to the *Semaine des Constructeurs*.—The death is also announced of M. François Amigues, architect, of Paris.

GERMANY.—The Commission of Sewers is being reorganised at Berlin, and an Inspector of the Public Works Department, Herr Robert Adams, will hold the office of Chief Engineer.—There has been considerable discussion in the Berlin Press as to the rearrangement of the Potsdamer Platz, as one of the largest squares in the capital. The alterations will be due to the great increase of vehicular traffic.—The whole of Saxony, and a great part of Silesia, has been most severely affected by the recent floods, and the Ministry of the Interior, as well as the Ministry of Public Works, are busily occupied in alleviating the great losses incurred.

ITALY.—The purchase of the Villa Borghese by the municipality of Rome, which was decided last month, was accepted by forty-two votes against sixteen, the price being three million lire. We understand that the municipality is going to construct several new roads in connexion with the gardens of the villa.—At the International Competition for the new lunatic asylum at Trieste, three premiums of equal value have been given, and the author of one of these, Herr Peveling, of Eberswalde, near Berlin, will receive the commission.

MISCELLANEOUS.

THE ELECTRIC LIGHT IN LIVERPOOL.—At a meeting of the Lighting Committee of the Liverpool City Council, held on the 20th inst., at the Municipal Buildings in Dale-street, Mr. C. Petrie presiding, the tender was accepted of Messrs. Holme & Green for the completion of the Paradise-street electrical station at a cost of £5,051. It appeared from the monthly report of the electrical engineer that on July 31 the equivalent number of 10-candle power lamps connected with the supply mains was for private lighting 53,098, and for Corporation lighting 4,878, making a total of 57,976, being an increase of 640 for the month. The number of units supplied during the month to private consumers was 64,062, and to the public lamps 16,654, making a total of 80,716, as compared with 52,723 for the corresponding period of last year. It was decided to sanction the extension of the mains to Smithdown-road, to Tithebarn-street, and to Canning-place.

ABERDEEN CITY ARCHITECTSHIP.—A special meeting of the Finance Committee of Aberdeen Town Council took place on the 18th inst.—Treasurer Bisset presiding—for the purpose of dealing with the question of the City Architectship—an office which some members consider should be abolished. Baillie Edwards drew attention to the fact that Councillor Gray had, at the Town Council, carried a motion to get a return of the fees paid to the City Architect since he was appointed; and, in view of that, the Baillie thought the question of dealing with the office should be deferred until the return had been obtained. Discussion followed, several members objecting to delay. Ultimately Councillor Fleming moved, and Councillor Glass seconded, that the committee recommend to the Town Council that the engagement of the City Architect be terminated in March next, at the expiry of the present year's engagement. Further discussion took place, and Councillor Fleming indicated that he had another proposal to the effect that a fully qualified architect, who would devote all his time to the duties of the office, be appointed to do all the work hitherto done by the City Architect to superintend the town's properties, and to execute all the architectural work at present done in the Burgh Surveyor's department, except such portion of it as it might be decided to retain in the department. A majority of the committee seemed to be in sympathy with this proposal, but it was finally decided to defer action in the matter until Mr. Gray's return has been obtained, and it has been ascertained if there would be sufficient work for such an official as Councillor Fleming suggested should be appointed. In the course of the proceedings, Councillors Beveridge and Johnston spoke in favour of the appointment of a clerk of works; while Baillie Young and Treasurer Bisset said they saw no necessity for a change in the present arrangement.—*Aberdeen Journal*.

PARLIAMENT AND THE ELECTRIC LIGHT.—Workmen are busily engaged in completing the installation of the electric light at the Houses of Parliament. The scheme has really been in process of development for a dozen years or more. Instead of completing the work, successive First Commissioners of Works have been content to proceed by instalments.

OPAQUE BLINDS FOR ART SCHOOLS.—We mentioned some little time since the fittings of this kind made for the Putney School of Art by Messrs. Guynan & Sons. The same firm have just fitted these blinds to the Leicester School of Art, under the direction of Messrs. Everard & Pick the architects, with the arrangement that the massive architraves of the windows form the groins for the blinds, the whole being so arranged that the blinds are quite concealed and protected when out of use.

MEMORIAL TABLET, ETON COLLEGE.—A memorial has just been erected in the ante-chapel of Eton College in remembrance of the Rev. John Wilder, late Vice-Provost of Eton. The memorial consists of a tablet of white marble designed by Mr. Kempe, and executed by Messrs. Farmer & Brindley.

NORTHAMPTONSHIRE ARCHITECTURAL SOCIETY.—At the last monthly meeting of the Northamptonshire Architectural Society, held in the Society's Rooms, Abington-street, Sir Henry Dryden, Bart., presided. The report of the committee on Stoke Dreychurch suggested that the improvements and repairs absolutely necessary would not exceed £500. It was originally proposed to spend £1,000, on the church. The report was accepted, and it was decided to forward it to the incumbent for further consideration. The chairman brought before the meeting the proposals to move Irthlingborough Cross to make way for a Jubilee clock tower. He said that he had written to Mr. S. G. Stopford Sackville, J.P., the Chairman of the County Council, to prevent the cross being moved, and fortunately Mr. Sackville happened to be Lord of the Manor, and he at once objected to the removal of the cross. A letter was written by Mr. C. A. Markham, addressed to the Chairman of the Parish Council at Irthlingborough, protesting in the name of the Architectural Society against the removal of the cross. He pointed out that the cross was one of about half-a-dozen old market crosses in Northamptonshire, and of great artistic and historical value. The shaft, it was believed, formed the standard for the pole used to measure the allotments in the parish. To remove the shaft on the clock tower, as proposed, would be

objectionable, and give the whole structure an absurd appearance. It was decided to forward the letter to the Irthlingborough Parish Council.—*Northampton Mercury*.

SALE OF PROPERTIES.—Ashburnham House, Dover-street, has just been sold by the Earl of Ashburnham. It is distinguished by its spacious forecourt, with porter's lodge and gateway (1773), and for its beautiful interior decoration, by the Adams. During the earlier half of this century it was rented by the third Earl to the Russian Embassy, and in 1844 was occupied by the Czar Nicholas.—On the 9th inst. the Dalston Hall Estate, Cumberland, 1,502 acres, in lots, for 39,835l. This was the seat of a family so named, who traced descent from Robert de Dalston, temp. Stephen. The estate formed for a while part of Englewood Forest. The hall, bought for 35,000l., was originally built in the fifteenth century on the site of the old fortified house whereof the "Peel" tower yet remains. It was the headquarters of Gen. Leslie during the siege of Carlisle in 1644-5.—Angill Castle, near Brough, Westmoreland, with nine acres, for 650l. The castle has been uninhabited for many years past, and is reputed by the neighbours around to be "haunted."—It is said to have been built at a cost of 14,000l.—The Avondale Hotel and Hatchett's Restaurant, Piccadilly, for 127,000l. These premises, on the site of the "White Horse Cellars," were erected in 1884, by Mr. John Grover, contractor, after the designs of Messrs. W. S. Weatherley and Jones, at a cost exceeding 32,000l., the site having been bought for 70,000l. In January, 1887, the premises were purchased at auction for 65,000l., and in 1895 the hotel was occupied by the Comte de Luxe, the decorations and furniture being supplied by Messrs. James Shoolbred & Co.

BOOK SALES.—The following were sold at the recent dispersal, at Sotheby's, of Mr. C. Dunn Gardiner's collection—Blomefield's "Norfolk," 18l.; Dugdale's "Monasticon," 187l.-30, 29l.; and Boydell's "Shakespeare Gallery," 14l.

FLOATING HOTEL FOR NON-UNIONISTS.—Owing to the difficulty experienced in finding places of the men on strike by non-Unionist hands, in consequence of their having to "run the gauntlet" of the pickets when going to and from their work, Messrs. Yarrow & Co. have chartered the Royal Mail steamer *Southampton*, which vessel is now moored opposite their yard at Poplar. She has lately been taken off the passenger service between Southampton and the Channel Islands, and is well fitted up for the accommodation of 150 passengers, and upon this vessel the new hands will be comfortably quartered, and free from the annoyance of the pickets. It appears there are plenty of non-Unionist men only too willing to secure employment, provided they can have the protection they are justified in expecting.

SUBWAY TO THE LAW COURTS, STRAND.—The subject of the proposed subway under the Strand, from the Temple to the Law Courts, which some time ago was brought under the consideration of the Strand Board of Works by the Treasurer and Benchers of the Middle Temple, has, we understand, been again submitted to the board by the Temple authorities, whose negotiations with the railway company fell through, consequent on the rejection of the Bill by the committee of the House of Commons. The Works Committee of the Strand Board have issued a report recommending that the application of the Benchers and Treasurer of the Temple be granted upon certain stipulated terms.

ANTIQUARIAN DISCOVERIES AT A PARISH CHURCH.—The ancient parish church of St. Mary, Gosforth, Cumberland, now undergoing restoration, has proved rich in antiquarian remains. It is not many years since the mythological character of the cross in the churchyard was elucidated. It is believed to be the tallest ancient cross in Britain, and is pronounced "one of the costliest olden rods in Europe." Of red sandstone, elaborately carved with mystic figures in bas relief, it has withstood the storms of twelve centuries, and is in excellent preservation. The Rev. W. S. Calverley, Vicar of Aspathra, made out the carvings on the four sides of the cross to be illustrative of legends in Scandinavian mythology. It is a Christian monument, and not a heathen pillar surmounted by a cross, but it is curious for its representation of northern myths and Christian doctrines, and for the way in which one bears testimony to the other. One of the sculptures represents the Crucifixion. The remains of three other crosses, apparently of about the same age, have also been found at different times in the churchyard. A correspondent states that during the recent alterations two hogback or coped tombstones have been found. One was under the foundation of the north wall. Another was found at the corner of the nave, forming the foundation of the pillar supporting the chancel-arch. The one found in the north wall is in two pieces, and is 5 ft. 6½ in. long. On one side are carved interlaced ornaments of four patterns; on the other there is a battle scene representing two hostile armies. At the head of one group stands a chief armed with a spear, a circular shield in his right hand; behind him are thirteen warriors all bearded, and with spears over their shoulders. Opposite stands the chief of the opposing army, holding upwards a pole or lance at the top of which

* See the *Builder* of December 27, 1884, and, with view and plan, November 28, 1885.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall and Law Courts	Cardiff Corp.	500L; 300L; 200L	Dec. 4
Public Libraries	Lewisham Vestry ...	25 gas for each	No date

CONTRACTS.

[illegible]

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied.	Tenders to be delivered.
Workshop, at Ball Mill Recreation Ground	Hampton U.D.C.	J. Kemp, 315 Park House, High-st., Hampton	Sept. 7
Erection of Infirmary	Billingdon U.D.C.	F. J. Allen, Clerk, 144rd. Upper Holloway, N.	do.
Fencing Street, Paving with Jernolite, &c., at the Old Mill, &c., with 6000 Blue Granite	Dewdney C.C.	H. Dearden, Town Hall, Farnham, Wokingham	do.
Fish Dock Saver, Gravel	Directors, Gt. Central R.C.	Robertson, Engrs., Grimsby	Sept. 8
Wetting Bridge	Police Comtee., Dept.	R. McKillop, Borough Barr., 10, Tay St., Perth	do.
Stables	Met. Asylums Board.	Offices, No. 44, House, Newmarket-st., W.C.	Sept. 9
Stables, 2nd Floor, Stockwell	do.	S. Holt, Clerk, Council Offices, Hinxley	Sept. 10
Gravel and Earth, Water Drainage	Hindley U.D.C.	Surv. Comtee. Offices	do.
Paving, & Works, Dugby-street	Grange and Gars U.D.C.	H. J. Williams, 5, Furr Lane, Walsby, Lincs.	do.
Restoration of Lanthangel-y, Ceredigion Church Town	Bristol Waterworks Co.	P. Evans, 40, Elm, Llan-gedfan, Carmarthen	do.
Take down of Lanes & Building St. George's Church, Newcastle	Caledonian Ry. Co.	Offices, South's Bristol	Sept. 13
Construction of Bayside	do.	M. H. Newland, Archt. Glasgow	do.
Take down, Rectory, at Colwyn	Carlisle S. Rd.	Johnston, Archt. Carlisle	do.
Paving	Can. Sewer Vetry	G. O. Brown, Vetry Hall, 10, St. John's St., London	do.
Light on the 2nd & 3rd Floor, 10, St. John's St., London	Trinity House	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
2nd & 3rd Floor, 10, St. John's St., London	Gt. Northern Ry. Co.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
2nd & 3rd Floor, 10, St. John's St., London	Folkestone Corp.	R. E. R. 2nd, Dover & Folkestone	do.
Confectionery Works, Half St.	do.	M. H. R. 2nd, Dover & Folkestone	do.
School for 220 Children, Battersea	do.	N. H. R. 2nd, Dover & Folkestone	do.
Make up of Roads	Epsom R.D.C.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Drain Ties	Streets U.D.C.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Granite, Flints, Kerose, Oils, &c., for the Construction of Forty-five Outcrops, Poutymer	Flaxley U.D.C.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Tarpauling at Workhouse	Canterbury Guardians	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Washhouse, Engine-room, at Walsley	Comm. West Riding Asylums	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Electric Lighting and Plant	Lance Asylums Bd.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Electric Light Wiring at Public Buildings	County Boro', West	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Building, at 11th Union Workhouse	Walsley Asylums Bd.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Electric Lighting and Refuse Destruction Buildings	Leeds U.D.C.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Drain and Pipe works	Boreditch Vetry	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Residence, Northward, near Halifax	Comm. of Sewers	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
After House to Undergo	Peterhead B. Bd	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Sheds at sheet	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Building	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Foundation, Market Drayton	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
French shops and Outcrops at Clara Vale	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Apprentices, &c. to Building, South	Edison & Swan United Electric Light Co.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Public Laundry, Whitebany, at	Gravell Hotel Co. Limited	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Excavation, Swan Bank	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Sewerage Works, Towceley Building	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Public School, Mount	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Mission Church, Canby	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Alterations to Theatre Royal, Hereford	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.
Public, Presbytery, Estate Civil	W. Dept.	W. J. Evans, 30, G. R. N. R. House, 10, St. John's St., London	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
Clerk of Works	Newport Mon./General Resident	£7. 3s. per week	Sept. 1st
Assistant Surveyor	Fulham Vestry	200s. per annum	Sept. 1st
Parish Engineer and Surveyor	Ryde (I. of W.) T.C.	300s. per annum	Sept. 1st

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. & viii. Public Appointments, pp. xvi. & xix.

is a triangular flag, and behind him also there are thirteen men. The second hog-back is in three pieces, and is 5 ft. 1 in. long. It has quite a different character. At the apex there is a rope or twist much worn away, and between the head of a wolf, the plaited body of a serpent with the head of a wolf, open-jawed, and like those on Gosforth Cross. It gapes upon and seems to do battle with smaller serpents. In a panel 4 ft. long there is a design in bold relief of two wolf-headed serpents in fierce conflict with a human figure, which subjugates or rides upon a smaller serpent, and holds one of its jaws in each hand.—*Liverpool Courier*.

window has just been erected in St. Martin's Church, Holt, near Worcester, in memory of the Rev. Charles Sale, who was for many years rector of this parish. It contains two lights, the Annunciation to the Shepherds and the Salutation being represented in the one, while the Nativity and Presentation in the Temple is shown in the other. The work has been executed by Mr. H. W. Bryans of London.

WATERWORKS, KINGSTEIGNTON, DEVONSHIRE.—At Ugbooke Park, on the 10th inst., Lady Clifford opened the new waterworks. Mr. S. Segar has been surveyor of the works, and Messrs. Best and Hawkins were the contractors.

CAPITAL AND LABOUR.

THE LIVERPOOL PLASTERERS' STRIKE.—No change has occurred in the attitude assumed between the master plasterers and their employees in Liverpool. During the extended strike contractors have suffered considerable trouble, and many of the public works, such as the new Post Office, the police buildings and fire station, and the Corporation bath at Westminster-road, &c., have been delayed in construction. The principal point of grievance appears to be the apprentice question, the masters being determined not to yield to what they think is an arbitrary requirement on the part of the men, viz. to

NEWCASTLE-ON-TYNE.—For erecting the Victoria Library.
Mr. John W. Dyson, architect, Newcastle. Quantities by the architect:—
W. C. Tytle.....£5,548 4 0 Alex. Pringle.....£4,409 16 0
Water Scott.....4,914 1 6 Middleton Bros.....4,430 0 0
Thos. Weatherill.....4,258 13 3 J. & W. Lowry.....4,146 0 0
G. H. Mauchlen.....4,074 17 0 Newcastle.....4,446 0 0
* Amended and accepted.

NEWPORT (Mon.)—For the erection of the Newport and Monmouthshire Hospital.
H. Wilcock.....£3,250 0 0 W. Bowers & Co.....£3,040 0 0
C. H. Reed.....3,410 0 0 H. Parfitt & Dyson.....3,100 0 0
W. J. Bloorham.....3,560 0 0 J. Linton.....3,800 0 0
W. A. Linton.....3,575 0 0 D. J. Davis & Jones.....3,507 0 0
W. Gradwell & Co.....177 0 0 W. Co. Godfrey.....26,927 10 0
Lid.....37,572 13 5 A. S. Morgan & Co.....25,950 0 0
W. A. Blackham.....24,314 0 0 Newport, Mon. 25,950 0 0
S. Warburton.....24,314 0 0
* Accepted—subject to modifications.

NEWPORT (Mon.)—For the erection of an Institute, swimming bath, &c., at Aberlenny, Mr. F. R. Bates, architect, 4, Commercial-street, Newport, Mon. —
F. C. Morgan.....£4,150 0 0 G. Turner & Sons.....£3,835 6 1
J. Bayley.....3,986 21 4 G. Ben Bros.....3,787 0 0
J. Monks & Co.....3,354 0 0 D. J. Davies, Mon. 3,630 0 0
A. P. Williams.....3,068 0 0
* Accepted.

NEWPORT (Mon.)—Accepted for alterations and additions to "Byndervan," for Mr. R. Searle. Mr. F. R. Bates, architect, Newport —
Jerrett & Fisher.....£5 0
* Accepted.

NEWPORT (Mon.)—For rebuilding No. 85, Stow Hill, Newport Mr. F. R. Bates, architect, Newport —
F. Monks & Co.....1,099 10 0 H. Reed.....£1,071 0 0
J. Jenkins.....1,050 0 0 D. C. Parfitt.....1,638 0 0
D. J. Davies.....1,274 10 0 W. A. Linton, Newport 1,635 0 0
* Accepted.

NEWPORT (Mon.)—For alterations and additions to "Woodmer," for Mr. H. Le Brasseur. Mr. F. R. Bates, architect, Newport:—
A. S. Morgan & Co.....£2,315 0 0 C. West.....£1,795 0 0
John Linton.....385 0 0 T. Westcott.....774 0 0
Jerrett & Fisher.....310 0 0 J. Jenkins.....273 10 0
W. M. Blackburn.....[All of Newport, Mon.]
* Accepted.

NEWPORT (Mon.)—For laying main sewer and branch drains and constructing new road, on the Regret Giebe Estate, Newport, for the Rev. A. G. Morris. Mr. F. R. Bates, architect to the estate —
A. S. Morgan & Co., accepted on a schedule.

PERRANPORTH (Cornwall)—Accepted for the erection of four houses, for Captain W. Roberts. Mr. Sampson Hill, architect, Green-lane, Redruth:—
John Ogden, Redruth.....£3,500
* Accepted.

ROTHWELL (near Leeds)—Accepted for the eight houses about to be erected at High Park Chemical Works, Rothwell, near Leeds, for Messrs. Brothers & Co., Commercial Buildings, Leeds. Mr. E. Barton Johnson, architect and surveyor, 6, The Grove, Liley:—
Bricklaying and Masonry, Carpenters and Joinery, J. W. Sumpkins, Swan Junction, Hunslet.....£1,057 0 0
Plumbing and Glazing, J. R. Crossland, Lower, near Leeds.....800 0 0
Plastering and Concreting, A. Firth, Henshaw, near Leeds.....247 0 0
Blue Slating, R. Nelson, Wharf View, Liley.....204 16 0
Painting, W. E. Smith, Elford-grove, Leeds.....42 0 0
Total.....£4,443 16 0

SPENNYMOOR—For rebuilding house and shop, High-street, Spenny-moor, Mr. J. Caldwell, architect —
F. J. T. M. J. Manley.....£213 1 6
Plastering, J. Manley, Bishop Auckland.....10 11 0
Joinery, G. Myers, Spenny-moor.....368 0 0
Joinery, R. Teller.....352 6 6
Painting, J. Heslop, Spenny-moor.....30 10 0
Slating, J. Heslop, Spenny-moor.....70 14 0
Plastering, J. Heslop, Bishop Auckland.....51 13 0
Plastering, S. Kirby.....75 0 0
Plastering, J. Morgan, Spenny-moor.....124 12 0
Plastering, J. Morgan.....21 10 0
Plastering, N. Almond.....195 10 6
Slating, H. Barnett.....79 0 0
* Accepted.

TAUNTON.—For pulling down and rebuilding the shops and dwelling-houses at 41 and 43, High-street, Taunton. Mr. J. Houghton Spencer, architect —
H. J. Spiller.....£1,470 0 0 G. H. Poland.....£1,396 0 0
J. Morse.....1,366 1 0 J. Manning, Taunton 1,341 0 0
* Accepted.

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, BAY STREET, FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY AND FIT FOR IMMEDIATE USE.
Telephone, 65, 74 Holborn. Tele. Address: "SNEWIN, London

WALTHAMSTOW.—For warming with hot water new school buildings, Wood-street, Walthamstow, for the Walthamstow School Board. Mr. W. A. Longmore, architect, 7, Great Alie-street, Whitechapel:—
J. Malet & Co.....£1,573 18 6 Herry & Campbell.....£748 10 0
Cassidy.....1,130 0 0 Baint, Thompson, & Christie & Son.....1,296 0 0 Co.....793 10 0
W. Simmonds.....1,282 0 0 Paton & Sons.....599 0 0
Potter & Sons.....1,195 0 0 John King, Limited, W. J. Fraser & Sons 1,112 0 0 Liverpool 649 5 0
* Accepted.

WALTHAMSTOW—For the erection of new additions and other works at and upon the St. Saviour's School, Walthamstow, for the Trustees. Mr. W. A. Longmore, architect, Bridge Chambers, Walthamstow:—
E. Fuller.....£718 10 0 W. Lawrence.....£595 0 0
J. A. Reed.....£314 0 0 J. Abbott.....330 0 0

WOODFORD (Essex)—For the erection of two houses in Eastwood-road, Grove Lodge Estate. Mr. W. Seckham Witherington, architect, 33, Great Tower-street, E.C. —
Osborn & Son.....£299 10 0 J. Jolliffe.....£780 0 0
W. Mundy.....590

LONDON SCHOOL BOARD TENDERS.

At a recent meeting of the London School Board the following lists of tenders were submitted by the Works Committee:—

DROOP-STREET.—Exterior painting:—
F. Childley.....£105 19 0 W. Brown.....£70 15 0
T. Croyes.....104 0 0 Marchant & Hunt.....70 10 0
C. Gurling.....99 10 0 F. T. Chisham.....68 0 0
W. R. & A. Hild.....68 15 0 E. T. Foley.....47 0 0

ROMAN-ROAD.—Exterior painting:—
A. W. Derby.....£470 10 0 J. Robey.....£235 0 0
Gibb & Co.....545 0 0 S. H. Connelley.....225 0 0
A. E. Symes.....[Accepted.]

TO CORRESPONDENTS.

R. H. & Son (amounts should have been stated).
NOTE.—The responsibility of signed notices, and papers read at public meetings, rests, of course, with the authors.
We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.
We are compelled to decline pointing out books and giving addresses.
Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,

GREENHOUSES,

WOODEN BUILDINGS,

Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 25s. per annum. Remittances payable to DOUGLAS FOURDRINER should be addressed to the publisher of "THE BUILDER," No. 46, Catharine-street, W.C.

SUBSCRIBERS IN LONDON AND THE SUBURBS, (by prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF BATH STONE
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Douling Stone Co.).
Chief Office:—Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

THE TEST OF TIME
has proved that
SZERELMEY STONE LIQUID
Absolutely waterproofs and preserves Bricks, Stone, Cement, Stucco, Plaster, &c.
SZERELMEY & Co., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 43, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO. LITHOGRAPHERS AND PRINTERS.

Estate Plans and Particulars of Sale promptly executed.
4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES."
For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

PILKINGTON & CO

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING, ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING
SEYSSSEL ASPHALTE.

EREST MATHEWS & CO.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
Head Office and only City Address, 61, ST. MARY AXE, E.C.
SEND FOR ILLUSTRATED PRICE LIST.

Payne-road Wharf, Bow,
Branch House, 37, Victoria-street, Bristol.

The Builder.

VOL. LXXIII. NO. 2848.

SEPT. 4, 1897.

ILLUSTRATIONS.

Selected Design for Colchester Town Hall.—Mr. J. Belcher, F.R.I.B.A., Architect:—

Perspective View	Double-Page Ink-Photo.
Elevations	Double-Page Ink-Photo.
Plans	Double-Page Photo-Litho.
Illustrations to Mr. Banister Fletcher's Essay: "Influence of Materials on Architecture"	Double-Page Ink-Photo.

Blocks in Text.

Diagrams Illustrating the Influence of Material on Architecture	Pages 189-193	Concrete Sewers at Fredricksfeld	Page 174
Diagram Illustrating the Student's Column Article	189		

CONTENTS.

Dr. Dörpfeld on the Greek Theatre	195	Competitions	188	Foreign	190
The Influence of Material on Architecture	181	Archæological Societies	188	Miscellaneous	191
Notes	181	Rejection of Lowest Tenders	188	Capital and Labour	191
British Archaeological Association: Annual Congress	184	Dantric Oak for Sash-frame Sills	188	Legal	191
Selected Design for Colchester Town Hall	184	Student's Column: Quantities and Quantity-Taking. VII.	188	Recent Patents	191
The Influence of Material on Architecture	187	General Building News	189	Some Recent Sales	192
Association of Municipal and County Engineers: Visit to the Eian Valley Waterworks	187	Sanitary and Engineering News	190	Prices Current of Material	193
		Stained Glass and Decoration	190	Tenders	193

Dr. Dörpfeld on the Greek Theatre.



R. DÖRPFELD'S long-expected work has at last appeared,* and a complete statement of his theories respecting the ancient Greek Theatre is now in the hands of students.

The subject of the Greek theatre seemed at one time almost worn to death. We had treatises, taking up one side or another of the technique of construction and arrangement, from men like Donaldson, Bodensteiner, Müller, Sturmhöfel, and, in later years, Haigh, Capps, and others; and the imaginary restoration of the original performances of extant plays was a favourite amusement with classical scholars. But Dr. Dörpfeld's views, first published, we believe, in the *Berliner philologische Wochenschrift* for 12 April 1890, will, if accepted, turn many of these writings and treatises into waste paper.

Das griechische Theater is a model of the patience, perseverance, sober-mindedness, and minute—almost painful—accuracy which honourably distinguish German scholars; it is not too much to say that it could only have emanated from a German study. A portly quarto, well illustrated, admirably printed (Dr. Dörpfeld's Athenian printers deserve a passing word of praise for their beautiful founts of Greek and Roman type, and for their freedom from all but trifling misprints), and written with a charming literary style, the work is altogether one of the most fascinating that has ever appeared on the subject of Greek Classical archæology.

The collaborators have divided the work between them, each initialling his own contribution; and the book naturally falls into three parts, of which the first and third are contributed by Dr. Dörpfeld, the second by Dr. Reisch. The first part is a long, exhaustive, and most valuable account of the Athenian theatre of Dionysos, of extant Greek theatres outside Athens, and of the theoretical Greek theatre of Vitruvius. The

second section is a study of the internal evidence presented by the extant plays as to their "staging," an examination of the histories of the technical names of different parts of the theatre, and a description of the appearance of stage-plays, as represented on existing works of art. The closing portion is an examination of the great question "stage or no stage?" and a history of the evolution of the Greek theatre.

The opening chapter, on the theatre of Dionysos, is a striking example of the exactitude of scientific archæology in Germany. The great explorer, in the course of ninety-six pages, sets out the results of his investigations on this site in full, preceding the description by a brief but interesting account of the development of knowledge concerning the building from the days of Stuart and Revett to his own. As Schliemann found several Troys, so Dr. Dörpfeld has found several theatres superposed one on the other; one of the sixth—fifth century B.C., one of the fourth, one of Hellenistic date, and two of the Roman period.

Of the early theatre, in which the great works of the classical dramatists were witnessed, little, unfortunately, survives—nothing except foundations, the most important being portions of the old boundary wall. These fragments show that the original orchestra was considerably further to the south than that of the later theatre, from which it follows that the existing seats cannot belong to the first theatre, or even occupy the site of the original auditorium. The excavations afford no evidence of the nature of the seats in the original theatre, but there is sufficient literary testimony available to show that they were of wood, and probably of clumsy construction. The fall of these seats, somewhere about 450 B.C.—the catastrophe recorded for us by Suidas—led to their rebuilding in more durable materials: but no fragment can certainly be assigned to this second auditorium of the earliest theatre. Perhaps a stone found built into the fourth-century building, inscribed ΘΕΑΤΡΟΝ ΤΟΥ ΠΡΩΤΟΥ (sic) may be a survivor of it.

An important fact is brought forward by Dr. Dörpfeld concerning this earliest theatre, and proved by several powerful arguments; namely, that there was no permanent structural background—no *Skenengebäude*, as the more convenient German language expresses it. The excavations have revealed no frag-

ments of such a building; the outer portion of the perimeter of the orchestra is curved; there was not room for a permanent building between the orchestra and the ancient temple, the site of which has been discovered behind the orchestra; the very word σκηνή (a tent) implies something temporary; and Andocides tells us that at the end of the fifth century the orchestra could be seen from the door of the enclosure of Dionysos—which would be impossible after such a building had been put up. When scenery was used in the earliest temple—which we know to have been the case—a temporary wooden structure must have been erected. For the altar that no doubt stood in the centre of the ancient orchestra, Dr. Dörpfeld has searched in vain.

By learned and ingenious arguments the author fixes the date of the second temple at between B.C. 350 and 325. He carefully describes the various parts of this building—auditorium, surrounding wall, orchestra, &c.; but without taking up far more space than we could here afford it would be impossible to do him justice. We must, therefore, be content to pass by this portion, referring the reader to the original work; and the same may be said of the author's careful study of the Hellenistic and the two Roman theatres on the site. Among the illustrations of this portion of the work one of the most interesting is the section of an elliptical column from the proscenium of the first Roman theatre, dating from the period of Nero. It recalls the famous elliptical capital in the British Museum.

The second chapter of the work continues the study of the existing remains of Greek buildings, so well begun in the first. Eleven theatres are discussed; and all the particulars relating to their excavations, by the Greek archæological schools of different nations, are brought together and summarised. The following theatres are described: that at the Piræus (a second in the same place remains unexcavated); Oropos, discovered in 1886, an example of a theatre which had wooden seats only; Thorikos, with its strange ellipsoidal auditorium; the large and valuable example at Eretria; and those at Epidauros, Megalopolis, Delos, Assos, Pergamon, and Magnesia on the Maeander. Each of these is carefully described, and the descriptions are fully illustrated with plans, details, and restorations, and with facsimiles of those dedicatory

* *Das griechische Theater; Beiträge zur Geschichte des Dionysos-Theaters in Athen und anderer griechischer Theater*, von Wilhelm Dörpfeld und Emil Reisch. Athen, Barth & Von Hirst; Leipzig, Carl Fr. Fleischer. 1896. 4to, pp. xvi.—396. Price 16 marks.

inscriptions which survive to the present day.

A chapter on the theatre according to Vitruvius, compared with existing remains, concludes Dr. Dörpfeld's first contribution to the book; and his colleague now takes up the tale in three important chapters. Dr. Reisch is chiefly concerned with the literary side of the subject, as Dr. Dörpfeld is with the archaeological, and, of course, much of his interesting contribution lies outside our scope; the problem he has set himself to attack is briefly as follows—considerable remains do not exist of any theatre older than the fourth century: what internal or other literary evidence have we for reconstructing the "staging" of an Æschylean or Sophoclean drama? Very truly he observes that evidence of this nature gives more satisfactory results than do random guesses founded on the characteristics of later buildings; general principles are thus more readily arrived at, though the author admits that there is greater room for individual opinion respecting detail.

The Greek dramas contain no stage directions; but from an exhaustive study of the forty-four plays that have come down to us, and the fragments of others, the author has deduced the essential features of stage management in ancient Greece. Starting from the "Suppliants" of Æschylus, one of the earliest of the extant plays, Dr. Reisch discusses at great length the development of scenery in all the dramas of which we know anything. It is a very remarkable piece of work, and to give an abstract of such a chapter, close packed as it is with facts, would be quite impossible. A piece of critical microscopy so admirable could only have been the work of a German scholar. The machinery, such as the *ἐκκλῆθρα*, the *μηχανή* (of the proverbial *θεός*) and the raising machine of which (*inter alia*) Aristophanes makes such delightfully comic use in the "Clouds," and all the other properties, both of the classical and the later theatres, are fully and carefully treated. A chapter on the Greek names of the various parts of a theatre follows; the history of each word is traced, and its different uses sought out and compared. This portion of the book is a valuable contribution to lexicography.

Dr. Reisch concludes his part of the work with an interesting, but, from its subject, necessarily scrappy, account of the stage as represented on vases, mural paintings, and other ancient works of art. This chapter is well illustrated, and each specimen receives a careful description.

Dr. Dörpfeld now resumes the pen, and opens the concluding section with the all-important chapter which, to some extent, is the *raison d'être* of the appearance of the book: the elaboration of his revolutionary views concerning the relative position of the actors and the orchestra in the early Greek theatres. Perhaps no question in Greek antiquities has engaged the attention of scholars more than the stage problem, since Dr. Dörpfeld first propounded his theories; and the question has been discussed so fully in the classical papers that the mere setting out of the arguments for and against occupies a considerable space. The author commences by stating, and giving his answers to, the arguments in favour of the existence of a stage. Foremost, of course, is the Vitruvian statement:—"Habent orchestram Græci et

scaenam recessiorem minoreque latitudine pulpitum quod *λογέιον* appellant, ideo quod et tragici et comici actores in scaena peragunt." To this there is the obvious answer: Vitruvius was speaking of the theatre of his own day, and we cannot argue back from the late to the early period. In any case the *λογέιον*, as described by Vitruvius, was too high and too narrow for actors to stand upon; it must have been, in reality, the *proscenium*. Moreover, in the numerous scenes in the extant dramas where actor and chorus, or choragus, come in contact, we should have the ludicrous sight of one or the other ascending or descending a flight of stairs or a ladder with some twenty steps, if we were to see a classical play performed in a Vitruvian theatre. Imagine the chorus in the "Ædipus at Colonus" stampeding up such a structure to rescue the two girls from Creon!

The makeshift compromise long ago proposed by Wieseler to evade these difficulties—the theory of an additional stage or platform for the chorus, about half as high as the actor's stage—is now so generally discredited that it is hardly worth entering into. Dr. Dörpfeld's refutation of it: the very practical objection that the footsteps of the chorus in the choral dances would drown the words of the songs if the chorus were stationed on such a structure, is, perhaps, deserving of notice. To us it seems that Dr. Dörpfeld is not quite so happy in his treatment of the recent theory, which has found favour with many of the most eminent modern explorers, that there was a low stage in classical times. His first step is to deny any literary evidence for such a structure at all, outside Vitruvius. We look with interest to see what he thinks Aristotle meant by *ἐπὶ* or *ἀπὸ τῆς σκηνῆς* in his *Poetics*; but we find that this simply means "from the scenery," and has no sort of connexion with a stage. The argument derived from the use of the words *ἀναβαίνειν* or *καταβαίνειν* in the plays is essentially a weak one, so it is hardly necessary to refer to Dr. Dörpfeld's demolition of it. More important is the deduction from the statement of Pollux, that in the beginning of drama the solitary actor stood on a *τράπεζα*. It was Curtius, if we remember aright, who first pointed out the bearing of this assertion on the stage-problem; it is natural to ask why, if we begin with a *τράπεζα* and end with the gigantic erection of Vitruvius, we are to suppose the abolition of any kind of stage in between? Dr. Dörpfeld gets out of this difficulty ingeniously; but there is, nevertheless, if we may say so, a suspicion of "hedging" about his reply to it. Pollux calls the *τράπεζα* an *ἰλιός*—a kitchen table. This must have been borrowed from some comedy in which a character happened to stand on a table or altar (called jocularly an *ἰλιός*)—as is actually done in the "Knights" of Aristophanes. More satisfactory is another answer which Dr. Dörpfeld incidentally gives to this argument later on in the chapter; this we shall notice in its proper place.

The other passages that have been discovered by scholars ransacking the classical writers for evidence—such as the well-known passage in the "Symposium" where Socrates speaks of Agathon standing on an *ὀρπιβάς*—are carefully considered; and Dr. Dörpfeld then proceeds to answer arguments drawn from artistic considerations and monumental evidence. He denies that the

actors would be better seen if they stood on a stage, having regard to the design of the auditorium of the Greek theatre. He further denies that the chorus would hide the actors—a position which he strengthens by reproducing an interesting photograph of the theatre of Eretria, showing the orchestra full of people. It must be admitted that everybody in the groups comes out clearly enough, and the figures do not interfere with one another; but there is one little flaw in this clever argument which Dr. Dörpfeld does not notice. The main object of this photograph was not so much to show that individuals in the party can be clearly seen, as to prove that they are not foreshortened by being seen from a height; accordingly his photograph was taken from a considerable altitude—30 ft. He should have provided a companion photograph of the same party, taken from the central seat in the bottom row. The priest of Dionysos occupied that seat, and as he would be the most important person in an Athenian audience it might be expected that he would be provided with the best view. We cannot but think, however, that the chorus would block his view of the actors sadly, notwithstanding their masks and dresses and cothurni.

The monumental evidence is easily disposed of. The explorers of the Megalopolis theatre misunderstood the meaning of the remains they discovered, and that building, like all the rest, has no indication of a raised stage. The stages shown on Italian vases are Italian, and have no bearing on Hellenic custom.

Dr. Dörpfeld next brings forward his arguments against the existence of a stage. He first calls upon literary evidence, the proof of close connexion between chorus and actors, the observations and assertions of scholiasts, and so forth. This evidence is meagre, and indeed it must be remarked that on the question under discussion literary evidence alone would never enable us to arrive at a decision. The absence of a raised stage in existing buildings is another and a better argument—though he does not discuss the possibility of a temporary stage being erected as required. He next appeals to optical principles, which he illustrates by a series of diagrams. A stage (he says) is necessary only when the spectators sit or stand on a level: hence before the days of fixed theatres actors had to get up on carts or tables to be seen—so much for the *τράπεζα* of Pollux. With a rising auditorium, however, a stage would not have bettered the view of spectators in the top rows, and would have interfered with the comfort of those at the bottom, a position that no doubt is perfectly true. The subsequent development of the stage is a question bound up with the atrophy of the chorus, a process which we see setting in as early as the Euripidean plays. Another good argument in Dr. Dörpfeld's favour is derived from the columnar architecture of the *proscenium*. A raised stage would hide the feet of the columns, spoil their proportions, and, when the scene was laid (as usual) in the street or the open air it would destroy the illusion. The doors, also, would become unpracticable.

Such is a brief *résumé* of Dr. Dörpfeld's arguments; and even a counsel for the defence of the stage would be constrained to admit that he has succeeded in making a strong case. We leave it to the readers of the *Builder*

to form their own judgment; indeed, the question is probably one which each student will solve for himself. We must add, however, that we think the opponents of the "stage" theory greatly underrate the importance of the argument as to the aesthetic injury to the Greek drama which we must contemplate as the result of the mingling of the principal performers with the chorus in the orchestra. The Bradfield plays have familiarised us with the spectacle according to the usual idea of a Greek play, the principal actors going through their parts on a slightly raised stage, and the chorus occupying a perfectly different function, at once decorative and critical, in the orchestra; and it appears to us that to mingle the principals with the chorus, on the same level, would simply spoil the whole thing. If Dr. Dörpfeld's archaeological theory is to be accepted, it can only be at the expense of our ideal of the Greek drama.

The book closes with a chapter on the development of the stage from the earliest to the latest period; this is practically a summing-up of the whole work. We cannot close the present notice without referring to the pleasure and interest with which we have read this elaborate and valuable treatise; and we would express a hope that it may, before long, make its appearance in an English dress, in order that all in this country who are interested may have the gratification of hearing Drs. Dörpfeld and Reich speaking for themselves on a subject which they have made so peculiarly their own.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.

BY BANISTER F. FLETCHER, A.R.I.B.A.

CHAPTER IX.

Modern Architecture: A Mixed Period, the Age of Iron and Steel.

IN previous periods it has been shown that styles of architecture are largely the outcome of material. What can be said, then, of a period which has in turn tried all styles, and at times, all in the same material. Since the Renaissance we have had a Greek style, a Gothic style, and various phases of both of them, produced quite independently of the materials at our command, and, in fact, in spite of them. For whereas in previous styles science has been called to aid in the erection of buildings, in modern times it has played the part of the dresser and maker-up of a theatrical architecture where each period in turn occupies the scene.

Endeavouring at the beginning of the century to reproduce the forms of classical art, without taking any trouble to analyse and develop their principles, architecture has been incessantly hastening to its decay. It has become Neo-Greek, Neo-Gothic, Neo-Roman, Neo-Renaissance, Neo-Romanesque; it has sought its inspiration in the caprices of the age of Henry VIII. and Francis I., in the period of Elizabeth and the Stuarts, and in the decadence of the seventeenth century. In fact, its various phases present a grotesque medley of styles, fashions, and epochs. Construction has become the art of successful deception. Is the nineteenth century destined then to close without possessing an architecture of its own? Will this age, which is so fertile in discoveries, and which displays such an energetic vitality, transmit

to posterity only imitations or hybrid works without character, and which it is impossible to class?

The disease from which architecture is suffering dates from the Renaissance period, increasing from the sixteenth century to our own time, from the time when after a very superficial study of the architecture of ancient Rome—certain of whose externals were made objects of imitation—our architects ceased to make the alliance of the form with the requirements of the means of construction their chief consideration. The Greeks, later Romans, and Goths, erected public buildings whose forms were absolutely the expression of the means of construction adopted by them and which derive their beauty from that frank sincerity of expression. The Gothic architects go still further, they discard the concrete architecture of the Romans, and evolve an architecture in which all the appliances for strength are apparent, and where every element in the construction originates a form; they adopt the principle of active resistance, introduce equilibrium into the structure and in fact are impelled by the genius of modern times, desiring a distinct function for each product. This should be followed up, and not the reproduction of architectural forms belonging to another civilisation in materials that are unsuitable.

Roger Bacon, that worthy monk and rival of the artists of the thirteenth century, in his "Compendium Philosophiæ," chapter i., insists that the youngest are in reality the oldest, and that recent generations ought to surpass their predecessors in intelligence, since they inherit all the labour of the past; and further, in his "Opus Tertium," he insists that "experimental science is the queen of the sciences and the goal of all speculation." These were principles which were acted upon in his time, the thirteenth century, for it was by means of method, examination, and experiment that thirteenth-century Gothic was evolved from the tradition of Romanesque art.

In architecture, materials must indicate their functions by the form we give them, and these should conform to their nature. This, of course, has been more or less easy for past styles, working in natural materials having no very great contrasting qualities, but it is very difficult for us who have to make use of materials which possess different and even opposite qualities, to which must be given the appearance befitting these opposite qualities.

What are these materials? Firstly, *iron*, cast and wrought, and *steel*. It can hardly be doubted that if the Romans had had at their command cast and wrought-iron girders of large dimensions, they would have used them, as also the Gothic architects, for as Viollet-le-Duc has pointed out, they did their best to find a substitute for them by using very tough stone placed on end, when heavy masses had to be erected on light supports. The mediæval principles of elasticity and of equilibrium might well be adapted to a material which lends itself as a means of bracing oblique thrusts. But have we not used iron in a manner worthy of its nature and capabilities? Assuredly yes. This leads us to a definite statement with which we think most will agree, although seemingly a paradox—that the true architecture of the nineteenth century is engineering. By seizing upon the capabilities of these materials, iron and steel, engineers

have produced works which will go down to posterity as the essential product of the nineteenth century; works in which all the qualities of the new material have been well expressed. Take our iron bridges, suspension and cantilever, the Brooklyn Bridge with its sheer span of 1,600 ft., and the Forth Bridge with its cantilever trusses of 1,700 ft. span, both the best examples of their type, and we are at once struck with the skill and ingenuity of their structure, which is fully expressive of the scientific and material progress of our age. Take next our great roofs of iron and steel, our roof at St. Pancras and Olympia, and other great railway termini, and we see how constructively we are progressing. The Crystal Palace is, however, essentially a transition building of the last generation; never likely to be repeated except by the emasculated taste of some twentieth century archæologist, because it is not based on a scientific knowledge of the material.

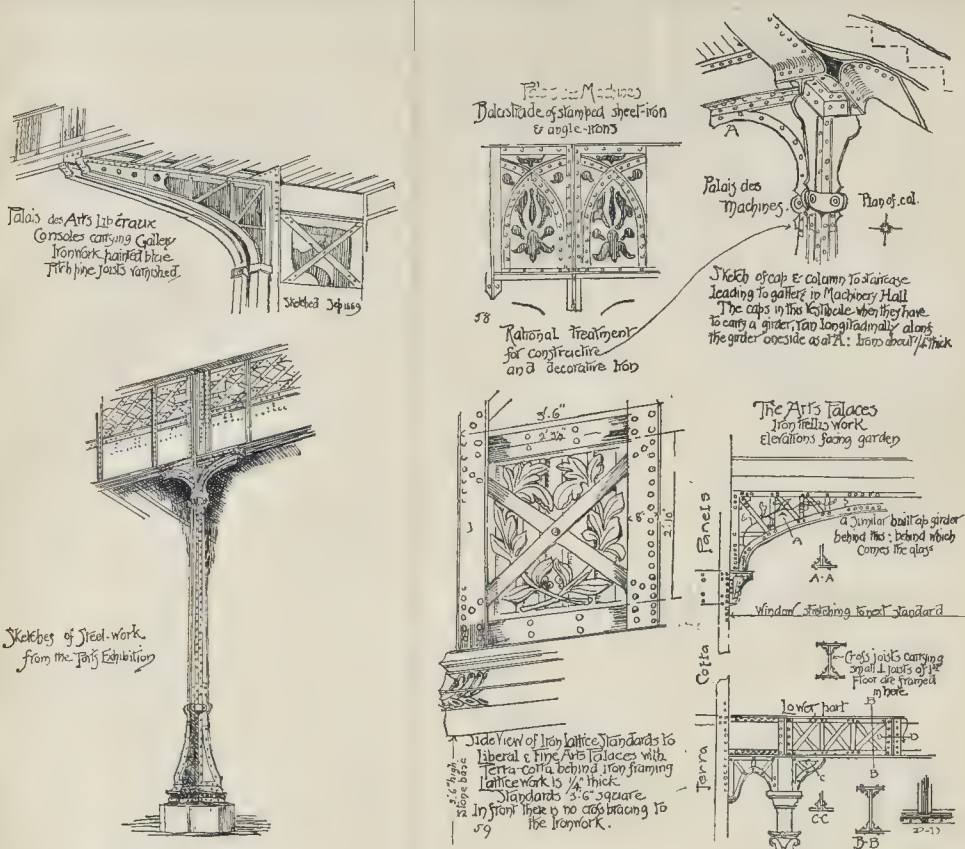
At the Paris Exhibition, buildings were erected of a framework of steel and iron, which astonished by their novelty of treatment. The "Galerie des Machines," with its clear span of 375 ft. and height of 141 ft., is a masterpiece of construction worthy to rank with the most daring of Roman and Gothic constructions. Would it have been possible to have erected such without the stimulating force of new material? Certainly not. It is encouraging that the general outline and design of detail was prepared in this case by an architect, and that the whole, being composed of ordinary sections of steel, placed together in an artistic manner, has given a building which is as characteristic of the material in which it is built as is a building in stone, brick, wood, terra-cotta, or any other material.

Other buildings at the Paris Exhibition are given; and, in most of these, the junction of iron framing with glazed tile or terra-cotta filling was admirably carried out, and well suited to the environment of large modern towns in which coloured glazed surfaces are at once decorative and economical, and lend a warmth and cheerfulness of aspect where smoke and acids so soon deface the more usual building materials. The roofs and structures at the Chicago Exhibition carried the design of steel work still further in the direction of lightening the scantlings and of giving the material that lace-like character which seems its ultimate goal.

The subject can hardly be left without mentioning the steel frame structures of Chicago. But, in doing so, the objects of these structures cannot be gone into, except so far as saying that they entirely answer the programme or requirements and the material means of execution. The steel skeleton is entirely independent of the envelope or clothing of stonework, which simply forms a protection from the outer air; and the result is a perfectly legitimate construction, and, in fact, follows the principles laid down by Roman builders.* A view of the Opera House at Chicago is given (see lithograph), in which almost a Greek severity of line is obtained.

Modern architecture has progressed and is progressing, only we are allowing our engineers to take the van. Architecture at the present day is really in very much the

* It may be as well to remind the reader that we do not make ourselves responsible for any of the opinions expressed in this essay.—E.D.



Sketches of Ironwork from Paris Exhibition.

same position that Roman architecture occupied at the beginning of the Empire, in which the old Greek columnar treatment was used in many buildings as a facing to the real construction behind, while other structures such as baths, domes, vaults, &c., were developing the new material, concrete, in the construction of enormous structures devoted to new purposes. Nowadays, we have a similar mixed architecture, only gathered from many styles instead of one, running concurrently with utilitarian works, such as bridges, roofs, high buildings, exhibition structures, in which our new building material is not concrete but steel, and which will eventually stamp the period as one of steel.

Finally, the architect and engineer being separated, and the former, therefore, not having the scientific knowledge proper to his calling, inclines towards methods in previous use, and, in cases of doubt, prefers to err on the side of excess of strength, and hide his inexperience behind what he deems rules of art, but which are often only those of routine. Architecture, divorced from its true motive power, now known as engineering, but which in all previous periods has been a part of it, ceases to aim at anything more than the production of forms more and more losing their significance, because they are not renewing their vitality by being referred to the true principles of construction, and if

they are not soon quick to see their position, architects themselves will be reduced to the condition of mere decorative designers.

CHAPTER X. (Conclusion).

Theory Shown to Hold in the Main, and Lessons Deduced for the Future.

My thesis has been the influence of material on architecture, and in endeavouring to prove my position, I do not think I have stepped beyond the limits of a fair treatment of the subject.

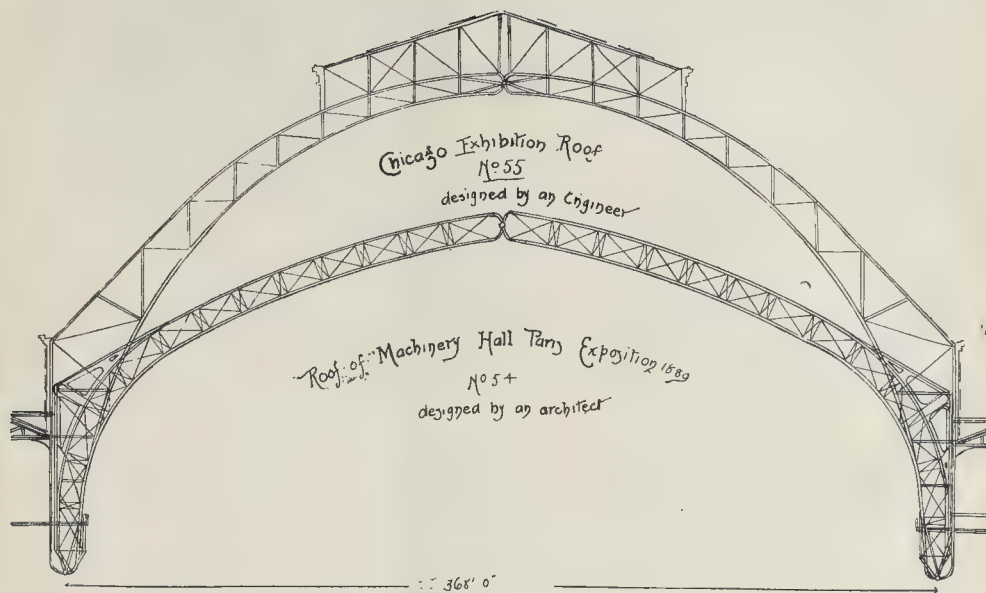
The position has been that architecture is an affair of material, the true use of which moulds the style, which is created out of the qualities of the materials that have to be employed. Most assuredly from our previous study we shall admit that a form which was the expression of a necessity, were it even a commonplace one, acquired from this very circumstance a special charm.

The various materials we use possess certain qualities or properties, and if we succeed in expressing these by the form we give to our materials, not only do we take advantage of their infinite resources and open up a vast field for variety in design, but we also extend the boundaries of artistic expression by this constant endeavour to give to every object the form that befits its nature.

Certainly, in the present day, the deter-

mination to be perfectly sincere would produce novel and fascinating results, as for instance in the use of a visible iron skeleton along with a glazed faience filling in our street fronts. We should at the same time be making ourselves really classic in the sense of following out the methods pursued in the good periods of our art. Having at our disposal novel materials, mechanical appliances far more developed and complicated than those of any previous period, and possessing a thorough acquaintance with all that has been effected in the past, we need but this determination to be sincere in order to excel. We have only to comply absolutely with the requirements of each case, taking the available materials for what they are worth—that is, for what may be attempted consistently with their special properties—then making some little use of science and a good deal of our reason, we should be able to lay the foundations of an architecture worthy of our age.

If we are to follow the principle of the past, an architect should be a scientific constructor, not necessarily working by formulæ, but one perfectly conversant with materials in their practical application. The divorce of engineering from architecture has resulted in the production of structures whose sole merit is that of economy. It is true that some of these, perhaps in part owing to their size, as the Forth Bridge and Eiffel



Tower are works of grandeur, perfectly emblematic of the spirit of the age, and expressive of that spirit. Still, if their designers had been men trained to refinement of eye, and to a sense of both delicacy and strength in contour, as well as to expertness in constructive science, would they not have been more beautiful?

I show drawings of two steel roofs, the largest of modern times, the one designed by an engineer, the other by an architect. Is there not sufficient ground, even from this example, for asserting that a training of the eye to beauty of form is advantageous and necessary?

Finally, in the study of the past, we should observe a clear distinction between a form which is only the reflection of a tradition, and a form which is the immediate expression of a requirement, constructively met; for it is only the study of the latter that issues in practical advantage—an advantage not consisting in the imitation of a form, but in the example it affords of the application of a principle.

NOTES.

The increase of large public buildings in Germany and Switzerland is very marked, noticeably in regard to post-offices. The General Post Office at Frankfort-on-the-Maine was mentioned in the *Builder* just before its completion. At the present moment a new post-office is being built at Zurich, which will be one of the most important in Switzerland. It is being erected on the Stadthaus-Quai between the Quai-Brücke, the bridge which forms the connexion between the different parts of the lake front, which was built in 1883, and the old four-arched Münster-Brücke, which was long the main bridge of Zurich. The new post-office fills the entire space between that portion of the Stadthaus-Quai on which it fronts and the Frau Münster Strasse, the street which runs behind it. The post-office

is of the white stone of which all the modern buildings of Zurich are formed; it has no architectural ambition, it is plain and business-like; but for that very reason it is more satisfactory than many buildings of greater pretensions—there is a solidity and a sobriety about it which harmonises well with the broad lake and the distant Alps. We would that those who are responsible for the erection of the different new post-offices in England would visit the Continent and take a lesson from the ample buildings which are to be found in Germany and Switzerland. Most of the post-offices in England are wholly unfitted for the needs of the present day.

THE rector invites subscriptions to a fund, estimated at 1,000*l.*, for repairing this ancient church. It stands over the foundations of an apsidal Basilica, whereof an outer wall was laid bare in 1859, which was erected in 633 by Ethelburga, daughter of King Ethelbert, who returned to Kent after the death of her husband, Edwin, King of Northumbria. After its partial destruction by the Danes, Dunstan re-built the chancel and south wall of the nave in 965. His work exhibits much irregular herring-bone work, and the three circular-headed windows in the chancel are turned inside with Roman bricks; the fabric it seems was originally coated, within and without, with a glazed concrete, the older masonry comprising some red tiles, varieties of rag, iron-stone, and the like, set in salmon-coloured mortar.* The arcade between the nave and north aisle is by Archbishop Bourchier, *ob.* 1486; the tower, embattled, and with spirelet, at the west end, was begun by Archbishop Morton. *ob.* 1500, and com-

In his account of the Church and Fortress of Dover Castle (1880) Canon Puckle makes some interesting observations upon the absence of oolite from the Saxon work at Lyminge, and its presence in St. Mary's, Dover Castle, at Reculver, and in the late Roman work beneath St. Ethelburga's.

pleted by Archbishop Warham, *ob.* 1532; it bears those prelates' coats of arms. John Peckham, who held the see in 1279-92, repaired the fabric and built the chancel arch. The churchyard contains remains of the Benedictine convent, which Ethelburga established on a site given by her brother Eadbald, King of Kent, and which, after its dissolution in 965, formed the Archbishops' house until Cranmer surrendered the manor to Henry VIII. in 1546. The Royal foundress was buried (647) in the north porch, whence her remains were removed, as relics, by Lanfranc to the St. Gregory's Hospital he founded in Canterbury. The parish lies along the east side of the Via Limenrea, Stane or Stoney-street, from Canterbury to Lympne, near Hythe.

placardine Abbey, co. Elgin Bute has purchased Pluscardine Abbey from the Duke of Fife, and intends to spend a large sum upon its restoration, we presume in order to bring the buildings into religious use again, which could be the only possible excuse for "restoration." The ruins include the choir, two transepts with eastern aisles, and tower at the cross (it seems the nave was never built) of the Cistercian Abbey founded in 1230 by Alexander II. In 1454 the Cistercians were replaced with Benedictines from the neighbouring Urquhart. Lord Alexander Seton, appointed first lay prior in or about 1560, sold the abbey to Kenneth MacKenneth, Chief of Kintail, in 1595; it then passed through various hands until its purchase, 1710, by Duff of Dipple, from whom it descended to the Earls of Fife. The calfactory, which has a vaulted roof, was fitted up by the fourth Earl for a district church about sixty years ago; therein was placed the pulpit obtained in 1680 from old St. Giles's, the "Muckle Kirk," Elgin, pulled down in 1826; the pulpit had a rim for the baptismal basin, and an hour-glass stand, of twisted ironwork. This abbey gives its

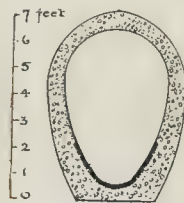
name to the Book of Pluscardino, a historical work based upon Bower, supposed to have been written there, circa 1460, by a monk, Maurice Buchanan. It is one of the three Cistercian houses in Scotland, the two others being Beaulieu and Ardcathann.

Tests of Floor Materials.

SOME tests of the wearing qualities of various floor-materials have been made by Mr. William J. Gray, a well-known contractor in Philadelphia, and are recorded in a recent issue of the *Scientific American*. The tests were made on pieces of tile, stone, wood, &c., 6 in. square and 1 in. thick, each cemented to a block of stone weighing 20 lbs., and placed face downwards on a rubbing-bed revolving at the rate of 75 ft. per minute. The rubbing was continued for one hour in each case, and the results furnish curious reading. The most durable materials proved to be an "interlocking rubber tile," which lost only $\frac{1}{8}$ of an inch, and an "English earthen tile," which lost $\frac{3}{8}$ of an inch. Vermont marble lost $\frac{3}{8}$ of an inch, flagstone $\frac{1}{2}$ in., and granolithic only $\frac{3}{8}$ in., while marble mosaic 1 in. thick was entirely destroyed in thirty-five minutes. A test of ceramic mosaic would have been interesting for purposes of comparison. Yellow pine and white pine lost $\frac{7}{8}$ of an inch, oak and Oregon pine $\frac{3}{4}$ in., and teak, curiously, lost $\frac{1}{4}$ of an inch. The resistance of the granolithic to abrasion is evidently due to the hardness of the granite or syenite of which it is chiefly composed, but even granolithic is very little better, according to these tests, than ordinary pine. The results obtained by Mr. Gray corroborate some tests made in Germany a few years ago, where, porphyry being represented by 100, granite had a relative value of 80, parquetry 44, and white marble only 27.5.

Concrete Sewers.

THE accompanying illustration is a section of a concrete sewer constructed at Fredricksfeld, Baden, in Germany; the invert is faced with vitrified tiles having corrugations on the back so as to afford firm hold for the cement in which they are bedded. The arch at the



thinnest part is about 6 in. thick, while the height of the sewer is 6 ft. We are not aware that concrete sewers faced with tiles in this way have been constructed in England, although they have been illustrated in the catalogues of certain tile-makers; the fact of their construction elsewhere may perhaps lead to their being tried in this country.

Sanitary State of Wribbenhall.

THE general recommendations of Dr. Theodore Thomson in his report to the Local Government Board on the sanitary circumstances of the village of Wribbenhall in the Kidderminster Rural District are very satisfactory, following, as they do, a detailed account of some very unhealthy conditions prevalent in the village. Among the conditions most urgently calling for the attention of the

Sanitary Authority are the water supply, the sewerage, and the disposal and removal of excreta and house refuse. A water supply derived from local wells sunk in a formation so open to dangerous pollution as is the New Red Sandstone under Wribbenhall, cannot be regarded as free from grave risk to the health of its consumers; and the Rural District Council should, without loss of time, set about providing for the inhabitants of Wribbenhall a sufficient supply of water free from suspicion of impurity. The Council should also see to the abolition of the cesspools that abound in large part of the village; and should provide a proper system of sewerage for those parts of Wribbenhall at present unsewered, as well as for the remainder of the village, the sewers of which are in a defective condition. A suitable scheme of ultimate disposal of sewage is also called for in place of the existing arrangement, whereby the crude sewage of much of Wribbenhall is poured into the River Severn. The methods of disposal and removal of excreta and house-refuse also stand greatly in need of improvement. In place of the offensive cesspit privies that form the principal method of excrement disposal in Wribbenhall, the Rural District Council should adopt either properly-constructed water-closets, with adequate flushing arrangements, or a satisfactory system of dry disposal of excreta. As regards removal of excreta and house refuse, duties of this sort cannot be efficiently discharged in Wribbenhall by the occupiers of houses; and the Rural District Council should themselves undertake these duties. Other matters, according to the report, requiring the attention of the Rural District Council are, the paving of yards, the closure or repair of unhealthy dwellings, and the searching out and remedy of defective conditions of house drainage.

The Last Novelty in Competitions.

THE Urban District Council of Padiham have perhaps succeeded in beating the record in regard to absurd and insulting proposals to competing architects; though, judging from the spelling to be found in their circular, they have perhaps erred through ignorance rather than any bad intention. In inviting architects to compete for the erection of a new Technical School and Town Hall, they appear to regard the architect as a sort of tradesman, or to confuse him with the contractor, for they "invite tenders for the supply of plans, elevations, and estimate of the cost of the building," and the architect "must state the terms ("time" is the word printed, but evidently "terms" is meant) upon which he is prepared to carry on the whole of the work, to include plans, specifications, detail, drawings (*sic*), and the whole of the architect and surveyor's work of every kind." The plans are to be to $\frac{1}{4}$ in. scale, and no premium of any kind is offered; a block plan of the site "may be seen on application to the Clerk of the Council," but there is no offer to furnish copies of it. To crown all, "a perspective or simetrical view of the building must be furnished." The architect who sent us the paper requested us to return it, as he wished to keep it as a curiosity. He is quite right.

FACTORY, BROOK GREEN, HAMMERSMITH.—A factory is to be built at Brook Green, Hammersmith, for the Incandescent Electric Lamp Company, at a cost of about 7,000l. Mr. J. W. Stevens, of London, is the architect.

BRITISH ARCHÆOLOGICAL ASSOCIATION: ANNUAL CONGRESS.

A VERY cordial invitation from the Mayor of Conway (Dr. Prichard) having been received, it was determined by the Council that the fifty-fourth annual congress of the Association should be held in that ancient Borough. The meeting commenced on Thursday, August 19, and continued until Wednesday, the 25th., the patron being H.R.H. the Prince of Wales, and the President the Right Hon. the Lord Mostyn. A large party of members and visitors assembled at the Guildhall at 10.30 on Thursday morning, accompanied by the President, and were welcomed by the Mayor and Corporation. Mr. Thomas Blashill, one of the Vice-Presidents and Honorary Treasurer, having duly acknowledged the cordiality of the reception, a move was at once made for the Castle, close by, under the guidance of Mr. T. B. Farrington, the Borough Engineer and Hon. Local Sec. of the Congress; the President's inaugural address being postponed until the evening in order to save time and devote the whole of the day to the antiquities of Conway. Entering the castle by a very steep approach to the gate of the barbican (there is no gate-house at Conway), which was protected by a drawbridge, portcullis, and massive doors, the visitors passed through the main gateway to the outer ward. This gateway is in the middle of a curtain wall, flanked by two of the main towers, and defended above by machicolations, boldly projected and extending from tower to tower. The perambulation of the castle occupied about an hour and a-half, and Mr. Farrington, after briefly giving the history of the fortress, described the various features as the party proceeded.

Conway was one of the three principal castles erected by Edward I. in Wales; Caernarvon and Beaumaris being the others. These castles all appear to have been in progress much about the same time, Caernarvon being, perhaps, the earliest to have been commenced. Conway dates from about 1282, and with the walls of the town, which are practically still complete and of their full height, extending in circuit for over a mile and a quarter, forms one of the most imposing and perfect examples of the military architecture of the thirteenth century. It is most picturesquely situated, and the capable soldier and warlike monarch who planned it took full advantage of the natural strength of the position. The plan of the castle is somewhat irregular, as it follows the natural shape of the rock on which it is built, but it may be described in general terms as a parallelogram in form, strengthened by eight massive cylindrical towers, the rampart walk being carried past these towers upon a kind of corbel table, the inside face of each tower being straightened to allow of this being done. The outer and inner wards are divided by a wall of great thickness pierced only by one archway of communication. The principal or state apartments were within the inner ward. There are several fireplaces, some in fair preservation; and in the tower called the "Queen's Tower," there is a charming little apsidal oratory with a groined and vaulted roof which, thanks to its inaccessibility to the general public, has been but little damaged, and being built in the thickness of the tower wall is not much exposed to the weather. The luxuriant growth of ivy, trees, &c., should be restrained, as the masonry is being permanently injured, and in some parts appears to be unsafe.

In 1290 the Welsh, under Madoc, a natural son of Llewelyn, attacked and besieged the Castle of Conway, and the King, Edward I., who was then resident there, was very nearly reduced to capitulation owing to stress of famine, but, opportunely, a ship laden with provisions arrived, and the calamity was averted. In the great hall, situated in the outer ward, Richard II. is said to have signed his abdication. In the great civil war the town was taken by storm by the Parliamentarians in 1646, and later in the same year the castle was surrendered to General Mytton. The present ruined condition of the castle is not due to the Parliamentarians, as was generally the case under similar circumstances, for they appear to have respected it; but is owing to the unworthy action of the nobleman to whom the King, Charles II., granted it, Edward, the first Earl of Conway, who was no sooner in possession than he stripped the building of all the lead, timber, and ironwork, broke down the stairs, and did all he could to injure the structure; it

is said, in order to spite the neighbouring gentry and annoy the inhabitants of Conway.

Leaving the castle, the party proceeded to inspect the Town Walls, which are lofty and embattled and of great thickness, strengthened at regular intervals by some twenty-eight towers of semi-circular form open at the rear from bottom to top. The Parish Church was next visited, where the Vicar, the Rev. J. B. Lewis, M.A., received the party. Mr. G. Patrick, Hon. Sec., read some notes he had prepared, from careful examination of the church, descriptive of the building and its history, and expressed his regret that Mr. Harold Hughes, who had made a most careful study of the church, was unfortunately unable to be present to explain the many interesting and somewhat puzzling features connected with its construction. About the year 1180 the then Prince of Wales, Llewelyn-ap-Iorwerth, founded, at Conway, an Abbey of Cistercian monks, and endowed it with large possessions in Arvon, Denbighshire, and Anglesea. These possessions, with many other privileges, he confirmed by charter to the monks in 1198. In 1245 the Abbey suffered great damage from the English, who, returning victorious over the Welsh, plundered the monastery, despoiled it of its sacred vessels, and destroyed much other valuable property and many of the buildings with fire. This Abbey is included in the list of Cistercian Abbeys, compiled by Dr. W. de Gray Birch, late Hon. Sec. of the Association and now a Vice-president. About ninety years after its foundation Edward I. removed the monastery to new buildings he had constructed a few miles higher up the river, at Maenan, on the Denbighshire side. This removal would also be in accordance with the rules of the Cistercian Order, which directed that their buildings should be in sequestered places; not in towns, but far from the haunts of men; and Conway was then becoming a completely walled and fortified town. The question arises as to what became of the Abbey Church of Conway after the removal of the monks, and this question Mr. Harold Hughes appears to have satisfactorily set at rest. In the first place there is extant, Mr. Hughes informs us in his printed history of the church, a charter of Edward I., under the date 1283, relating to the translation of the Abbey to Maenan, which translation he declares that the church, which the monks before had as a conventual building they should henceforth hold as a parochial one, causing the same to be served by two fit and honest English chaplains (of whom the one should be perpetual vicar) and a third an honest Welshman, "on account of the diversity of language." An examination of the building indicates that portions of the walling and some of the architectural features are of an earlier date than the removal of the monastery to Maenan. There seems little reason to doubt that the existing building not only stands upon the site of the Abbey church, but that its more ancient parts are portions of the Abbey itself, still *in situ*. The church underwent considerable alteration in the fourteenth century, and again in the following century, when the rood screen, of late Perpendicular work, but a fine and rich example of the style, was erected. The font, also, is a very good example of this period, and is raised upon three steps. The fronts and ends of the choir stalls are richly carved, and belong to the same period. The church contains many interesting coffin slabs and other monuments, with the armorial bearings of local neighbouring families. In the vestry is carefully preserved an altar cloth of rich design in lace of the sixteenth century, also a chalice veil of the same material and date. In the afternoon the party assembled at the entrance to the old mansion, "Plas Mawr," in the High-street, now occupied by the "Royal Cambrian Academy of Art," where the President of the Academy, Mr. Clarence White, met the members and conducted them over the ancient building. This is a most quaint and interesting example of the domestic architecture of the sixteenth century, and is in admirable preservation. Owing to the ground being a steep slope, the house is erected in three blocks, the front one of three stories, with stepped and gabled dormers, forming the porter's lodge, opening by a central porch into a courtyard from which a broad flight of stone steps leads up to the banqueting hall. There is a second entrance on the east side which leads directly into the courtyard. The date of the oldest part of the house is unknown, but the dates 1576, 1577, and 1580 are to be seen upon various parts of the walls. The house is

rich in plaster decoration of elaborate design, in ceilings and walls with armorial bearings, and badges of the Wynns, the Daltons, the Bulkeleys, and other families, together with the Royal arms, and Tudor rose. The house is the property of Lord Mostyn. A visit was next paid to the Vicarage garden to view the old walls with the steps leading to the rampart walk.

The party reassembled in the evening at "Plas Mawr," at a reception given by the Mayor, at which Lord Mostyn delivered his inaugural address. In his opening remarks he said there were few places that presented such a variety of objects interesting to the antiquary as Conway. In almost every direction they would find evidence of ancient British fortifications and tumuli, and inscribed stones, crosses, and other remains of that character were to be found in the neighbouring country. Close by, at Caer-Hün, was a considerable Roman settlement, identified as being the Roman station of Conovium. He had at Mostyn a cake of copper said to have been smelted from the ore of the Snowdon mountains. It bore in Roman characters the words "Socio Romae," and across it obliquely in lesser letters "Natasol." At Deganwy they had the foundations of the first Norman castle. Deganwy was his own property, having been brought into his family, together with the Gloddaeth estate, about the time of Richard II. He hoped at some time to excavate the foundations and to carefully preserve the remains. Deganwy was taken September 28, 1263, by Prince Llewelyn ap Griffith, and by him totally demolished. In 1277 Edward I. came to Conway with a large army, when a peace was concluded with Llewelyn. In 1282 Llewelyn ap Griffith again declared war, and King Edward made Rhuddlan his headquarters, and from there advanced with his army to Conway. Llewelyn was killed, and Wales annexed to England. King Edward used the materials of the ruined castle of Deganwy in the building of Conway Castle, which is said to have been completed in this year. The President's address was illustrated by plans and drawings of Deganwy Castle, prepared by Mr. Cox, of Liverpool, and by a small plan and synopsis of the history of the castle, with which each of the company was furnished. Mr. Wallace, in proposing a vote of thanks to Lord Mostyn for his address, made some interesting references to the state of the country some two hundred years ago, particularly in respect to the roads and means of locomotion in those days. Two hundred years ago Wales was described by Dean Swift as "the most heathenish country in the world." The very first coach to cross the pass of Penmaen-mawr was Lord Clarendon's in 1685, the pass at that time being dangerous in the extreme. The Mayor of Conway is "ex-officio" Constable of Conway Castle, and the town is one of the few places in which the curfew is still rung regularly at 8 p.m.

Although several picturesque old buildings have been removed in recent years, Conway still possesses some quaint "bits"—memorials of the past—as in the two small semicircular oriel windows over a shop front in Castle-street, which are supported on two groined pendentive brackets uniting at the top, the wall space between and on either side of them being elaborately carved with flowing tracery and armorial bearings and badges, in which the Stanley crest predominates. The house is known as "Stanley House." At the corner also of High-street and Castle-street stands an exceedingly picturesque old house, with overhanging upper story supported on bold brackets. It is said to date from 1400.

Friday, August 20.—Members and visitors left Conway by train for St. Asaph, where they arrived about 11.10, and proceeded to the Cathedral, where they expected to be received by the Dean, or someone in authority to represent him; but owing to some misunderstanding they were left to their own resources. The See of St. Asaph is an ancient one, and is situated partly in Flintshire and partly in Denbighshire. The first church is said to have been built about 560. There is little of interest in the present cathedral, which has been overmuch restored. The nave and aisles are the oldest portions, and are of the date of the latter part of the thirteenth century. The choir was rebuilt in 1770. There are a few good monuments, the chief being an altar-tomb with recumbent effigy, in episcopal vestments, of Bishop Dafydd-ap-Owain, who died in 1502.

Leaving St. Asaph, the party proceeded to inspect the remains of the ancient castle of Rhuddlan, which stand upon a steep bank close to the water on the east bank of the Clwyd, about two miles from the sea. The site must have been from the earliest times a position of great natural strength, which the Welsh were quick to recognise and take advantage of; and early in the eleventh century they erected a stronghold here, which appears to have been the fortress which was afterwards captured from Gryffydd-ap-Llewelyn by Harold the Saxon in 1063. When Edward I. was waging his campaign against the Welsh he saw the importance and strength of Rhuddlan, and built the castle, the ruins of which remain, but at some short distance from the earlier one, upon a site overlooking Rhuddlan marsh towards the west. In form it is a concentric castle. Differing from Conway in respect of site and general design, it is a very interesting example to those who have studied the former. The ground is nearly level with the hill, from which the site is cut off on three sides by a ditch. On the north side was the fortified gateway, furnished with a drawbridge, and for further protection a deep cutting was made to prevent direct approach to the gate. The ditch seems to have been supplied with water from a stream of very moderate capacity; and at the south-western angle, where the water escaped towards the marsh, three retaining walls crossed the widened moat so that the water could be ponded up and lower reservoirs formed that would work a mill. At the inner side of this outlet, at the level of the marsh, is a tall square tower defending the reservoirs and works, and also the western wall, which runs along the lower level. This wall is provided with loop holes for archers, and has a postern with staircase strongly defended. The moat on the other three sides has a wall with many loopholes just above the water level and small towers at intervals projecting into the water to prevent access to the wall. In the centre of the outer court is a massive square enclosure with strongly fortified entrances at two of its angles. The doorways, with the holes for the beams which secured the doors and the grooves for the portcullis are well preserved, as well as the openings above the entrances from which assailants could be annoyed. Each gateway is flanked by a pair of massive towers containing guard rooms, and at the angles where there were no gateways similar towers were constructed. The inner court shows the traces of the lean-to roofs of the buildings, which once surrounded it. Rhuddlan was frequently captured and re-captured during the wars between the English and the Welsh in the eleventh, twelfth, and thirteenth centuries. It is also celebrated in history as being the scene of the treaty between Edward I. and the Welsh after the death of Llewelyn and the annexation of Wales to England. Mr. Blashill pointed out to the party the various features described above.

At the evening meeting in the Guildhall, Dr. W. de Gray Birch described and commented upon the ancient charters of the Borough of Conway, which date from the time of Edward I., but, unfortunately, owing to neglect in past years, they are now incomplete, and those that remain, with one or two exceptions, are almost obliterated from decay. They are now, however, carefully preserved under glass, and steps have been taken by the Corporation to obtain official certified copies from the Public Record Office.

Saturday, August 21.—The archaeologists, in a large party, left Conway at an early hour for Carnarvon, where, on arrival at the railway station, they were met by Sir Llewelyn Turner, the Deputy Constable of the Castle, and, under his guidance, proceeded to inspect the remains of the ancient walls and gateways of the outer circuit before entering the castle itself. Their guide pointed out the position of the west gate of the town, and, proceeding past the Guildhall to the north-east angle of the castle, he indicated the commencement of the fortress at that point, and explained how he had been able to excavate the moat there, and expose the full height of the castle walls. Entering the castle by the main gateway, Sir Llewelyn described the plan and principal features, and explained that the statement that "the castle was completed in a year" could obviously only be taken to mean that a sufficient portion was completed to give accommodation for a garrison. With respect to the erection of the Eagle Tower, and the birth of Edward II. therein, according to the tradition (disputed,

however, by some writers on the ground of there being no proper accommodation, and the tower not being then erected, Sir Llewelyn conclusively showed, from the mass of public records, and bills of wages he had consulted, as well as from the architectural evidence, that the Eagle Tower was built up to the level of the upper story, and roofed by Edward I. before the period of the Queen's confinement, and there is not a particle of evidence against the acceptance of the tradition. The upper stage of this tower was added by Edward II. together with the ornamentation from which it derives its name. Carnarvon Castle, though built much about the same time as Conway, is a more light and elegant structure in appearance, owing to the diverse forms of the thirteen towers which strengthen its walls, no two of which are alike. The curtain walls, especially on the river front, are of immense thickness, and are pierced with galleries which are continued through the towers. On leaving the castle, after a perambulation of nearly three hours duration, the party was entertained at luncheon by Sir Llewelyn Turner, and then proceeded in carriages for a long drive of eleven miles to Clynog, where Mr. Chas. Lynam met and conducted them to view an ancient well by the roadside, still used by the villagers, as the water is believed to be good for the eyes and a preventative of blindness. It retains the original steps down to it, and the stone seats upon which the pilgrims sat while waiting their turn to take the water, and is one of many so-called "holy wells" in this part of North Wales. It is dedicated to St. Bueno, to whom, also, is dedicated the fine Perpendicular collegiate church of Clynog, not far distant, which was described by Mr. Lynam in detail as the members accompanied him round the building. A large chapel, connected with the tower by a covered way, contains the reputed grave of St. Bueno. An elaborate roof screen of late Perpendicular date, and some good carving in stalls and misericordes are features of the church. In the vestry is preserved an old oak chest, hewn out of a solid block and fastened with a pin and three locks, also a pair of so-called "lazy-tongs," which were used to drag out any dogs that had entered the church. Time did not permit the party to proceed far enough to view the ancient British Cromlech of three stones, which stands in the fields between the high road and the sea. There was no meeting at the Guildhall this evening.

Monday, August 23.—The members of the Congress resumed their peregrinations refreshed by the Sunday's rest, and took an early train for Bangor, where, on arrival at the Cathedral, they were received by the Dean, who related the history of the see and the church and conducted them round the building, pointing out all the features of interest in passing. The See and Church of Bangor are of very early foundation, the first church having been erected about A.D. 550. How long this building lasted we do not know, but a church is said to have been destroyed here by the Saxons in 1071. Afterwards there appears to have been an early Norman church, which had an apse; a buttress and a window arch, now filled up, of Norman date are to be seen in the south wall of the choir. The Cathedral was enlarged in the thirteenth century, but like St. Asaph, it suffered considerably from the wars between Henry III. and the Welsh, and again, in 1402, it was burnt down by the followers of Owen Glyndwr. It remained roofless and in ruins for nearly a century, when the choir was rebuilt by Bishop deVourcy, 1469, Henry VII. The west tower was added and the nave rebuilt by Bishop Skeffington in 1532. The Cathedral contains a few monuments of some interest, two of the fourteenth century in the choir, and various fragments of coffin slabs preserved at the west end of the north aisle, where is also a portion of a tile pavement *in situ*. Here also is preserved an example of the "lazy-tongs" previously mentioned. In the Cathedral Library, amongst other treasures, the Dean exhibited the celebrated "Pontifical" and book of "Offices that only a Bishop can do." The "Pontifical" is said to have belonged to Bishop Anian (date 1266). The "Offices" belong to the fourteenth century, and are beautifully illuminated. These rare works are now bound together in one volume: the latter was given to the Cathedral in 1488. Bangor was distinguished by having a special "use" or "rite," and, according to the late Rev. McKenzie Walcott, besides the Cathedral dig-

nitaries it had five canons. The Cathedral has been much restored under the late Sir G. G. Scott, but it has been well done, and there are many points of detail of great architectural interest remaining. After taking leave of the Dean the party walked across the fields to the pier, whence they proceeded by the steam ferry across the straits to Beaumaris, which, with a fresh breeze blowing, was a delightful trip. Here they were met by Sir Llewelyn Turner, and followed his guidance to the castle, which he described in detail. It is somewhat strange that so little should be mentioned in history of this castle. It was built by Edward I., but at a later period than either Carnarvon or Conway, about 1296. Its low situation on the shore is compensated for by its immediate accessibility from the sea. It stands but little above the sea level, and its ditch, now filled up, was supplied by the sea. Beaumaris furnishes an example of a purely concentric fortress. Its inner ward is quadrangular, its length rather greater than its width. The enclosing curtain walls are of great thickness, and have massive drum-shaped towers at the four angles; midway in the length of each of the east and west faces is a projecting tower with semi-circular end, that on the east containing the chapel, which is a beautiful piece of thirteenth century architecture, consisting of two bays and a semi-octagonal apse, groined and vaulted. The walls are arcaded all round. The curtains have mural passages which communicate with several staircases and chambers in the towers at the angles. This ward occupies the middle of the site and is entirely detached from the outer ward. The outer ward has eight faces, but they are unsymmetrical. A circular engaged tower protects each principal angle, the other angles have smaller towers, with an intermediate tower in the middle of each face of the curtain wall, which is not so high as that of the inner ward. A gateway flanked by projecting semi-circular towers occupies the centre of each of the north and south faces of the inner ward. The south entrance is further defended by an ingeniously contrived barbican projecting at an obtuse angle from the outer curtain, near to which runs out a long spur-like work, embattled on both sides, and ending at one time in a tower standing in the sea, similar to that at Conway. This castle, unlike other Welsh fortresses, has had an uneventful existence. In the Civil Wars it was garrisoned for the King; but in 1642, under Lord Bulkeley, it was obliged to surrender owing to a severe defeat of the Royal forces in the immediate neighbourhood by the Parliamentary General Mytton.

On leaving the castle a passing visit was paid to the old Court House (date 1614), and the party wended their way through the quiet streets to the old parish church, where they were received by the Vicar, who pointed out the chief features of interest in the building, which dates from the commencement of the fourteenth century. The church consists of nave and chancel, north and south aisles, in which were chapels dedicated to St. Mary and St. Nicholas, and a western tower. There are the remains of stalls in the chancel, richly carved, which are said to have been brought from a Franciscan friary a short distance away. There is also a fine screen, of the type similar to others in the neighbourhood. On the north wall of the chancel there is a brass, bearing a representation of the Holy Trinity. In the vestry is preserved a fine altar-tomb, with full-size recumbent effigies of a knight and lady, of which nothing whatever is known, beyond the very common form of local tradition, to the effect that it was recovered from a ship wrecked on the coast. The tradition adds that the ship was on a voyage from Portugal. The tomb was taken to the adjacent friary, and upon the Dissolution was brought to the church, where it has since remained. The monument apparently belongs to the fifteenth century. The party returned to Bangor by the ferry, and took train for Conway. At the evening meeting at the Guildhall, Mr. Patrick, hon. sec., read a paper by Lady Paget on "Caves and Passages under the British Fortress of Pen-y-Gaer," in which the author remarked that the position of these caves and long underground passages resembled those of similar character and situation under hill forts both in Ireland and Wales.

Tuesday, August 24.—This morning, in lovely weather, after heavy rain during the night, the members of the Congress started from the hotel for a coaching expedition, the first place to be visited *en route* being Caer-Hün, the

ancient Roman station of Conovium. Here, at the residence of Colonel Gough, the party was received, in his absence, by Mrs. Gough, who had kindly laid out for exhibition all the relics which had from time to time been discovered on the estate; and these are many, and include an ancient British shield which was discovered in 1799 on the east side of the Roman station on opening an old drain about 2 ft. below the surface of the ground; a cinerary urn containing the bones of a female, dug up in 1870; many Roman coins found in Conovium, and Roman tiles. In pulling down the old house of Caer-Hün in 1896 a large portion of an incised coffin slab was found built into a chimney, and in the foundations an old sword. Amongst other interesting objects exhibited were an old black letter book, a Cromwellian deed and seal, some Queen Anne and other coins, and some curious chests and weapons of early date, all of which had been removed from the old house now demolished.

Mr. Patrick, hon. sec., read some notes extracted from the history of Wales, revised by Mr. Richard Llywyd, descriptive of the ancient station of Conovium, from which it appeared that the site of Conovium is nearly a square of 260 ft., surrounded by a slight vallum of earth, at the distance of somewhat more than 500 ft. from the River Conway, on the next side of which the ground is very steep from the edge of the station. In the hilly ground between the station and the river called Erv Gaer, i.e., "the Castle Acre," the remains of a considerable building were discovered, at the time supposed to have been a hypocaust. Many tiles, lumps of clay, and earthen vessels, which appeared to indicate the situation of a manufactory of Roman pottery, were also discovered. This was in the year 1801. At the present time the outline of the station is perfectly distinct, and foundations of villas and other buildings are clearly to be seen. Leaving Caer-Hün, the journey was continued to Bettws-y-Coed, which was reached about 1.30. The parish church, which is said to be one of the oldest in Wales, was next visited. It is charmingly situated, but the principal object of interest attaching to it is a fine recumbent effigy in admirable preservation of Grylfyd, son of Dafydd Goch, a descendant of the early Princes of Wales.

Llanrwst Church was next visited. This church possesses a richly carved and vaulted roof-screen of late fifteenth-century date. The stairs to the loft are still in use, as the loft is used for a Sunday-school class. There is a great deal of good oak carving in stalls and panelling, which is said to have been brought from the Abbey of Maenan. In the Gwydyr Chapel is preserved the stone coffin, without lid, of Llewelyn the Great, said to have been brought from the Abbey at Conway. It is of great size, the sides and ends ornamented with quatrefoil panels. On the floor, by its side, lies the recumbent effigy of a knight in armour of the early fourteenth century, said to represent Owen Goch, the third brother of Llewelyn. There are also several brasses to members of the Gwydyr family. The chapel itself was erected in 1633 by Sir Richard Wynn, from designs by Inigo Jones. At Llanrwst have been found, from time to time, several Roman remains, notably a bronze cauldron, which once belonged to the 10th Legion, now in the possession of Mr. Jones, of Henar, Llanrwst.

The drive was resumed to Gwydyr Castle, where Lord Carrington welcomed the members, and presented each with a résumé of the history of the house, which he had had specially printed for the visit of the Association.

The ancient castle of Gwydyr is situated at the base of Carreg-y-Gwalch, or the "rock of the falcon," which afforded retreat to a famous partisan of the House of Lancaster, Dafydd ap Shenkin, whose spurs still may be seen in Gwydyr Chapel. The place is called Gwaeddir, or the Bloody Land, from the battles fought there in A.D. 610, and again in A.D. 952. The earliest known owner of Gwydyr was Howell Coytmore, who was a captain of a hundred Denbighshire men and fought under the Black Prince at Poitiers. Dafydd, the son of Howell Coytmore, sold the property to Jevan ap Morddydd, ancestor of Sir John Wynn, the historian. The Wynns of Gwydyr are one of the oldest families in Wales.

Most of the castle dates from the sixteenth century, although the Stair Tower and other parts are considerably older. Foundations of an older house were discovered some years ago when the drains were being relaid. The castle was originally built round a greater and a lesser

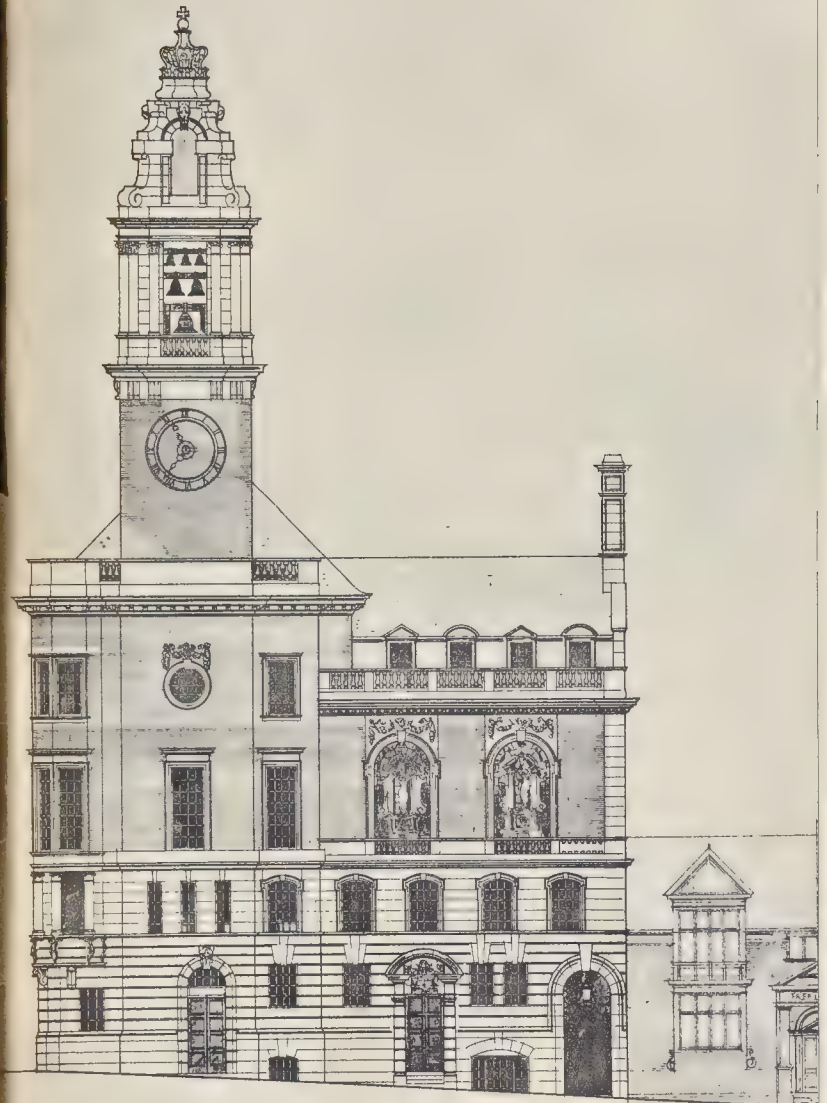


SELECTED DESIGN FOR COLCHESTER TOWN HALL. MR. J. E. COOPER, ARCHT. & C.



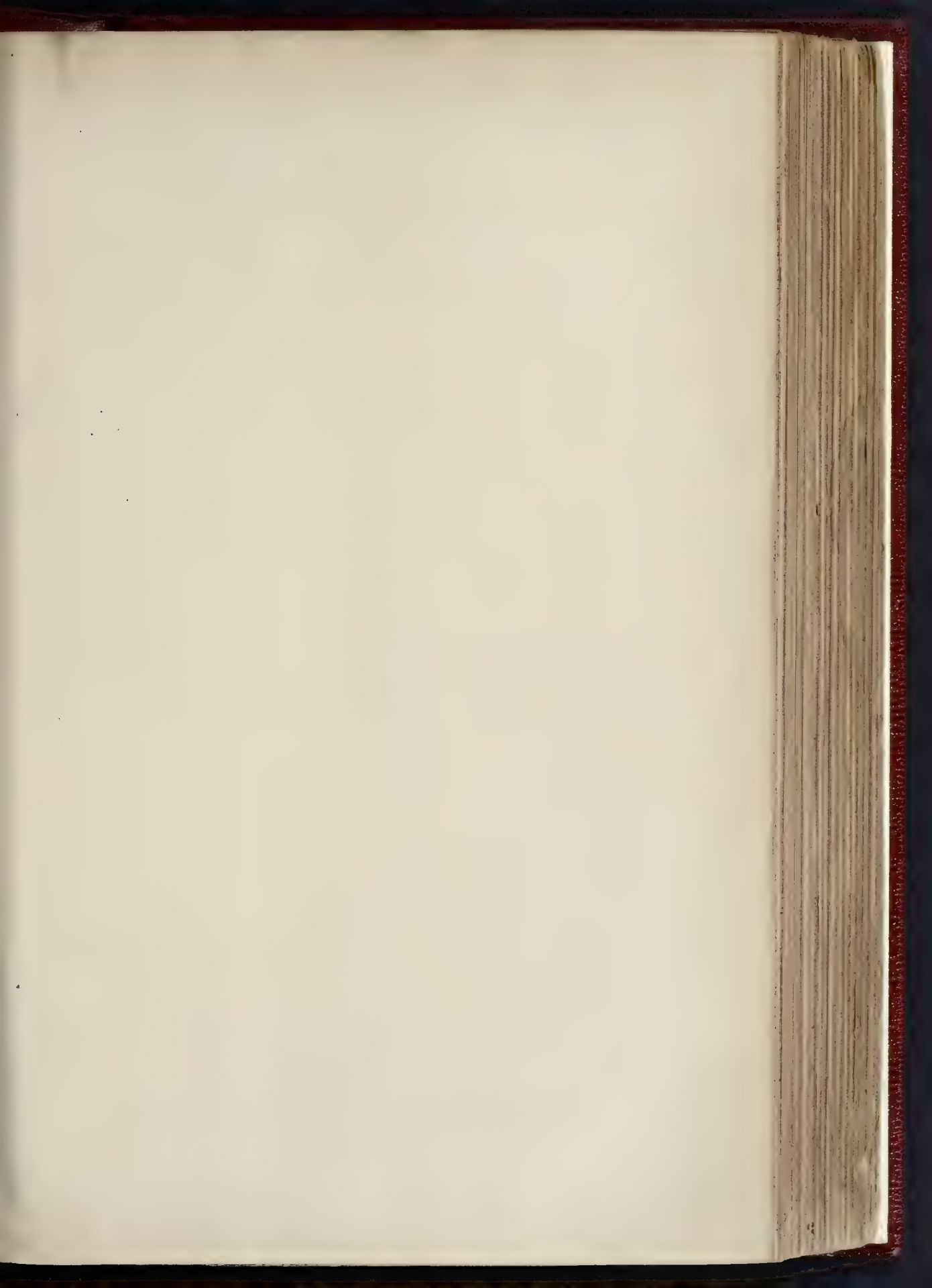
ELEVATION TO HIGH STREET

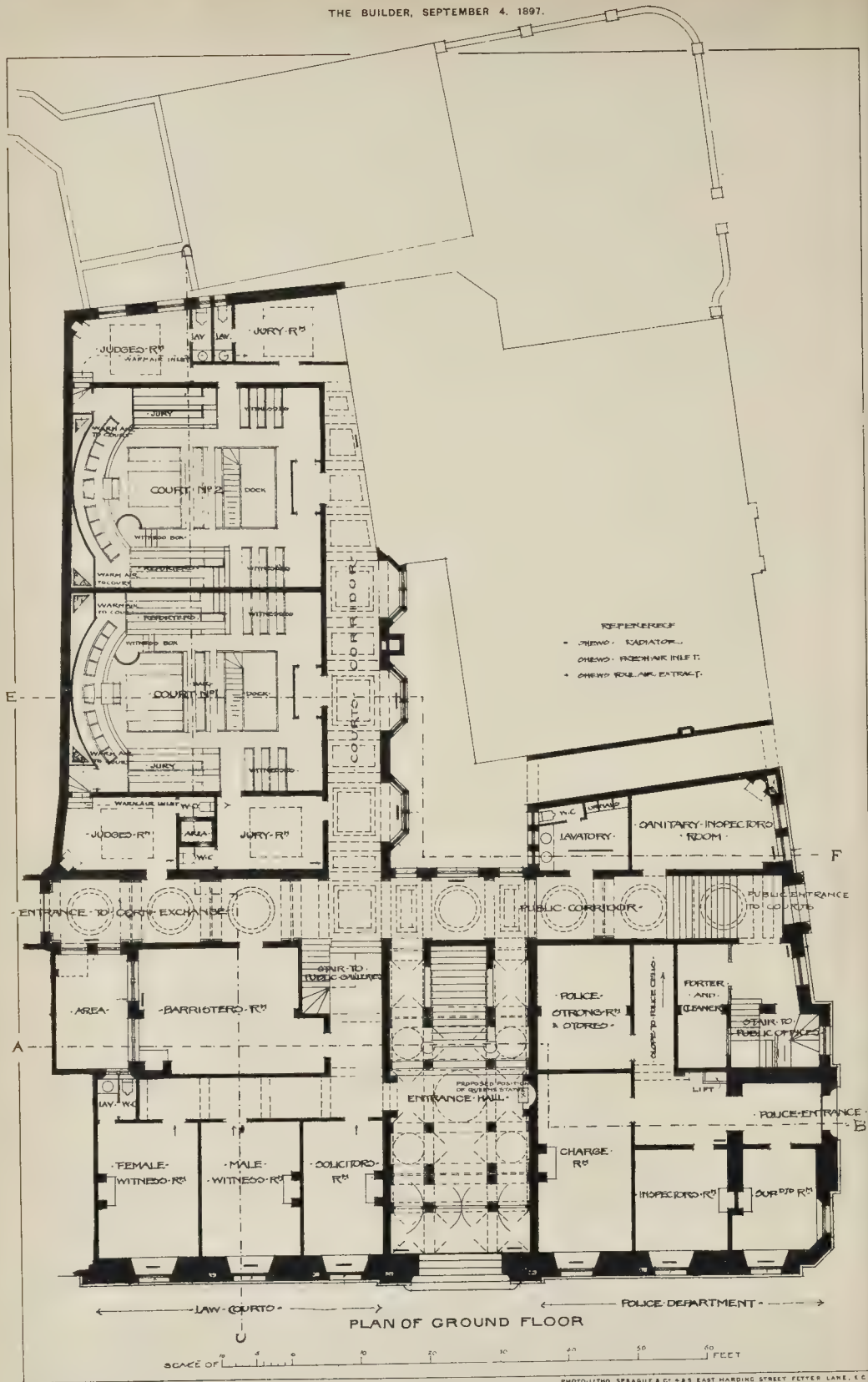
SCALE OF 1" = 10' 0" 20' 30' 40' 50' 60' FEET.

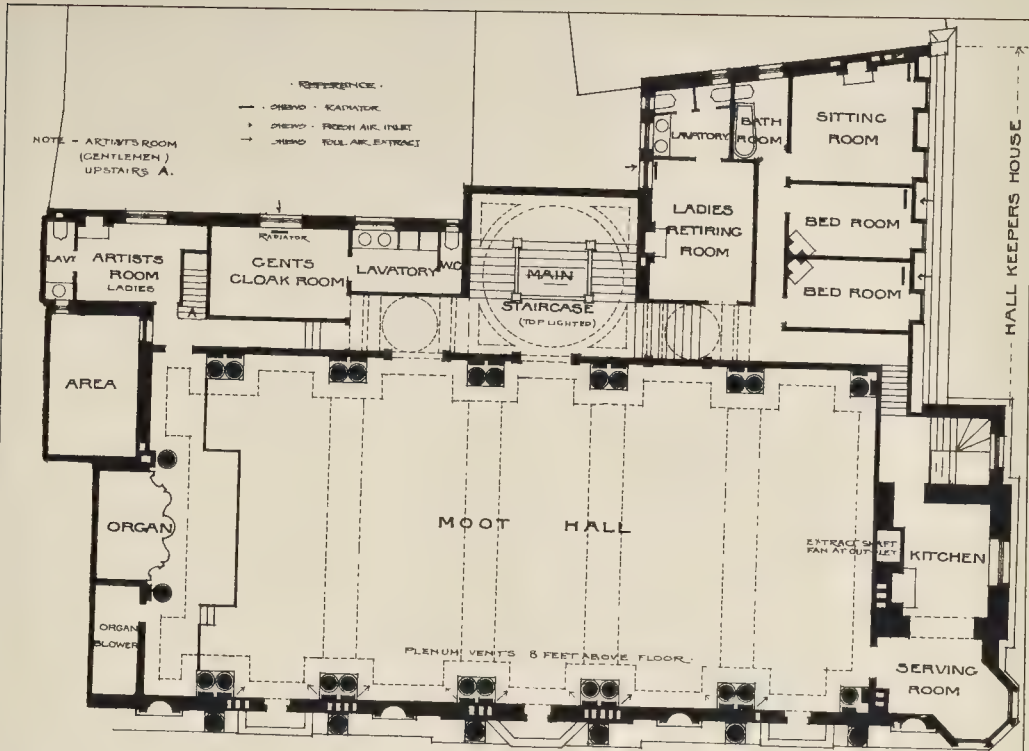


ELEVATION TO WEST STOCKWELL STREET.

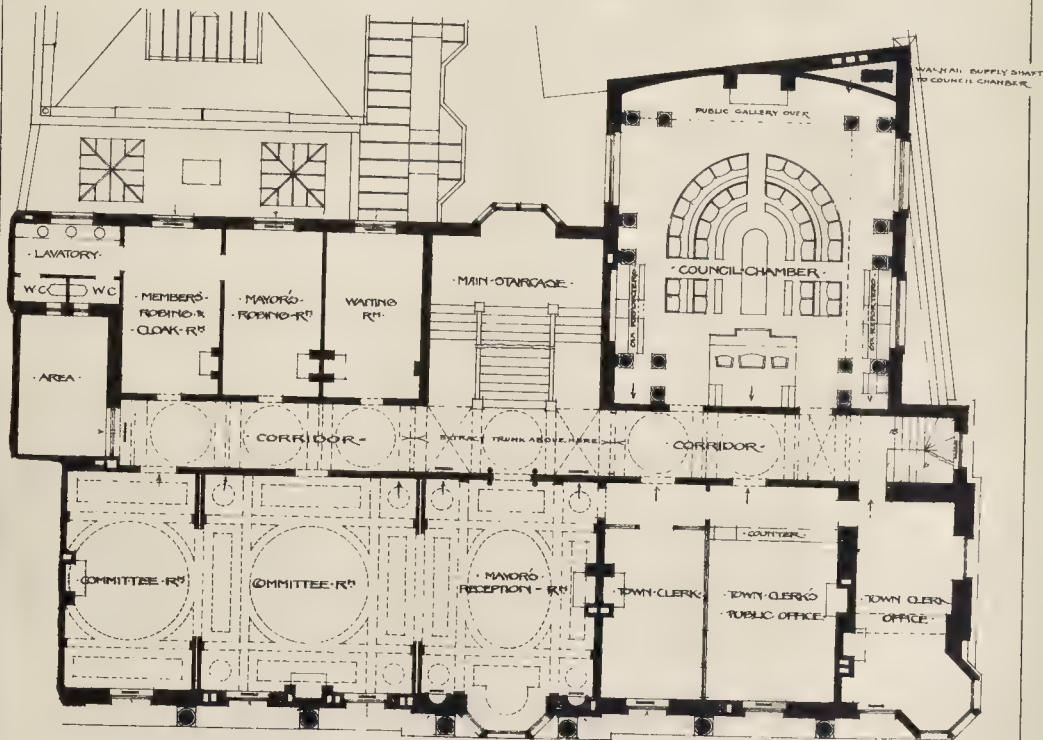
SCALE OF 1" = 10' 0" 20' 30' 40' 50' 60' FEET.







PLAN OF HALL FLOOR.

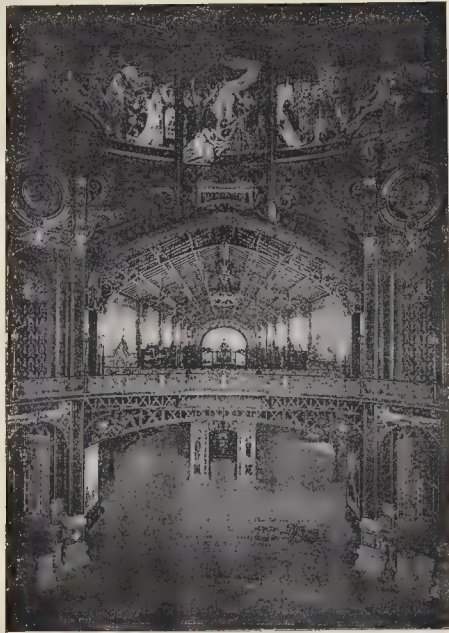


PLAN OF PRINCIPAL FLOOR.

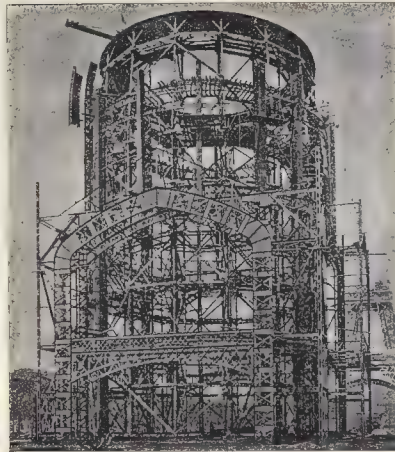
SCALE OF 0 10 20 30 40 50 60 FEET

PHOTO-LITHO SPRAGUE & CO. 485 EAST HARDING STREET FETTER LANE, E.C.

ILLUSTRATIONS TO
MR BANISTER FLETCHER'S
ESSAY
"INFLUENCE OF MATERIALS
ON
ARCHITECTURE"



Central Dome, Paris Exhibition (steel framework, with terra-cotta, faience, and papier-mâché filling)



Steel framework: Paris Exhibition Buildings.



Schiller Opera House Chicago



A Shop Front, Paris (subsidiary employment of iron)



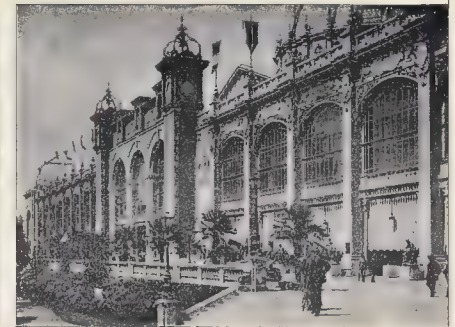
Brooklyn Bridge (rational application of steel to building)



Cantilever Bridge



Forth Bridge - the Cantilever on a great scale



Iron Framing and Terra-cotta (Paris Exhibition Buildings)

court; one half, however, was destroyed by fire in the time of the second Duke of Ancaster, early in the last century. Over the gateway are the initials J. W. and the date 1555. There is a delightful old-world sentiment about the place, owing, in great measure to the fact that, as Lord Carrington said, the interior has never been modernised, with the exception of two rooms which were set apart for the invalid daughter of Lord Willoughby d'Eresby in 1838. In the breakfast room there is a curious stone chimney-piece bearing the date 1507. In the great hall, but behind the panelling, is an old stone staircase, which leads down to the vaults, from which a secret passage three miles in length opens out at the park lake. The attics have never been altered, and exhibit the massive timber framing of the roofs, all secured by wood pins, no nails being used. The castle, as may be supposed, is rich in old furniture, Spanish leather, and tapestry. The historical associations connected with Gwydyr are very numerous. Queen Elizabeth and Charles I. both stayed here, and the room they occupied still contains the state bed, date 1558, in which they slept, and other furniture, all in its original position. Charles I. remained here for a fortnight after the defeat of his forces at Chester. Leaving, with reluctance, this interesting old place, the party set out on the return journey to Conway, and in the evening attended a reception given in their honour at "Bodlodeb" by Mr. and Mrs. Wood.

Wednesday, August 25.—Another beautiful morning, after heavy rain all night, favoured the archaeologists as they set out for a long day's driving. The first halt was made at Llandrillo-yn-Rhos, where the cell, or so-called chapel, of St. Trillo, on the seashore, was inspected. This building is said to date from the sixth century; the lower portion of the walls and the narrow windows are undoubtedly ancient, but the place has recently been so much renovated and roofed in and otherwise been made attractive to visitors, that it retains but a little interest for the archaeologist. There is a small well inside. The parish church was next visited. Originally a chapel was built here, in the thirteenth century, by Eudered, ancestor of Owain Tudor, who married Katharine, widow of Henry V., and to this chapel a licence was granted by the Pope for "service to be sung therein for his soul and his ancestors' souls always." The original parish church was washed away by the sea, when the chapel was added to and converted into the parish church by the construction of the present north aisle and western tower. Two apparently thirteenth century arches are to be seen in the north wall, now blocked up, which probably opened into the chapel. Late in the fifteenth century the arcade and south aisle were added by the ladies Conway, descendants of Gruffudd Goch. The church contains a fine early font with "dog-tooth" ornament. In the north aisle is preserved the memorial stone of Eudered, a massive slab, with incised cross at the head of beautiful design, and an inscription running lengthwise beneath it. The church tower has no buttresses, but has a slightly curved "batter" at the foot. The parapet is embattled, and there is a beacon turret at the south-west angle. An ancient farm-house at Penrhyn, date 1590, was next visited. The back portion of the house appears to be of older date, to judge by the remains of carving on the lintel beams of several old fireplaces now blocked up, and from the panelling and framed ceiling joists. The drive was continued over the Little Orme's Head to Llandudno where the party visited the church of Llanrhos, which possesses some valuable communion plate, including a chalice and paten of pre-Reformation date; the bowl of the chalice, however, is more recent.

Gloddaeth Hall, the residence of Lady Augusta Mostyn, was next visited, where a numerous company assembled to meet the members of the Congress. After spending some time in the gardens, Lord Mostyn, the President, conducted the party over the ancient mansion. The Hall is delightfully situated in the midst of magnificent woods, and is filled with rare paintings and other works of art, including a fine library of rare Welsh MSS. and early printed books. The house is of different periods of architecture; the oldest part is the great hall, of fifteenth-century date, other parts bear the date 1584. Panelled ceilings and other enriched plasterwork, like that at "Plas Mawr," in Conway, and carved chimney-pieces, and old furniture abound in the antique chambers. A short visit only could be paid to Bodysgallen,

the residence of the Hon. H. Lloyd Mostyn, who received the party and described the house and its chief features. It is an interesting old manor house of similar character to Gloddaeth, but smaller and of rather later date, but it is a good specimen of ancient Welsh domestic architecture. Time pressed for the return to Conway, so only a hasty inspection could be made.

At the closing meeting at the Guildhall in the evening, the Mayor of Conway presiding, Dr. Phené read a paper on "Some Early Settlers near Conway; Their beautiful Jewellery and Goldwork," and indicated the museums in Scandinavia and other countries in which fine specimens of their beautiful work may be seen. With a hearty vote of thanks to the Mayor and others who had contributed to make the Congress so successful, the company separated.

Illustrations.

SELECTED DESIGN FOR COLCHESTER TOWN HALL.

WE give this week illustrations of the first premiated design, which we may assume will be carried out, for the proposed new Town Hall for Colchester; including the perspective view, the principal elevations, and three plans.

The building will have two frontages, and the main front in High-street faces south, where strong effects of light and shade have been calculated upon.

The position of the tower has been determined by the extra width of the street on the east side, and it will be a prominent object the whole length of this street. It is also designed (as required in the instructions) so that the upper part may be omitted without detriment to the rest of the building. Stone and red brick in combination, and green slates for the roofs, are the materials proposed. The architect is Mr. John Belcher, of London.

EXAMPLES OF "INFLUENCE OF MATERIAL ON ARCHITECTURE."

THESE illustrations, to which reference is made in the paper in another column, comprise structures in which the employment of iron or steel plays an important part. One of them shows the steel framework of part of the Paris Exhibition building of 1889 in progress, by the side of which is a view of a portion of the same structure complete, with its filling in of various ornamental materials. The Schiller Opera House at Chicago is an example of the sham-monumental structures erected by modern American architects, in which masonry is used only as a superficial covering to steel construction. The more open and honest employment of iron visibly, as a portion of the design, is shown in such French examples as the Paris shop-front (the "Maison de Printemps") and part of the Exhibition buildings on the Champ de Mars. The three bridges illustrated show the constructive application of steel in its undorned state.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS:

VISIT TO THE ELAN VALLEY WATERWORKS.

A MEETING of the members of the Association of Municipal and County Engineers was held at Rhayader, Mid-Wales, on Saturday last, for the purpose of visiting the works which are in progress in the Elan Valley for the supply of water to the City of Birmingham. The meeting was arranged with a view of accepting an invitation which Mr. Mansergh, C.E., Engineer of the Works, had extended to the Association, and amongst those present were Sir A. R. Binnie, London, President; Messrs. H. P. Boulnois (Liverpool), E. Pritchard (Birmingham), J. T. Eayrs (Birmingham), J. Willmot (Birmingham), S. S. Platt (Rochdale), T. H. Yabbicom (Bristol), F. Baker (Middlesbrough), T. Biker (Barnsley), Spencer (Newcastle-on-Tyne), J. S. Pickering (Nuneaton), H. J. Clarson (Tamworth), A. Comber (Kidderminster), J. Cook (Lancaster), R. W. Davies (Newtown), P. Dodd (Wandsworth), A. D. Grentorex (West Bromwich), T. B. Farrington (Conway), Col. A. S. Jones, C. Jones (Teignmouth), W. H. Harpur (Cardiff), J. Lobley (Hanley), W. Jones (Colwyn Bay), and others.

On arrival at the works the members were received by Mr. J. Mansergh, who personally

conducted them over the works, and explained the various points of engineering interest. A walk through a completed section of the aqueduct about half a mile in length brought the members to the railway, which has been constructed on the higher slopes of the Elan Valley, where they boarded an "open truck" train, which was provided for viewing the works.

In this way the members of the Association successively visited the Caban Cöch, Pen-y-Gareg and Craig-yr-Alit-Goch Reservoirs, and were afforded an admirable opportunity of seeing the nature of the watershed area and the character of the gigantic work, which is in progress in the valley. The watershed area secured by the Birmingham Corporation under the Act of 1882 is 45,562 acres. It may be of interest here to mention, as affording some sort of comparison with other great water undertakings in England, that the watershed area of the Liverpool Waterworks at Vyrnwy is 11,000 acres; and of the Manchester Waterworks at Thirlmere 22,000 acres. The Elan works are estimated to supply the enormous quantity of 75 millions of gallons of water daily. The elevation above Ordnance datum of the bed of the river at the site of the lowest dam, that of the Caban Cöch, is 700 ft. Six reservoirs are to be constructed along the valleys to impound the waters flowing off by the rivers Elan and Claerwan; the aggregate capacity of the reservoirs reaching nearly 18,000 millions of gallons. On the Elan the reservoirs are the Caban Cöch, the Pen-y-Gareg, and the Craig Goch; and on the Claerwan, the Dol-y-Mynach, the Cil Oerwynt, and the Pant-y-Beddau. The top water of the Caban Cöch will be 822 ft. above Ordnance datum, and of the Pant-y-Beddau 1,175 ft., with the water of the other reservoirs at intermediate elevations. The visit of Saturday was devoted to an inspection of the three reservoirs which are in course of construction in the Elan Valley, and which will provide the first instalment of 27 millions of gallons of water daily for the consumption of the citizens of Birmingham, together with the 27 millions of gallons of compensation water daily which the Act of Parliament requires to be returned to the river. Mr. Mansergh stated that the present mean flow of the river was 4½ million gallons a day, so that when the works are completed the river will receive in "compensation" a supply of water six times the volume of the present flow. The dams of all three reservoirs in the Elan Valley are in progress. They are built of masonry and will vary in height from 98 ft. to 128 ft. above the bed of the river. The Municipal Engineers who visited the Elan Valley on Saturday were particularly impressed by how admirably the valleys adapt themselves to the purpose for which they are now being utilised. Indeed, Nature, in one of her kindly moods, appears to have fashioned these valleys for reservoirs; the narrow necks at the head of the valleys making the construction of the dams a matter of comparative ease. The submerged dam at Caban Cöch—probably one of the most interesting pieces of work in connection with waterworks engineering—which is now practically completed, excited the most attention, and was the subject of general approval. At this dam the aqueduct will carry a flow of 27 millions of gallons daily to Birmingham, while over the top of the dam will flow the 27 millions of compensation water to the River Elan. The wood frame village which has been constructed at Elan for the accommodation of the 1,500 men employed on the works, with their wives and families, was also inspected with much interest. The Corporation of Birmingham, adopting the plans of their engineer, Mr. Mansergh, have there made provision for the decent and comfortable housing of the men; beside recreation rooms, canteen, accident and casualty and infectious diseases hospitals, with resident nurses and surgeon, with baths, and a doss-house, in which "strangers" are required to spend their first night prior to undergoing medical examination. The provision made is far in advance of anything which has previously been undertaken for the temporary housing of workmen; and it is satisfactory to hear from Mr. Mansergh that any additional cost has been amply returned in the better class of workmen attracted to and retained on the works. The reservoir work at Elan is carried out by the Birmingham Corporation by administration, and along the line of the aqueduct, the work of which is let to contractors, the Corporation have determined that

the men employed shall be housed under precisely similar conditions. The first section of the aqueduct from Rhayader is being carried out by Messrs. Aird & Son, and the second section by Messrs. Morrison & Mason.

On the conclusion of the visit, Mr. Mansergh presided at a dinner in the large hall of the Recreation Room at Elan Village, to which he entertained the members of the Association.

Sir A. Binnie proposed the health of Mr. Mansergh. He said they had inspected one of the largest engineering works of the time. It was his and Mr. Mansergh's fate many years ago to first visit those valleys on work of another kind, and since that time they had always carried with them the most pleasant recollections of the time they spent together in Mid-Wales. He wished Mr. Mansergh every success with the work which he had in hand, and many years to enjoy the completion of those works and the honour which they would bring.

Mr. Mansergh, in responding to the toast, which was very heartily honoured, said it was thirty-five years since he and Sir Alexander Binnie were surveying on the Cambrian Railway, and they both of them spotted those rivers and valleys as sites for reservoirs. If he, for Birmingham, had not got a little ahead, no doubt Sir A. Binnie would have seized on this Elan Valley for London. In 1870 Sir Robert Rawlinson was asked to report to the Birmingham Corporation on the question of an increased water supply, and Mr. Lawson and himself were associated with him. In 1871 they made a report that the Elan Valley was the source to be utilised. It was far too heroic a scheme for that time. In 1880, when the Corporation again asked him to advise them, he said he should go back to his old love, the Elan. They asked him what he meant, and when he told the Birmingham Committee, they found that the report had been pigeon-holed and absolutely forgotten. As soon as they realised what they had got in Elan, and that London might be going in for it, they took the scheme up heartily, and got their Bill through in 1892. Mr. Mansergh then referred to the arrangements made for the housing of the workmen at Elan, and said that the better accommodation provided had been justified both on humanitarian and economical grounds. The Birmingham Corporation had gone into his plans *con amore*, and in letting contracts along the aqueduct had provided that the accommodation of the workmen should be of the same class. They believed by doing this they would get a better class of workmen, and keep them.

COMPETITIONS.

MUNICIPAL OFFICES, SURBITON.—In response to the advertisement for competitive designs for the proposed municipal offices at the junction of Berrylands-road and Ewell-road, Surbiton Hill, twenty-six sets of plans have been sent in. Mr. E. W. Mountford is the assessor, and he has, after examining the plans, reserved seven sets for further consideration.

ARCHÆOLOGICAL SOCIETIES.

NEWCASTLE SOCIETY OF ANTIQUARIES.—The monthly meeting of the Society of Antiquaries of Newcastle-upon-Tyne was held on the 23rd ult. In the Castle, under the chairmanship of the Rev. Dr. Greenwell.—Mr. W. H. Knowles said that in some notes which he read before the Society in November last, on the thirteenth century ruin in Armstrong Park—King John's Palace, once the residence of Adam of Jesmond—he suggested certain measures to arrest its further destruction. These were communicated to the City Council, who desired him to attend a Park Committee meeting and obtain an estimate of the cost of the necessary work. He now begged to report that the Council had adopted both suggestions and estimate. He moved that the thanks of the members of the Society, and of all lovers of history and antiquities, were due to the Council for their considerate action. This was agreed to. The Secretary reported that Mr. John Ventress had presented to their Society a plaster cast from the bronze plate of marks of the members of the Golden Smiths' Company. Mr. Maberly Phillips, F.S.A., read a paper on "An unrecorded Saxon Stone at Nuny Kirk, in the grounds of William Orde, Esq." The stone, he said, was the shaft of a Saxon cross. Its base was said to be about ten inches in the ground. From the base to the first moulding it measured 2 ft. 11 in. All its

four sides were beautifully carved, the whole drawn in a very bold and skilful manner. When complete, the whole cross would stand about 6 ft. to 6 ft. 6 in., and was most probably a memorial cross erected in honour of some distinguished personage. The whole face was entirely covered with a vine scroll, the stem worked into two small panels, the centre of each being a leaf or bunch of fruit. Canon Greenwell said he considered the stone to be an example of early Saxon work, and suggested the date as the eighth century, or possibly the seventh.

SUSSEX ARCHÆOLOGICAL SOCIETY.—The members of the Sussex Archæological Society visited Rotherfield recently, a party of about sixty meeting at the church. After giving the visitors an opportunity of examining the interesting features of the old church, the Rev. Canon Goodwyn addressed them upon its early history. No trace of the old Saxon church could be found, and whether a monastery was there in the early days or not, was open to conjecture. He instanced the different architecture in the interior of the church, pointing out that there were two kinds of pillars, those on the north side of the aisle being round and those on the south side being octagonal, showing two restorations of the church, the first of which took place somewhere about 1150. He further pointed out that before the present wagon roof was made, a line above the chancel arch showed traces of beams and a flat roof. A stone slab in the priest's chamber, found under the floor of the vestry, had been stated to be an altar slab.—Mr. E. C. Powell, of Groombridge, then described the recent works of restoration of Rotherfield Church, and in the course of his remarks he said that while examining the foundation of the church, he found traces of the old church, which had been built on the same site. He also remarked upon the enormous timbers in the roof, and said he had not seen one of such magnitude in any similar building. In the work of restoration the spirit of the old architecture had been adhered to, the masonry being done by local men.—Mr. C. E. Keyser, of Reading, then addressed the members upon mural paintings on the walls of the church. He corrected the idea that they were frescoes, saying that he believed there was only one to be found in England, viz., at St. Martin's Priory, Dover. He then gave a detailed description of the remains of the paintings in the church, paying particular attention to the finely preserved picture of the Doom, depicted over the chancel arch. He also dealt with the other paintings and pictures on the old windows.—Mr. H. Mitchell Whiteley, Hon. Secretary of the Society, then read a paper by Mr. J. H. Round, and Canon Goodwyn described an old register of the church, which three months back had been found in the bottom of a trunk with some other papers at St. Margaret's Home, Brighton. It contained a full inventory of all the effects of the church before the Reformation in 1509.

Correspondence.

To the Editor of THE BUILDER.

REJECTION OF LOWEST TENDERS.

SIR,—I, too, like Mr. White, saw some time back an account of a case where a builder recovered damages, but I cannot recall the same now, and that was my reason for writing to the Builder. When asking a builder to tender for a job, usually a letter is sent stating that "the lowest or any tender will not necessarily be accepted," but in my last case no letter was sent, so inserting plans were handed to my representative by the architect, who merely stated the time for tenders to be in. I am sorry to say there are too many architects who use no reason whatever, and look upon the builder as a person of convenience, and not as a responsible person in a contract, except when it comes to deductions at settlements; at all, but the plans were handed to my representative by the architect, who merely stated the time for tenders to be in. I am sorry to say there are too many architects who use no reason whatever, and look upon the builder as a person of convenience, and not as a responsible person in a contract, except when it comes to deductions at settlements; at all, but the plans were handed to my representative by the architect, who merely stated the time for tenders to be in. I am sorry to say there are too many architects who use no reason whatever, and look upon the builder as a person of convenience, and not as a responsible person in a contract, except when it comes to deductions at settlements; at all, but the plans were handed to my representative by the architect, who merely stated the time for tenders to be in.

paid; or else must trust to the architect, and, if a mistake has been made, suffer. There are also many other grievances the builder has against the architect which, no doubt, many others as well as myself have experienced. I am pleased to say there are other architects who look upon the builder in a more favourable manner, but very few, and these I am sure would support anything that we as builders might and should attempt to put matters as they should be. REGAES.

DANTZIC OAK FOR SASH-FRAME SILLS.

SIR,—I do not think this suitable; the only foreign oak suitable is the Stettin (largely used for railway wagons). Oak sills have got a bad name through builders using American white oak—carpenters call it sash sill oak—a poor material that I have known perish in three years.

Teak is a good material, but it must not have any iron nails or ironwork in contact with it, as chemical action is set up. I have seen a $1\frac{1}{2}$ in. iron bolt decayed, where it touched the teak, to $\frac{3}{4}$ in., and the teak decayed for a distance of 2 in., the rest of the wood being perfectly sound.

English oak sills, properly selected and dry, still hold the field: they are one-third less cost than teak and their life is longer.

ROBERT PHILLIPS,
County Surveyor, Gloucester.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER VII.—MODES OF MEASUREMENT.

SLATE MASON'S, SLATER'S, AND TILEN'S WORK.

SLATE MASON.

Slate shelving, Lavatory tops and slabs, &c., per foot superficial.

MENTION the kind of slate and slate thickness and finish, whether "sawn," "planed," or "rubbed" one or both sides. Any lengths over 6 ft. to be kept separate, as in "Scantling."

Labour on the foregoing, per foot run.—Edges "sawn," "planed," or "rubbed," or rounded or moulded, stating thickness of slate. Rebated joint, including oil cement (if any). Splay cutting and notching—over 12 in. girth. Numbers—Rounded corners, giving the girth. Small splays and notches. Perforation for taps and basins in the latter case giving size and if rebated or rounded. Sinkings for sops, &c., and any small labour, stating in each case where necessary the thickness of slate, and, to fair work, the finish.

Skirtings, per foot run.—Give height and thickness, also finish, and include with the item the fixing, also screws (where necessary) and holes and plugs. Number ends, mitres, &c.

Channels, per foot run.—Give size and girth of the channel and state if to falls. Number stopped ends, holes for gratings, pipes, &c.

Number the following items, including labour and materials:—Cantilevers for shelves, giving full description, size, and length, and, if shaped, give sketch in margin of bill. Grating runs, giving size and thickness, and size of perforations; also small-shaped lavatory tops, including all the labours.

Enamelled slabs.—If the slate is enamelled, incorporate with the foregoing descriptions, and, if imitating marbles, state kind imitated.

Chimney pieces.—Number these as described for stone.

SLATER.

Slating per square superficial (100 ft.).—State size (i.e., Duces, Countess, &c.), quality and description of slates, also the lap and how fastened (i.e., number of nails to each slate and the description of nails) and also whether touched or rendered on underside. Note.—That in measuring the surface of a roof if all the slopes are similar, measure the extreme lengths of eaves; as the hips and valleys, with the exception of allowance for cutting, do not affect the superficial measurement.

Example: Fig. 8. Although this on plan is so much cut up, the surface can be measured (without the allowance for cuttings) in two dimensions.

2	500	1,400—0	Slating (according to description).
2	113		
2	100		
2	86	170—0	

Allowances for Cuttings.—Add to the superficial quantity of slating the lengths of the following items by the widths specified as allowances for waste in cuttings, &c.:—Eaves

(for the double course): Half the length of the slate + 1 in. (above nail holes), $c.g.$, for Countess slating $\frac{3}{4} \times 8 = 10$ in. + 1 in. = 11 in., the width by which the dimension is squared. *Hips and Valleys*: 6 in. on each side. *Cuttings around Skylights, Dormers, and Chimneys*: 6 in. down each side. *Note*.—The allowance for eaves to

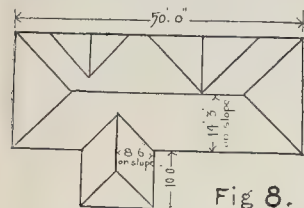


Fig 8.

be made at the top of these. *Raking Cuttings*: 6 in. in addition to any other allowances previously described. *Note*.—No allowance is made for cutting next ridge nor at the ends of a roof next a gable when at right angles.

Slating to Mansards, &c.—Keep this separate from remainder; also that to vertical sides of dormers, &c., describing the latter as in "small quantities to sides of dormers." Sometimes at the eaves the slating is formed to a curve or "bell cast," in which case keep this separate, or take an "extra labour," and if, as is frequently the case, some portion is at a very flat pitch, it will be necessary to bed the slates in oil cement, or putty. If this is so, incorporate this with the description of the "extra" item.

Slating to Conical Roofs.—Keep separate and describe as to "conical roofs," giving the radius at eaves.

Ornamental Slating.—If the whole of the roof, describe with the item in bands or panels, either in cut slates or slates of a different description measure this portion as an "extra" over the general description.

Measure the following items at per foot run.—Hip and ridge rolls, giving the diameter of rolls and the width and thickness of wings, and state how fixed. The cuttings at feet, to slope of roof, at intersections of ridge and hips, and mitres to be numbered. Fair cut and mired hips, slating if bedded in oil cement. Fair verges, slating if bedded on brickwork or with cement fillet under.

Numbered Items.—Holes through roofs for pipes, giving size of pipes, also any cutting and fitting around stay bars for pipes, &c. Hip hooks, if ornamental, give a sketch in margin of bill.

Stone Healing, per square superficial.—Measure as for slating, but take extra for eaves, and cuttings at hips, valleys, &c., per foot run, including waste.

TILING.

Roof Tiling, per square superficial.—Give description of tiles, also the lap or gauge (length of tile shewing) whether nibbed, pegged, or nailed, if the latter the number and description of nails.

Weather Tiling, per square superficial.—As described to roof tiling and slating whether nailed to joints of brickwork or to battening or boarding.

Ornamental Tiling.—If any of the tiles are ornamental, state proportion, or, if in bands or panels, measure this as an "extra" over the general description.

Tiling for Conical Roofs, as described to slating to conical roofs, stating if tiles are to be curved or merely shaped.

Allowances for Cuttings.—Add to the superficial quantity of tiling the lengths of the following items by the widths specified as allowances for wastes in cuttings, &c. *Eaves* (for the double course): 6 in. Occasionally the item is measured at per foot run as "extra for double course at eaves." *Hips and Valleys*: 3 in. on each side. *Cuttings around Chimneys, Skylights, and Dormers*: 3 in. down each side. *Note*.—The allowance for eaves to be made at the top of these. *Raking Cutting*: 3 in. in addition to any other allowances previously described.

Measure the following items at per foot run: Ridge tiles, giving full description of the p.c. of tiles, or, if selected from a catalogue, give the catalogue number, and state how fixed. Cuttings to slope of roof, and mitres, &c., to be numbered. Hip and valley tiles, &c., measure these as "extra," and if to varied pitches state this, and also the number of variations, as the tiles frequently have to be purpose-made.

Extra to tile and half at verge. Pointing to verges and eaves.

Numbered Items.—Holes through roofs for pipes, hip-knobs, and finials; state p.c. or give catalogue number. Also any cutting and fitting in tiling around stay-bars for pipes, &c., and around end of sills.

GENERAL BUILDING NEWS.

CONCERT PAVILION, &c., FELIXSTOWE.—The Spa and Winter Garden Company have adopted, after competition, Mr. B. Binyon's plans for the new concert pavilion, with winter garden, beach bathing-houses, &c., to be erected at a cost of 15,000*l.*, facing a new promenade by the sea.

NEW OFFICES FOR PARISH COUNCIL, ABERDEEN.—The foundation stone of these offices was laid on the 25th ult. Mr. A. Marshall Mackenzie, A.R.S.A., Aberdeen, is architect of the new building, which will be in the Italian Renaissance style, four stories high, and have a frontage to three streets—Union-terrace, East Lindsay-street, and Diamond-street. It will be of granite and will adjoin the new office now being erected for Aberdeen School Board. The structure will cost about 8,000*l.*

ALTERATIONS TO THE THEATRE ROYAL, NOTTINGHAM.—This building has for the past few months been undergoing extensive alterations. The pit floor has been lowered about 2 ft., as also has the stage. The stage is about 64 ft. wide and 50 ft. in depth. A new orchestra, part of which is concealed under the stage, has been built. The upper circle is now reached by a new staircase, and emerging into the crush-room is another staircase, which is to be used as an exit. The staircase leading to the gallery is built outside the building, and is connected by a sloping corridor. The old gallery, which accommodated 800, and the upper circle and dress circle, each capable of seating about 100, have been removed, and new ones of more modern construction have taken their places. The new level to the dress circle is 2 ft. higher than the old one. The dress circle saloon is now entered by a new entrance, and access to the gentlemen's lavatory is gained from the saloon, whereas it was formerly entered from the front of the building. New ladies' cloak-rooms and lavatories have been erected in close proximity to the dress circle, upper circle, and gallery, the latter having been provided with a saloon on a large scale. The corridors which were formerly in use in the dress circle, upper circle, and gallery have disappeared, and the space taken up by the same has been added to the auditorium. The old staircase leading to the gallery is to be used as an early entrance, and exit only to this part of the house. There are two alarm exits from the floor of the theatre, one through the crush-room and the other by way of the old early entrance adjoining the Clarendon Hotel. The whole of the dressing-rooms have been cut off, and a new block has been built at the rear of the stage. New carpenter's shops have been built. The decorations, which have been made from designs prepared by the architect, are in fibrous plaster, and of the period of Louis XIV. The theatre, which will accommodate about 3,000, will be lighted by electricity. Mr. Henry Vickers, of Nottingham, is the contractor, Mr. F. Matcham the architect, and Mr. Charles Greenman the clerk of the works.

OFFICES, SCOTCH PROVIDENT INSTITUTION, DUNDEE.—New buildings of the Scottish Provident Institution are about to be erected in Meadowside, Dundee. The structure is to be of four stories, with attics. The ground-floor to the main cornice, including the whole of the entrance to the doorway, is to be of polished Aberdeen granite from Rubislaw Quarry. It is intended to provide an elevator for all the offices in the well of the stair, so that the upper floors can be reached without using the staircase. The establishment is to be lighted by electricity. The contracts have been placed as follows:—Mason work, Robert Sheach, jun.; joiner work, Charles Smith & Son; plumber work, David Brown; plaster work, Martin & Gibson; slater work, James Laburn & Son. All the contractors are local. The architect is Mr. Alexander Johnston, Dundee.

BAPTIST CHAPEL, RHAYADER, RADNORSHIRE.—A new Baptist chapel has just been opened at Rhayader. The new building consists of a chapel, which will seat 200 persons, and a schoolroom. The schoolroom and chapel are divided by a sliding partition. The cost of erecting the building is 1,100*l.* The architects were Messrs. G. Morgan & Son, Carmarthen; and the contractor was Mr. Morgan Lloyd, Rhayader.

PROPOSED MUSIC HALL IN ATTERCLIFFE, SHEFFIELD.—The Highways Committee have under consideration plans for a music hall to be erected close to the Queen's Head Hotel, Attercliffe. The plans have been prepared by Mr. G. D. Martin and Mr. A. B. Jackson.

CHURCH, BRECHIN, FORFAR.—The memorial stone has just been laid of a new Established Church at Brechin. The building is situated in Danacree-road at right angles to St. Ninian's square, along which the hall, session-house, and vestry are extended. A square tower is placed at their intersection. The church consists of a nave 99 ft. long by 24 ft. wide, seated for 305, and an aisle 72 ft. long by 20 ft. 6 in. wide, seated for 208. At the end of the nave the floor is raised for the com-

munion table, pulpit, and choir, a stone parapet wall dividing their position from the organ end of the aisle. At the tower end of the church and within the walls of the tower there is a gallery to seat 87, which is reached by the vestibule, which occupies the whole breadth of the aisle. The baptismal font is placed in a recess in the aisle, immediately at the side of the entrance door. The hall is 46 ft. long by 20 ft. 6 in. wide, and is seated for 162. The session-house is 21 ft. 6 in. long by 18 ft. wide. The vestry looks out upon the enclosed garden. The whole buildings are constructed of native grey rubble, with red Corncockle freestone dressings, the stonework of the interior being wholly of red stone. The walls, as well as the floor and the cloister, are lined with red tiles, and the whole building is to be enclosed with a wrought-iron railing. The following are the contractors:—Masons, Messrs. R. Aitkenhead & Sons, High Blantyre, Lanarkshire; joiners, Messrs. Herbertson & Sons, Glasgow; plasterer, Mr. J. Gibson, Brechin; slater, Mr. J. Scott, Brechin; plumbers and gas fitters, Messrs. Kinnear & Son, Brechin; and heating and ventilating engineers, Messrs. J. Cormack & Sons, Glasgow. The sculptor for stone carving is Mr. William Vicars, of Glasgow. Messrs. Douglas, Hunter, & Whitson, of Glasgow are the measurers. Mr. James Kennedy is the visiting clerk of works, and Mr. J. C. Wynnes is the resident draughtsman and inspector. The architect is Mr. John James Burnet, of Messrs. J. Burnet & Son, Glasgow.

ALMSHOUSES, BUNGAY.—The new almshouses to be built at Bungay out of the Diamond Jubilee Fund are to be erected on the allotments near the printing office, from plans prepared by Mr. R. G. Norman. The builder is Mr. A. D. Botwright.

LAUNDRY AND DYE WORKS, MILLBAY.—These buildings have been erected from designs by Mr. Snell, of Plymouth, in the Millbay-road, for the Millbay Laundry, Cleaning, and Dyeing Company. The frontage which overlooks the Millbay Docks is 120 ft. long, and extends back 220 ft.

CONGREGATIONAL CHAPEL, WELLINGBOROUGH.—The school buildings on the Victoria Estate, Wellingborough, have been transformed by the Congregationalists into a chapel. The work has been carried out by Mr. C. W. Abbott, from the designs of Messrs. Shorman & Archer.

ALTERATIONS TO SCHOOLS, LAUNCESTON.—The alterations and additions to the building of the Horwell Endowed School, Launceston, are nearing completion. The enlargements consist in the erection of a school hall, 50 ft. by 25 ft., of granite and polyphant, with pitch pine floor and fittings; of class-rooms, laboratory, and dormitories for boarders. The work has been carried out by Messrs. Wm. Burt & Son, builders, of Newport, from designs prepared by Mr. Chas. Congdon.

BREWERY EXTENSION, STOURBRIDGE.—The foundation stone of the new stack of the North Worcestershire Breweries, Limited, at Stourbridge, was laid on the 26th ult. by Mr. R. Praed. Messrs. C. Johnson & Sons, of Worcester, are the architects, and Messrs. John Guest & Sons have the contract for the building.

LIBRARY, CAMPBELLTOWN, ARGYLLSHIRE.—The Duke of Argyll laid the memorial stone of Campbelltown Free Library and Museum on the 25th ult. The cost of the library and museum is estimated at from 8,000*l.* to 10,000*l.* Situated at the corner of Harlem and St. John streets, the building has a frontage to the bay of 93 ft., and to St. John-street of 137 ft. It is L-shaped in plan, the ground end, which is open to Shore-street, being laid out as a garden to form an adjunct to the museum for the exhibition of archaeological and other exhibits not requiring cover. Internally the buildings are divided into a library or book store, 47 ft. by 24 ft., capable of containing 10,000 volumes; a ladies' reading-room, a general reading-room, 37 ft. by 24 ft.; a museum or picture gallery, 48 ft. by 24 ft.; and a general hall or newsroom. This latter is the general vestibule, and gives independent access to each department. Mr. John Burnett, A.R.S.A., Glasgow, is the architect.

RESTORATION OF LLANTHRIDYD PARISH CHURCH.—Llanthrhyd Parish Church, near Cowbridge, was re-opened recently, after being restored. The work just completed has been carried out by Mr. W. James, of Fummon, under the direction of Mr. G. E. Halliday, the Diocesan Surveyor for Llandaf.

CATHOLIC CHURCH, REDHILL.—The foundation stone has just been laid at Redhill of a Catholic Church. The building, which will be situated in the High-street, is to be about 90 ft. in length by 48 ft. There will be, in addition to the nave and aisles, a Lady Chapel, organ-chamber, baptistry, font, and sacristy. The architect is Mr. A. E. Purdie, of Willesden; and the contractor Mr. F. G. Minter, of Westminster.

ENLARGEMENT OF ST. PETER'S CHURCH, SACRISTON.—The additions which are being made to this church include the provision of an aisle on the south side of the church corresponding to that on the north. This necessitates the removal of the present south wall, and the insertion of octagonal columns and arches to carry the nave roof; the pulling down of the porch and re-building of the same, but making it somewhat wider than the old one, and other alterations. The material used in the new work will be similar in all respects to that of the existing building. The increase in the seating accommodation will be 127, making a total

accommodation of 535. The contract has been let to Mr. William Lodge, of Pity Me, and the work is being executed from the designs and under the superintendence of Messrs. Oliver & Leeson, architects, Newcastle.

NEW SYNAGOGUE, LEEDS.—The foundation stones of the Central Synagogue, in Templar-street, Leeds, were laid on the 30th ult. The site of the synagogue is on the south side of Templar-street, and when completed the building will have a frontage of 80 ft. to that street. The premises will include a synagogue 60 ft. long by 48 ft. wide, with galleries on three sides, providing accommodation for 800 people, robing-rooms, vestry, a schoolroom with accommodation for about 250 people, and other necessary accommodation. The building will be of brick with stone facings, and will have two entrances from Templar-street. The architect is Mr. Alfred Bentley, of Leeds, and the builder is Mr. Fred. Puffitt, of Hunslet.

CHURCH SCHOOL, LEYLAND, NEAR PRESTON.—The parish of Leyland, near Preston, has just been provided with a new church school. The structure is built of Accrington bricks, with Runcorn stone dressings, the timber used throughout being oak. Mr. J. A. Seward, of Preston, was the architect. Accommodation has been provided for 200 scholars. The structure is dedicated to St. John the Evangelist.

FACTORY, BURTON.—A new factory has just been erected at Burton for Messrs. Boden & Co. The new building is situated about the middle of Bond-street. That part of the factory which has been completed has been built by Mr. H. Edwards, of Burton, from designs by Mr. J. Maiden (chief engineer to Messrs. Boden & Co.). It is four stories high, and includes three work-rooms 45 ft. by 25 ft. clear of the staircase, which is fireproof, and affording accommodation for 200 employees. There are also on the first floor a packing-room and a mess-room, the latter of which is fireproof, having dimensions of 20 ft. by 25 ft. The premises are of brick with stone steps and landings, and wrought iron window frames.

NEW FREE CHURCH, CAMBUSLANG, LANARKSHIRE.—A new church is being built for the Free Church Congregation, Cambuslang, on the site of their old edifice in Main-street. The present halls on the basement floor are in good condition, and are not being reconstructed. The new building to be erected on the top of the hills will give accommodation for 800 people. At the pulpit end there is to be an organ loft. An additional hall, to accommodate 350, is to be built at the north end. The style is Early English. The total cost is estimated at 4,500l. The architect is Mr. A. Lindsay Miller, Glasgow, and the following are the contractors for the several works:—Mason, Mr. D. Hamilton, Cambuslang; joiner, Mr. Wm. Adam, High Blantyre; plasterer, Mr. Wm. Touner, Glasgow; plumber, Mr. Alexander Taylor, Cambuslang; slater, Mr. Robert Clark, Cambuslang.

CHURCH, AUCHTERARDER, PERTH.—A new church has just been erected at Auchterarder. The site of the building is in the western part of the town. The nave of the church is 48 ft. by 24, and the chancel 26 ft. by 24. The entrance is at the north-west corner. Above its porch, in a niche, there is a figure of St. Kessog. In the interior the roof is open to the ridge, the main couples and arch ribs resting on stone supports. On each side the walls are pierced by a series of double lancet windows, the north gable having a large one of three lights. The chancel arch is 16 ft. wide. The arch screen is formed of stone, and it is divided into three arches, filling up the entire space of the chancel arch. The upper part is filled in with stone tracery, a space in the centre being occupied with a representation of the Crucifixion. Two other figures occupy spaces to right and left of the Crucifixion effigy. The lower part of the screen is filled in with gates, and with metal railing on either side. At the back of the chancel there is the altar and reredos. Over the reredos the gable wall is pierced by a window of three lights, with intervening shafts of Peterhead granite, with carved capitals. These windows are filled with stained glass by Mr. C. E. Kemp, London, the subjects being the Crucifixion, St. Kessog, and St. Margaret of Scotland. The choir stalls are of oak. The organ-chamber is on the north side of the chancel, and behind it is the vestry. On the north side of the chancel there is a stone panel containing the Auchterarder coat of arms. The pulpit is of stone. The church is heated by hot water throughout, and will accommodate about 900 people. The architects were Messrs. Ross & Macbeth, Inverness. The contractors were:—Mason work, Mr. P. Anderson, Auchterarder; carpenter, Mr. James Martin, Auchterarder; painter, Mr. P. Edrington, Auchterarder; slater, Mr. R. Gibson, Auchterarder; glazier, Mr. Alexander, Perth; plumber, Mr. J. MacLeish, Perth; reredos and altar, Mr. Neilson, Dundee; carving, Mr. Young, Glasgow.

EXTENSION OF JOHN-STREET CHAPEL, SHEFFIELD.—The corner stone has just been laid of a new building which is being erected at the rear of John-street Primitive Methodist Chapel in order to provide accommodation for the Sunday School and Institute. The new premises, which are being erected by Mr. John Morton, from the design of the architect, Mr. C. J. Innocent, will consist of an infants' school-room, with gallery, four other class-

rooms, and two large assembly-rooms, of which one will be for the junior institute and the other for the senior institute. A staircase will be provided, which will connect the various rooms; a large kitchen, and boiler rooms; and the upper part of the chapel will be extended and the organ re-constructed in a recess, so as to give more space for the choir.

FACTORY, RUSHDEN.—A new factory, erected by Mr. E. Wrighton, was opened at Rushden recently. The factory is situated in York-street, on the Pightles Estate, and is built of red brick and stone. It is three stories high, and is 80 ft. long by about 30 ft. wide. The floors are reached by staircases at each end of the building, which is heated throughout with hot water, having been fitted by Mr. A. Marriott, of Higham Ferrers. Messrs. Bayes & Son were the builders, the joinery work being done by Messrs. Whittington & Tomlin, and the plumbing by Mr. Fountain. Messrs. Preston & Wilson were the architects.

REBUILDING OF WESLEYAN CHURCH, COTHAM, BRISTOL.—The rebuilding of the Cotham Wesleyan Chapel is approaching completion. Some improvements in the internal arrangements will be effected, and the enlargements will principally consist of the addition of organ and choir chambers, and a large church parlour, with an ante-room. The architects are Messrs. R. Curwen, of London, and H. J. Jones, Bristol, and Messrs. Stephens, Bastow, & Co., Limited, are the contractors.

SCHOOLS, NEWPORT, MON.—The new buildings added to Chepstow-road Board Schools have just been opened. The contract for the work amounted to 6,200l. Mr. W. A. Linton was the contractor, and the architect was Mr. W. B. Gardner. Accommodation is now provided for about 1,500 children. The materials used are red brick with Bath stone dressings.

NEW THEATRE, FULHAM.—A new theatre, situated at the foot of Putney Bridge, has just been opened. The building, which will be known as the Grand, has accommodation for 2,200 persons. The architect was Mr. W. G. R. Sprague, and the clerk of works Mr. Brough.

ALTERATIONS AT GORDON PARISH CHURCH, BERWICK.—The parish church of Gordon, which has been altered and renovated, was opened recently for public worship. Messrs. Dunn & Findlay, Edinburgh, were the architects, and the contractors were:—Messrs. Adam Rodgers, Earleton, mason; James Hunter, Gordon, joiner; James Smith, Duns, plasterer; John Lindsay, Galashiels, painter.

HOME FOR INFIRMARY NURSES, BRADFORD.—The Duke of Devonshire, K.G., laid the foundation stone on the 30th ult. of the Nurses' Home, Bradford, which is to adjoin the infirmary. It is estimated that the cost of the new building will amount to about 10,000l., and accommodation will be provided for over fifty nurses. The new building will stand parallel with Westgate. It will be 142 ft. in length, 42 ft. wide, and four stories in height, including the basement, which on the lower or West-gate side will be entirely out of the ground. The basement will contain kitchen, scullery, larders, store-rooms, boiler-room, linen stores, box-rooms, and a porter's lodge at the north end. The ground floor will contain the main entrance, which will be on the east side of the building, opening into the infirmary garden. The entrance hall will lead into a corridor running the full length of the building north and south. Opposite the entrance is a staircase, which mounts in an open well from bottom to top of the building. This floor comprises a matron's room, a visitors' room, a nurses' parlour, a probationers' parlour, two probationers' studies, two sewing-rooms, eight bedrooms, and two bath-rooms. The first and second floors above are in arrangement very similar to each other, the first floor containing twenty-one bedrooms, and the second twenty-two bedrooms, one of the latter being a sick-room of the size of two ordinary bedrooms. The architects for the new home are Messrs. Milnes & France, of Bradford.

SANITARY AND ENGINEERING NEWS.

SEWAGE DISPOSAL WORKS, KILLIN, PERTHSHIRE.—These works were visited recently by a deputation comprising the Town Council of Airdrie and their officials. They were shown over the works by Mr. Woulf Brennan, C.E., Oban, the engineer, Mr. Cameron, clerk of works, and others. The amount of sewage dealt with at the works is 97,000 gallons per day.

BIRMINGHAM AND ITS SEWERS.—In view of the general feeling of anxiety to which the high death rate in Birmingham has given rise, we have made inquiries in order to ascertain in what light the impendence of the sewage system required, and this led to the sewage system being undertaken in greater detail. An experienced inspector was engaged, and a complete investigation of the sewers was strongly recommended. Up to the present time the Birmingham sewers have merely been flushed, whereas other large communities have provided themselves with means for thoroughly cleans-

ing as well as water flushing the public sewers. The authorities have hastened to repair the mischief by an instruction that the requisite apparatus must be obtained. The city area has been divided up into districts for the purpose of a complete inspection, and at the earliest possible moment the City Surveyor will report to the Public Works Committee on the state of the sewers, and in his communication he will embody whatever recommendations he thinks the case requires.—*Birmingham Mail.*

PROMENADE, GATEACRE, LANCASHIRE.—The construction of a promenade at Gateacre, in commemoration of the Queen's Diamond Jubilee, has now been commenced. Plans were prepared by Mr. R. T. Beckett, architect, Liverpool, and the work has now been entrusted to Mr. W. Oliver, Wootton, and Messrs. J. & R. Rimmer, Gateacre. The promenade is being constructed on the northern side of Belle Vale-road, and will extend from Gateacre station to beyond the church, a distance of over 400 yards.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOWS, BARKING, ESSEX.—The stained glass windows recently placed in the Chapel of St. Margaret's Burial Ground, Barking, have just been dedicated. The windows (six in number) are the work of Mr. F. A. Clasper, of Epsom.

DECORATION, ST. PAUL'S CHURCH, BIRMINGHAM.—After undergoing renovation, St. Paul's Church, Birmingham, has been reopened. The decoration has been carried out by Messrs. Sears & Son, under the direction of Messrs. Gately & Parsons, architects.

NEW WINDOW, LANDSCOVE CHURCH.—The parish of Landscope, South Devon, has just celebrated Her Majesty's Jubilee by filling the east window with Munich stained glass. It consists of five lights, representing the Annunciation, Nativity, Crucifixion, Resurrection, and Ascension, while in the tracery is introduced the Cross with rays, the Lamb, and the Pelican. The dedicatory inscription is engraved on a brass plate fixed to the side of the chancel, and reads as follows:—"To the glory of God, and in memory of Louisa Chamberpowne, at whose sole cost this church was built, this window was erected as an offering by the parishioners in the year of Queen Victoria's Jubilee, 1897." The whole has been designed and executed at the atelier of Messrs. Mayer & Co., of London and Munich.

WINDOW, BURTON LATIMER, NORTHAMPTON.—A memorial window has just been placed in the east end of St. Mary's Church, Burton Latimer. The window, which was supplied by Messrs. Hardman & Co., of Birmingham, at a cost of about 600l., is a representation of various scenes in the life of Christ.

FOREIGN.

FRANCE.—By a recent decision of the Municipal Council of Paris, the Hôtel Carnavalet is in future to be entirely devoted to the purposes of a historic museum of the city of Paris, which at present occupies only a portion of the collection. The library will be transferred to the Hôtel Lepeletier, adjoining the Carnavalet, and which was purchased last year. M. Georges Cain, who has been appointed curator of the museum, will re-organise it entirely. The reservoir of the water of the Oarcy, on the boulevard de Batignolles, is to be destroyed, and the site devoted to the erection of a number of business premises.—M. Roby has nearly completed the modelling of the new silver coinage, which will be put into circulation by the end of October.—The new lighthouse on the headland of Penmarch in Finistère, is to be inaugurated next month. It is about sixty metres high, and stands on one of the most dangerous points on the French coast.—A competition is about to be opened at Lyons for the construction of a Lycée for girls, at a cost of about 1,500,000 fr.—A monument in honour of the poet Lagrange-Chancel is to be erected at Saint Astier. It is to be designed by M. Rivet, sculptor.—A monument in memory of the Franco-German war is to be inaugurated on the 12th inst. at Montbéliard.—The death is announced of M. Forgeron, architect, of Paris.

GERMANY.—An Arts and Crafts Exhibition of considerable importance has been held at Leipzig, in which all the exhibits have been lent from country houses in the neighbourhood of the city.—The municipality of Berlin is in the happy position of being able to report a very ample surplus in its last year's budget, owing to a certain extent to having obtained its contracts for public works at lower rates than estimated. The Public Works Department, including the engineering section, have saved about 170,000l. The architect's department alone saved over 20,000l.—The late City Architect of Cassel, Herr George Rudolph, died in his 84th year last month. Both the father and the grandfather of the deceased held in turn the same office of City Architect at Cassel. The Public Minister of Works on July 17, and asked him to call for competitive designs for the new Parliament House which it is intended shortly to erect. Mr. Piessie, in reply, declined, stating that he intended to recommend the Government that designs should be prepared by the Government Architectural Department.—*Adelaide Observer.*

MISCELLANEOUS.

CHICHESTER CATHEDRAL.—An appeal is being made for funds for the extensive restoration of Chichester Cathedral. The executive committee for the restoration propose, in the first place, to set on foot the rebuilding of the north-west tower, and Mr. J. L. Pearson, R.A., who has been appointed architect to execute this part of the work, has prepared plans. It is proposed to build so much of the tower as can be completed with the funds already subscribed, and to carry on the work to completion as subscriptions come in. The committee hope to be able to undertake, as funds are supplied, the repair of the south transept, the renewing and repairing the dilapidated pavement of the nave and aisles, the re-erection of the nine pinnacles on the buttresses, and the restoration of the ancient library for the chapel of St. John.

UNIVERSITY COLLEGE, LONDON.—The following prizes and certificates have been awarded in the courses of architectural lectures and architectural and constructional drawing and quantity surveying at University College as the result of the work and examination of the session 1896-1897:—Architecture (Professor T. Roger Smith, F.R.I.B.A.)—Fine Art: Donaldson Medal, M. H. West (Maidenhead); prize, G. G. Lean (Isleworth); third class, E. Martineau (Hastings); Construction: Donaldson Medal, C. F. Dawson (Barking); prize, F. J. Freeman (Blackheath); second class, H. S. R. Boyajian (Kharput), G. G. Lean (Isleworth); third class, E. Martineau (Hastings), W. P. D. Stebbing (London). Classes maintained by the Carpenters' Company—Architectural Drawing: 1st prize, J. Porter (London), and prize, P. H. Pope (London); certificate, J. E. C. Desch (London); Construction Drawing: 1st prize, A. E. Stump (London), 2nd prize, W. Smalley (London); second class, A. S. Kilby (London), A. Pethybridge (London), A. Thwaite (London); Quantity Surveying (elementary class), prize, W. B. Payne (London); advanced class, prize, H. C. Simmons (London); second class, T. A. Burr (London), W. Smalley (London); third class, H. B. Ward (London).

LEEDS INSANITARY AREAS.—A project for dealing with another locality of Leeds as an insanitary area will, says the *Yorkshire Post*, shortly be brought before the Corporation Committee that is charged with this work. In accordance with the instructions of the Committee the area, which is in the Holbeck district, has already been provisionally defined. It comprises about four acres—quarter the size of the York-street insanitary area—and lies between Sweet-street on the north, Jack-lane on the south, and the Jack-lane Board School and Dudley-street on the west, the eastern boundary being formed by an irregular line running along part of Moor-street, and extending almost to Meadow-rd. There are within the space described about 500 houses, occupied by something like 1,500 persons, for whose accommodation, in the event of their being dislodged, it would be necessary, under the Housing of the Working Classes Act, to make provision. The area, which embraces such regions as Potter-street, Potter-row, Back Charlotte-street, Moore-square, and Gisburn-court, is covered almost entirely with old cottage property of an inferior description. It includes a number of cellar dwellings, some of which have quite recently been condemned by the authorities as unfit for human habitation, and branching off from the regular streets are several courts and alleys into which sunshine and fresh air penetrate with difficulty. A good deal of the property is said to be as bad as anything to be found in the York-street area.

SITE FOR MUNICIPAL BUILDINGS, BOURNEMOUTH.—A site for the proposed municipal buildings and public pleasure-grounds is about to be acquired in the centre of the town, on the ground known as the "Horseshoe," and the Corporation will apply to the Local Government Board for sanction to borrow 15,000l., wherewith to purchase the freehold and compensate some lessees.

ABERDEEN BUILDING FEDERATION AND AN EIGHT HOURS' DAY.—On the 27th ult., the half-yearly meeting of the Aberdeen Building Federation was held in the Trades Hall Buildings—Mr. George McLean, President, in the chair. The question of an eight hours' day was under discussion, and the meeting was in favour of the shorter day. Some thirteen months ago, the Federation called a meeting of the various trades in the city, at which the question was discussed, and those present agreed as individuals to bring the subject before their fellow workmen. In consequence, however, of the position which the movement has assumed during the past few months, the Federation resolved to request all the building trade unions to take the subject into consideration in view of the concentrate action being taken before spring. Mr. George McLean, joiner, was re-elected President; Mr. Alexander Walker, joiner, Vice-President; Mr. A. S. Sinclair, painter, Secretary; and Mr. Wm. Leask, plumber, Treasurer.

ALTAR, &c., ST. BRIGID'S CHURCH, ADRAGH, CO. LONGFORD.—The new altar and communion rails at the Church of St. Brigid, Adragh, were consecrated recently. The altar is from the designs of the architect, Mr. J. Hogue, Dublin. Mr. Smyth was the sculptor. The table is of polished Carrara marble, the front being formed of Sicilian, with

ornamental sunk panels, and having shafts of Sienna and Connemara marbles, with polished Carrara marble caps and bases. The tabernacle is also of Sicilian marble, with engraved brass door and surmounted by a canopy, supported on pillars of Sienna marble. The reredos, which is of Sicilian marble, has six panels of Sienna marble. The sanctuary is enclosed by a communion rail, composed of Sicilian, Carrara, and Cork marbles, the central feature being a pair of ornamental brass gates.

CAPITAL AND LABOUR.

THE STAFFORDSHIRE BUILDING TRADES.—The building trades in the district are in a very prosperous condition, and from all towns there is the same report of great activity, particularly in artisans' dwellings. At Burslem, on the Park estate, there are over 300 houses in course of erection; and around Cobridge there is a large number being built. Bricklayers state that all hands are fully employed; and joiners and carpenters have less than 1 per cent. out of work. Plasterers are very busy. Painters and plumbers are fully employed, and in some instances overtime is worked. Bricklayers' labourers are busy. At Crewe the building trade is very good, there being no operatives out of employment. At Leek there are none out of work. At Stafford stone-masons and bricklayers are the busiest. Joiners report a slight decline.—*Staffordshire Sentinel*.

LEGAL.

THE LONDON BUILDING ACT, SECTION 74:

DIVISION OF BUILDINGS USED PARTLY FOR TRADE AND PARTLY AS DWELLINGS.

A CASE of some interest under this section was recently decided by Mr. Hannay at the Marlborough-street Police-court in connexion with the rebuilding of the "Rising Sun" tavern, situate at the corner of Windmill-street and Tottenham Court-road.

The whole of the ground story was arranged as a bar entered from both streets, and the first story, all except the staircases, constituted a large billiard-room.

The plans showed a single staircase approached from the bar leading to the first story; and the landing was separated from the billiard-room by an enclosure which was proposed to be of brickwork $4\frac{1}{2}$ in. thick, with a door to the billiard-room having glass panels. From this landing, but separated both from the billiard-room and from the staircase last mentioned by a 9-in. wall, a staircase led up to the upper stories, which were to be used as sleeping-rooms for the staff, &c.

The District Surveyor served notice of objection on the builders, and the owner appealed in their name from such notice to the magistrate.

Mr. H. Parker Love appeared for the appellant, and the District Surveyor was represented by Mr. T. Senger Berry by instruction from the London County Council.

The notice of objection of the District Surveyor was to the effect that the building would exceed 10 squares, and would be used partly for trade purposes and partly as a dwelling, and that these two parts were not separated in accordance with Section 74 by walls and floors of fire-resisting materials, inasmuch as there would be a common staircase belonging to both parts of the building entered from the bar, and without any separation from either part; and also that the enclosure on the first story being only $4\frac{1}{2}$ in. thick, and having a door with glass panels, was not a proper wall of fire-resisting materials between the staircase and landing leading to the dwelling on the one hand and the billiard-room on the other.

For the appellant it was contended that the enclosure of the staircase up to the one-pair story and of the landing on that story so as to separate the ground floor stairs from the billiard-room was not prescribed by Section 74; but that it was sufficient to have a staircase starting from the billiard-room upwards enclosed with a brick wall and a fire-resisting door.

In support of the District Surveyor's notice of objection, it was argued that such a construction as the builder proposed did not comply with the section, which, in effect, required the approach to the dwelling-house portion to be entirely separated from the trade portion; that the section, though clumsily worded, effected this object by saying that "all means of approach to the dwelling-house portion should be constructed throughout of fire-resisting material;" that in this case the dwelling-house portion could not be approached except by coming through the bar, either from one street or the other, to the staircase, and that the bar itself was therefore a means of approach to the dwelling-house portion, and that, inasmuch as the bar would presumably have glass windows and doors, &c., in it, it could not be constructed throughout of fire-resisting materials, and so must not be used as an approach to the dwelling-house portion. To comply with the section it was necessary, as the District Surveyor required, to make a separate approach entirely walled off from the bar by a 9-in. wall, leading from one of the streets to the staircase, and also to separate the billiard-room from the staircase by a similar wall, since in no other way could the builder

provide the dwelling-house with an approach which would be fire-resisting throughout. It was pointed out that such an approach could be readily made from Windmill-street.

Mr. Hannay said that the construction proposed by the builder would produce the very evil that the clause appeared intended to prevent, viz., that in case of fire in the trade portion of the building persons in the dwelling-house part would have to rush through the flames to get out of the building. In this case the bar was being used as an approach to the living rooms and it could not be made fire-resisting throughout. He accordingly upheld the requirement of the District Surveyor.

In this case Messrs. Treadwell & Martin, the architects of the building, arranged that the objectionable practice of "summoning the District Surveyor" was not taken, but the more proper mode of obtaining an appointment for the Magistrate to hear the case, and giving the District Surveyor notice of it, was adopted. In a matter like the present, arising on notice of objection under Section 150, nothing in the section warrants any summons being issued to either party.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS IN SLOANE-STREET:

CASE IN THE VACATION COURT.

THE case of *Bery v. Acroyd* came before Mr. Justice Byrne, sitting as vacation judge, on the 27th ultimo, on the motion of the plaintiff for an interim injunction over the 1st inst., restraining certain building operations of the defendant, obstructing, it was alleged, the plaintiff's ancient lights.

Mr. Attwater stated that his client, the plaintiff, was the leaseholder and occupier of No. 50, Sloane-street, under the lease of Lord Cadogan, the defendant being the occupier of the adjoining house on the south side, No. 51, Sloane-street. At the rear of the houses were gardens which were divided by a party fence wall. In the year 1888, the persons who were then in occupation of No. 51, Sloane-street, commenced building, at the rear of the house, a structure called the morning room, and plaintiff's predecessor in title applied to restrain them from proceeding with this building by *interim* injunction, but the litigation was compromised by an agreement, dated March, 1888, which provided that in consideration of the sum of 150l. paid by the then owners of No. 51, Sloane-street, to the then plaintiffs, although the buildings then proposed to be erected were an obstruction of the ancient lights, the then defendants should be at liberty to erect the morning-room in accordance with the plans. The agreement also provided that the room described as the morning-room should not be raised to a greater height than mentioned on the plan, viz., 11 ft. higher than the north garden wall. The morning-room was then completed in accordance with the plans, and on June 28 last the defendant in the present action, through his architect, served notice on the plaintiff of his intention to erect certain buildings which would interfere with the party fence wall. Negotiations then took place, and then apparently the defendant abandoned his first plan and proposed to carry up the north wall of the morning-room 3 ft. higher than was allowed by the agreement in question, and also to carry the north wall of the morning-room further to the rear of the house. The learned counsel remarked that this would be a breach of the agreement, and would be a serious interference with some of the plaintiff's lights.

In answer to his lordship, Mr. Attwater stated that he could prove that the plaintiff's lights were ancient, and that the proposed building by the defendant would materially interfere with those lights.

His Lordship: You may have your injunction over Wednesday next to restrain the defendant from building so as to interfere with your ancient lights. But this is not to operate so as to prevent him in any way from building to the same height and distance as the old morning-room, which, it appears, has been pulled down.

Order accordingly.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

16,862.—**ROOFING TILES:** *W. Kalthaner*.—In grooved cement tiles, grooves are arranged in the form of a prominence at the top groove, catching in a corresponding cut in the cross rebate at lower surface of tile, and also in the arrangement of a peg, a notch, and a prominent clasp in such tiles, with a sloping arrangement of lower top groove wall.

20,866.—**PREVENTING BURSTING OF STAND AND WATER PIPES IN FROST:** *J. Watson*.—An arrangement in stop valves and cocks that drainhole is closed when valve is open and *vice-versa*, and that escape valve on outside is closed when valve or cock is open and *vice-versa*.

21,319.—**GULLY TRAP:** *A. Wakefield*.—Concerns construction of a street or surface water-gully having a main chamber for collection of detritus, subsidiary chambers with inlets of water thereto, at or near top of main diaphragm and auxiliary diaphragm, and an outlet arranged as per drawing accompanying specification.

4,797.—**WINDOWS AND WINDOW FRAMES:** *D. Y. Aasen*.—Inventor claims in combined sliding or hinged sash windows (a) the use of detachable hinges; (b) detachable bars or clip plates; (c) a removable batten rod; (d) an improved device for securing cords; and (e) a hinged parting-head.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall and Law Courts	Cardiff C. Co.	500l. 500l. 2000l.	Dec. 4
Board School for 550 Boys	Cardiff Sch. Bd.	2nd and 3rd.	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Shedding, Argyll	Edinburgh U.D.C.	Surveyor, Argyll street	Sept. 6
Street Works	do.	do.	do.
Church and School, Thwaite, Baw. Argyll	do.	W. H. & A. Suglen, Archt. Cavendish-st. Kelhly	do.
Twenty-one Houses, Prudhoe-on-Tyne	Edinburgh Co-operative Society	Edinburgh offices	do.
Three Houses, Delington, Huddersfield	Mr. J. Boothroyd	W. Cooper, Archt., Kirk-gate-bldg., Huddersfield	do.
Bevern, Burns-road and Forest-avenue	Aberdeen T.C.	W. Dyack, Burgh Surv. Town House, Aberdeen	Sept. 7
Drainage Works at Infrary	Edinburgh under Lyne Dist. (Infrary Bd.)	North Eastern Sanitary Inspection Association 3, Albert-square, Manchester	do.
Paving Works at Infrary	do.	J. P. Millie, Boro Surv. Tynemouth	do.
Alterations, Tack Temple Gas Works	Glasgow Corporation	Edinburgh offices	do.
Alterations, at Cullinagh School	Edinburgh School Bd.	A. O. Evans, Archt. Post Office, St. John's rd.	do.
Erection of Infirmary	Edinburgh Sch. Bd.	Clerk Office, St. John's rd.	do.
Forming Street, Paving with Jernih Wood Blocks, and Paving Post Office with Concrete Tiles	Dewsbury Corp.	H. Dearden, Town Hall	do.
Culvert and Road Works, Bradley	Edinburgh U.D.C.	J. P. Dalton, Esq. Council Office, Jernih-on-Tyne	Sept. 8
Repainting of Buildings	do.	A. J. Murgatroyd, Archt. 23, Stratford, Manchester	do.
Rebuilding Walls at Swinton Schools	do.	H. J. Evans, Boro Surv. Huddersfield	do.
Roadworks, Railway-place	Hartford Corporation	J. O'Neill, Clerk, North Brunswick-st. Dublin	do.
Play Hall, Cabra Auxiliary Work-house	Edinburgh North Dublin Union	Robert & Evans, 30, St. Mark's-st. Albany-st. Dublin	do.
Dover Embankment Works, Tynalis	do.	Cooper, Whitaker & Co. Ltd. 1, Cannon-st. London	do.
Two Cottages and a Laundry, Marston Green	Birmingham Guardians	Met. Archt. in Board	do.
Shedding, at Infrary	do.	W. Cooper, Archt. Kirk-gate-bldg., Huddersfield	do.
Shop Premises, Huddersfield	Mr. T. Mellor	W. J. Taylor, Boro Surv. Office, Pentre, R.S.O. Glam.	Sept. 9
Recovering of (one) road	Rhonda U.D.C.	Holton & Fox, Archt. 23, Stratford, Manchester	do.
Additions, &c. Waiting-room at Work-house	Dewsbury Union	C. R. Miller, C.R. Felling 2, Davies, Clerk, Llanidloedd Wells U.D.C.	do.
Rebuilding Brandy Hotel, Felling	Llanidloedd Wells U.D.C.	T. Rederick, Archt. Ashbrook House, Gifford, Aberystwyth	Sept. 10
Vagrant Wards, Union Workhouse	Merthyr Tydfil Guardians	O. F. K. Young, C.R. 42, Epsom-st. Perth	do.
Tramway Extension, Craigie	Edinburgh Perth & District Tramways	Glasgow Corporation	do.
Public Washhouse, Kennedy street	Glasgow Corporation	Edinburgh U.D.C.	do.
Sewer, Canterbury-road	Ashford U.D.C.	Glasgow Corporation	do.
Road Works, Pontycymmer	Glasgow Corporation	Glasgow Corporation	do.
Erection of Bridge, Townhead	Edinburgh U.D.C.	Glasgow Corporation	Sept. 11
Parag. Sewering, &c.	Edinburgh U.D.C.	Glasgow Corporation	do.
Church, Kilmacrae	Edinburgh U.D.C.	Glasgow Corporation	do.
Widening Road and Building Wall	Premier U.D.C.	Glasgow Corporation	Sept. 13
Excavating, &c. for Bacon Factory	Edinburgh U.D.C.	Glasgow Corporation	do.
Salby	Edinburgh U.D.C.	Glasgow Corporation	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Ten Dwelling-houses, Bridgehouses	G. H. Unwin	J. Clark, Archt. 65, Norfolk-street, Sheffield	Sept. 14
Stores, Railway street, York	The Directors	Ashken & Beck, Archt. 2nd, West Hill, Warr.	do.
Stables, Prince-street, Dorchester	Mr. T. Lyness	Crispin & Sons, 77, 81, Thos. of Westminster	do.
Additions, Free Library, St. Faith	Edinburgh T.C.	A. W. Smith, 88, Week-at-Middleton	do.
Station Meter House at Gower Works	Middleton Corp.	T. Davidson, Gas Manager, Town Hall, Middleton	Sept. 15
Underground Conduits	Plymouth T.C.	J. Gaver, Archt. 4, Church-st. West Hill, Warr.	do.
Promises, Park-road, West Hartlepool	The Hartlepool Co. op.	E. P. Stevenson, Council Office	Sept. 20
Electric Lighting and Refuse Destructor Buildings	Llanidloedd U.D.C.	Edinburgh U.D.C.	do.
Electric Lighting and Plant	Llanidloedd U.D.C.	Edinburgh U.D.C.	do.
Electric Light Wiring at Public Library	Canby Boro, West Ham	Edinburgh U.D.C.	do.
New Camp Sheathing at Lett's Wharf	London County Council	Edinburgh U.D.C.	Sept. 21
Pike Brigade Station, Lawisham	London County Council	Edinburgh U.D.C.	do.
Brick and Pipe Sewers	Shoreditch Vestry	Edinburgh U.D.C.	do.
Gravel (1700 tons)	Nantyls and Rhina U.D.C.	Edinburgh U.D.C.	Sept. 22
Gravel (200 tons)	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Removal of Slop	St. John (Hampstead) Vestry	Edinburgh U.D.C.	Sept. 23
Additions to School	Acton Sch. Bd.	Edinburgh U.D.C.	do.
Engines and Boilers, Union Workhouse	Pontefract Union	Edinburgh U.D.C.	Sept. 24
Police Station, Westbury-on-Tyeme	Gloucestershire Standing Joint Comm.	Edinburgh U.D.C.	do.
Police Station, Tynebeck	do.	Edinburgh U.D.C.	Sept. 25
Heating and Ventilating of Printing Works	Messrs. Grafton Smith	Edinburgh U.D.C.	Sept. 27
Asylum Foundations, &c.	West Ham Council	Edinburgh U.D.C.	Sept. 28
Alterations, Undergound Conduits, Llanidloedd	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Infants' School, Pontefract	Edinburgh U.D.C.	Edinburgh U.D.C.	Sept. 29
Rebuilding, &c. Presbyterian Church, Ballygowan	Edinburgh U.D.C.	Edinburgh U.D.C.	Sept. 30
Two Houses, Clon, North Dublin	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Wesleyan Church, Rhayader	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Alterations and Additions to Work-house	Wallingford Union	Edinburgh U.D.C.	do.
Three Houses, Wheatley Hill	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Reconstruction, &c. Branch Stores, Home and Colonial	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Passenger Station, &c. North St. Mary	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Station Hotel, Early	Edinburgh U.D.C.	Edinburgh U.D.C.	do.
Tramway, &c. Cottages, Residence	Edinburgh U.D.C.	Edinburgh U.D.C.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be made.
Manual Training (Woodwork) Institute	Borough Polytechnic	170l. per annum	Sept. 7
Apprentice Assistant	Edinburgh U.D.C.	120l. per annum	Sept. 16
Apprentice Assistant	Edinburgh U.D.C.	120l. per annum	Sept. 16
Apprentice Assistant	Edinburgh U.D.C.	120l. per annum	Sept. 21
A Teacher of Woodworking	Edinburgh U.D.C.	120l. per annum	Sept. 22

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. & viii. Public Appointments, pp. xviii. & xxi.

9,927.—STONE CUTTING AND SAWING APPARATUS *A. J. Boyd*.—In various modifications of stone rendering apparatus, inventor claims (a) arrangements of slots in saw blades, which grinding material is continually fed; (b) the arrangements of metal plates, discs, &c., in connection therewith; and (c) the combination of two rotating saws, which saw blades simultaneously make two cuts at an angle to each other while the carriage is passing.

12,226.—BLOW LAMP FOR TINNERS, PLUMBERS, &c. *J. C. Dyer and Others*.—Invention consists in a tinner's furnace in which are combined a source of oil supply, a burner for heating and partially vaporizing the oil, a combined mixing and primary combustion chamber, and a heating chamber surrounding same. Various modifications are described.

NEW APPLICATIONS FOR LETTERS PATENT.
August 16.—18,958, J. Thomas, Bolts or Locks for Doors.—18,959, J. Marsh, Flushing Syphon Cisterns.
August 17.—19,013, W. Ison, Sash Fastener.—19,023, H. Priester, Door Closing Apparatus.—19,028, J. Newell, Glass Surfacted Composition Slabs, Tiles, &c.—19,030, A. Eyles, White Lead.

August 18.—19,072, E. Cousins, Joints or Connections between Lengths of Pipes for Drainage, &c.—19,029, R. Adams, Sliding Window Sashes and method and means of converting same also into Revolving Sashes.—19,080, H. Alexander, Oiling Machine for Brick-making Machinery.
August 19.—19,157, A. Croy and E. Newby, Window Fasteners, for use in the Manufacture of Bricks.—19,175, E. Cousins, Joints or Connections between Lengths of Pipes for Drainage Purposes, &c.

August 19.—19,175, J. Wallis and C. Standing, Sewer Interceptor for Preventing of Backflow of Storm Water from Sewers into Houses on Low Levels, &c.—19,177, Reed, Windows.—19,157, A. Croy and E. Newby, Window Fasteners.—19,177, H. Wolterker, Process of Manufacturing White Lead by Electrolysis.

August 20.—19,265, W. Mitchell, Chimney Cows and Ventilators.—19,273, L. Quinlan, New System of Sheet Roofing.—19,277, J. Austin, Water-taps.—19,285, H. Westley, Lock Fastener for Window Frames and Casements.—19,295, M. Mulready, Fire Grates.—19,305, H. Childs and A. Smith, Cleaning the Outside Surfaces of Stone or Brick Buildings.—19,320, R. Neuber, Reversible Water-spray Nozzle for Ventilating purposes.
August 21.—19,342, W. Johnson and F. Woodhead, Brick Making Machines, &c.—19,350, J. Keylock, Number Plates for Street and Other Doors.

PROVISIONAL SPECIFICATIONS ACCEPTED.

16,131, H. Gregg, Sash Fasteners.—16,165, S. Cooper and S. McDougal, Kilns for Burning Bricks, &c.—17,279, G. Billington, Paint, Varnish, and Similar Cases.—17,577, G. Nelles, Saws.—17,658, A. Ward and J. Sykes, Sash Closets.—18,092, A. Pitcher, Sash Fasteners.—18,094, R. Adams, Opening Closing, Regulating, and Fastening of any Required Angle, Swing Windows, Doors, Ventilators, &c.—18,107, R. Ewing, Earthenware and Other Pipe Joints.—18,238, J. Cartwright and J. Baxter, Fireplaces or Grates.—18,246, F. Cummer, Cement.—18,365, W. Jones, Window Casement, &c.—18,381, E. Liley, Door Knobs or Handles.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.
22,239, H. Needham, Cramps for Joinery, Cabinet-making, &c.—22,635, R. & J. McKellen, Fire Grates.—22,849, T. Forbes, Balusters and Guard for Stair Handrails.—23,009, S. Mandey, Sawing Apparatus.—23,099, G. Pitt, Brick, Tile, Pipe, and Similar Kilns.—24,656, S. Adams, Flushing Apparatus.—25,532, D. Wallace, Water-closets.—24,933, M. Adams, Urinals.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

August 12.—By WORSFELD & HAYWARD (at Dover).
Barham, Kent.—"Ropersole Farm," 144 a. r. 1. 2 p. 1/2, for £3,500.
Seend, Wilts.—"Turner's Farm," 27 a. r. 28 p. 1/2, for 1,300.
Immarsh Farm, 38 a. r. 33 p. 1/2, for 2,500.
Enclosures of land, 72 a. r. 28 p. 1/2, for 2,410.
August 13.—By THOMPSON & CO. (at Barnstaple).
Lynton, Devon.—"Higher Bullen Farm," with eight cottages and enclosures, 66 a. r. 0 p. 35 f., for 2,310.
By G. E. HILLIARD & SON (at Chelmsford).
Margaretton, Essex.—"Martins" and "Styles" Farm, 50 a. r. 24 p. 1/2, for 1,000.
August 14.—By MOORE, GARNARD, & SON (at Framlingham).
Parham, Essex.—"Lonely Farm," 29 a. r. 19 p. 1/2, f. and c., for 200.

August 17.—By W. & B. HOBBS (at Ashford).
Hope-All-Saints, Kent.—Enclosure of pasture land, 58 a. r. 2 p. 1/2, for £110.

By PATTERSON & SON (at Wellington).
Wellington, Salop.—"The Lamb Inn" and two shops adjoining, f. and c., for 2,025.

By SLADE & BUTLER.
Battersea—126, Ingrave-st., 78 yds., g. r. 5 f., for 150.

By BELTON & SONS (at "Masons' Hall Tavern").
Woodford, George-lane, "The Railway Bell" p. h., ut. 63 yds. r. 102 ft. with goodwill, for 29,500.

By S. & G. KINGSTON (at Spalding).
Pinchbeck, Lincs.—"Oakway House" and 78 a. r. 10 p. 1/2, f. and c., for 4,500.

Three cottages and enclosures, 15 a. r. 18 p. 1/2, f. and c., for 1,250.

Spalding, Lincs.—"The Chestnuts" and 3 a. r. 3 p. 1/2, f. and c., for 600.

Two enclosures of arable land, 14 a. r. 7 p. 11 f., for 1,010.

By BRUTON, KNOWLES, & CO. (at Newent).
Linton, Hereford.—"Darnell's Farm," 152 a. r. 2 p. 1/2, f. and c., for 1,710.

"Beavans Hill Farm," 9 a. r. 3 p. 0 f., for 380.

By THURGOOD & SON (at Saffron Walden).
Wendon, Essex.—"Bulse Farm," 188 a. r. 1 r. 13 p. 1/2, f. and c., for 3,125.

August 18.—By E. JACKSON (at Dover).
Elham, Kent.—Four leasehold cottages, ut. 70 yds., g. r. 36 f., 444 a. f., for 280.

By R. AUSTIN (at Fareham).
Titchfield, Hants.—Peck-lane, two enclosures of land, 103 a. r. 32 p. 1/2, f. and c., for 405.

Stubbington, Hants.—"Burnt House Farm" and 77 a. r. 22 p. 1/2, f. and c., for 1,050.

"Stubbington Farm," 200 a. r. 15 p. 1/2, f. and c., for 475.

"New Barn Farm," 21 a. r. 18 p. 1/2, f. and c., for 840.

A cottage and enclosure of land, 102 a. r. 0 p. 1/2, f. and c., for 7,185.

"Netles Farm" and enclosures, 81 a. r. 33 p. 1/2, f. and c., for 1,940.

Fareham, Hants.—Enclosures of land, 9 a. r. 20 p. 1/2, f. and c., for 70.

Town Quay.—"Rose Cottage" and 3 a. r. 23 p. 1/2, f. and c., for 625.

Winor, Hants.—Enclosures of land, 74 a. r. 1 r. 2 p. 1/2, f. and c., for 7,555.

Porchester, Hants.—A cottage and enclosures, 4 a. r. 31 p. 1/2, f. and c., for 1,020.

MELKSHAM—For the erection of eleven cottages at Melksham, for Melksham Dwellings, Limited. Mr. Edwin Gustone, architect, Melksham.—
Minty & Skinner, Trow. £1,155
Edward Lacey £398
bridge (accepted) £1,155

MORRISTON (Glanorgan-shire).—For rebuilding the "Rose and Crown" Inn, Morriston. Messrs. J. P. Jones & Rowlands, architects, 58, Wind-street, Swansea.—
Lloyd Bros. £2,400
H. Billings £4,150
T. Richards 2,250
I. Davies 2,000
D. Jenkins 2,250
T. Davies 2,900
Gustavus Brose 2,250
Walters & Johns 1,900

NORTHWICH.—For (1) providing and fixing an iron palisade fence in London-road (2) building three manholes in Leicester-street and Lime Kiln-road, for the Northwich Urban District Council. Mr. John Brooke, Surveyor to the Council.—

Iron Palisade Fence.
J. Holland £295
J. Ravenscroft, North-
S. Appleton 275
G. Rathbone 268
10 5
" Accepted. £244 4 0

Three Manholes.
J. Ravenscroft, Northwich (accepted) £90

PLYMOUTH.—For making-up and completing Seymour-avenue and Seymour-road, Manors for the Plymouth Corporation. Mr. J. Paton, Borough Engineer and Surveyor, Municipal Offices, Plymouth.—

S. J. Paton & Co.
H. E. Skinner £547
A. N. N. Coles £470
T. Shadlock 493
C. L. Duke 14 12
" Accepted, subject to approval of Council. £451 2 0

Surveyor's estimate, £451 10s.
T. Shadlock £1,439
H. E. Skinner, Ply-
A. N. Coles 1,412
C. L. Duke 14 12
" Accepted, subject to approval of Council. £1,453 0 0

RUSHDEN (Northamptonshire).—For erecting a villa residence, Newton-road, Rushden, for Mr. C. L. Bradfield, Mr. Arthur Garmar, architect, 66, Oakhurst-grove, East Dulwich, London.—
Aldridge Bros. £1,450
C. E. Bayne, Rushden £1,100
" Accepted for the reduced amount, £1,445.

SILVERTON.—For the erection of a house, for Miss A. and Mr. E. Stone, Parry Farm, Silverton, Devon. Mr. T. Jones, architect, 6, Western Villas, Crediton.—
Amery £340
Payne & Co., Sil-
Shart 291
Brook 275
" Accepted. £222

SLOUGH.—For sewer and road works, Diamond Freehold Estate. Mr. J. Baker, engineer, 75, High-street, Slough. Quantities by engineer.—
T. Free & Sons £2,563
W. Lee & Son £1,800
W. Swaker 2,160
" Accepted. £1,760 4 0

SOUTHAMPTON.—Accepted for the construction of new roads and drains at Freemantle. Messrs. Jurd & Sanders, surveyors, Southampton.—
W. Batten £1,350

SOUTHAMPTON.—For the erection of three cottages at Union-road, Southampton, for Mr. H. Hayward. Messrs. Jurd & Sanders, architects, Southampton.—
T. J. Jones £776
W. R. Taylor £1,335
Golding & Ansell 346
" Accepted.

SOUTHAMPTON.—Accepted for the erection of pairs of houses in Atherton-road, Southampton, for Mr. W. P. Elliott. Messrs. Jurd & Sanders, architects, Southampton.—
John Nichol £150

SOUTH TAWTON (Devon).—For the erection of farm build-
ings, Great Tawton, for Mr. J. M. Pope. Mr. Thos. Jones, architect,
6, Western Villas, Crediton.—
Counter £536
Lee & Edwards £437
Ash & Sons 536
Fisher Bros. 488
" Accepted.

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HATTON GARDEN, and 39, RAY STREET,
FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, and FIT FOR IMMEDIATE USE.
Telephone, 65, 74, Holborn. Tele. Address: "SNEWIN," London

WANSTEAD.—For the erection of a dwelling house, Harnon
Hill, Wanstead, for Mr. G. Morley. Mr. Fred A. Ashton, architect,
177, Remond-road, Stratford, E.—
W. Shuttall £1,195
J. Jelliffe £1,197
I. & H. Cocks 2,134
A. B. Symes 2,753
W. J. Maddison 2,130
C. Simmons (accepted) 1,755

WVE (Kent).—For the erection of a master's residence at the
Lady Thornhill Schools, Wye, near Ashford, for the Governors of
Lady Thornhill Schools. Mr. H. J. Jeffery, architect, North-street,
Ashford. Quantities by architect.—
W. Head £500
T. Davies 500
I. & H. Cocks 500
J. E. Hughes 500
" Accepted.

YORK.—Accepted for erecting children's ward, mortuary, &c.,
County Hospital, York. Messrs. Doman & Brerley, architects, 13,
Lendal, York.—
Bricklaying and Stonemasonry—G. Walker, Little
Stonegate York £2,112 10 0
Carpentry and Joinery—Hick & Hobson 510 5 2
Slating—J. Hargrave, Skeldergate, York 33 0 0
Painting—F. Rawling & Son, Swinegate, York 280 18 8
Plumbing—T. G. Hodgson, Grape-lane, Peter-
gate, York 408 18 0
Painting—J. Thomas, Stonegate, York 20 15 9

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, and papers read at
public meetings, rests, of course, with the authors.
We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have
been duplicated for other journals are NOT DESIRED.
We are compelled to decline pointing out books and giving
addresses.
Any communication to a contributor to write an article is given subject
to the approval of the article, when written, by the Editor, who
retains the right to reject it if unsatisfactory. The receipt by
the author of a proof of an article in type does not necessarily imply its
acceptance.
All communications regarding literary and artistic matters should
be addressed to THE EDITOR; those relating to advertisements
and other exclusively business matters should be addressed to THE
PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from
the Office to residents in any part of the United Kingdom, at the
rate of 10s. per annum PREPAID. To all parts of America,
Australia, New Zealand, India, China, Ceylon, &c., 10s. per annum.
Remittances (payable to DOUGLAS FOURDRINER) should be
addressed to the publishers of "THE BUILDER," No. 4, Cannon-
street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by
prepaying at the Publishing Office) 10s. per annum or
4s. 6d. per quarter, can ensure receiving "The Builder,"
by Friday Morning's Post.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
SLATER and TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,

To be executed by Contract in any part
of ENGLAND.

Penrhyn - Bangor,
Oakeley - Portmadoc,

And other description of Slates Ready for immediate
delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.

BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Doulting Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Doulting Stone Co.).
Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand,

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO'S

INK-PHOTO PROCESS,

4 & 5, East Harding-street,
Fetter-Lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"

For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

SZERELMEY STONE LIQUID.

THE TEST OF TIME.

OVER FORTY YEARS' GENERAL EXPERIENCE
HAS PROVED THAT

SZERELMEY STONE LIQUID

ABSOLUTELY WATERPROOFS AND PRESERVES
BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.

Adopted by Governments and Public Bodies
throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE French Asphalte COMPANY,

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND
WORKMANSHIP FOR BUILDINGS,
DAMP COURSES, AREAS, ROOFS,
WASHHOUSE AND DAIRY FLOORS,
&c., &c.

This Asphalte was chosen to be
laid at Sandringham, on the new
General Post Office, and other
important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

Particulars on application.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL:
6 and 8, HATTON GARDEN.

GLASGOW:
47 and 49, ST. ENOCH-SQUARE.

BRISTOL:
ASHTON GATE WORKS, CORONATION-RD.

The Builder.

VOL. LXXIII. NO. 2849.

SEPT. 21, 1897.

ILLUSTRATIONS.

Additions to "Paddockhurst," Sussex.—Mr. Aston Webb, F.R.I.B.A., Architect.....	Extra Large-Page Photo-Litho.
Interior Views in the Oxford Municipal Buildings.—Mr. H. T. Hare, A.R.I.B.A., Architect.....	Double-Page Tone Blocks.
Claverton Public Hall.—Messrs. Silcock & Reny, Architects.....	Two Single-Page Photo-Lithos.
Sculpture: Monument to M ^{me} . Carvalho.—By M. Mercié.....	Single-Page Ink-Photo.
Sculpture: "La Poëte."—By M. Falguière.....	Single-Page Ink-Photo.

Blocks in Text.

St. Mary the Virgin, Oxford.....	Pages 196-197	Sketches of London Street Architecture XVIII.....	Page 203
Plans and Sections of the Church of St. Martial-de-Viveyrol, France.....	Page 199	Glazed Tile Sewers.....	Page 206

CONTENTS.

St. Mary's, Oxford.....	195	Sanitary and Engineering News.....	278
Notes.....	197	Stained Glass and Decoration.....	289
The Preservation of Iron in Building Structures.....	200	Foreign.....	290
The Congress of Architects at Brussels.....	201	Miscellaneous.....	290
Sketches of London Street Architecture. XVIII.....	203	Capital and Labour.....	290
Competitions.....	203	Legal.....	290
"Paddockhurst," Sussex.....	204	Meeting.....	291
Interior Views, City Buildings, Oxford.....	204	Recent Patents.....	291
Claverton Hall, Claverton, Bath.....	204	Some Recent Sales.....	291
Sculpture.....	204		
Magazines and Reviews.....	204		
The Trades-Union Congress.....	205		
A Disclaimer.....	206		
Glazed Tile Sewers.....	206		
Effect of Teak on Iron.....	206		
Use of Slates in London.....	206		
Student's Column: Quantities and Quantity-Taking. VIII.....	206		
General Building News.....	207		

St. Mary's, Oxford.



THE Church of St. Mary the Virgin, Oxford (for that is the full dedication), occupied an unusual degree of public attention lately in consequence of the anti-re-

storiation quarrel which was got up in sundry newspapers about the renewal of the pinnacles and of some of the statues, which were in a condition dangerous to public safety; a quarrel in which the archaeological party exhibited even more than their usual intolerance and indifference to facts, and in which one at least of the journals which took up the subject endeavoured to cook a case against the restoring architect by printing misstatements as to what he was going to do, and refusing to print his replies—one of the characteristic methods of "the new journalism." But even apart from this extra publicity, there are few churches in England the main features of which are more widely known to cultivated Englishmen, the spire forming as it does the most prominent object in that world-famous street flanked by

"The sacred nurseries of blooming youth," while it is also a prominent object in the memories of thousands of foreign visitors to whom Oxford has been a shrine of pilgrimage. And though there is nothing very architecturally remarkable about the body of the church itself, a fairly good piece of late Gothic, there is a striking and marked individuality about the design of the tower and spire, which alone is prominently seen in the view of High-street, as if its architect had foreseen the amount of attention its position would attract, and had determined to stamp it with a character of its own. In this he fully succeeded; no other tower and spire in England is like it; the eye is at once struck by it, as something powerful and unusual among such erections. This marked character arises mainly from the manner in which the angle buttresses are carried with a bold projection right up to the parapet, where they are still 4 ft. in projection (the greatest projection in the lower stage, just above the plinth, being

over 7 ft.); the great size and richness, and unusual design, of the angle pinnacles; and the effective contrast between the plain treatment of the tower and spire and this concentrated richness of decorative effect in the centre. The design of the base of the spire, in fact, is quite out of the ordinary lines of mediæval architecture, and impresses itself on us as a stroke of real architectural genius.

This is a kind of special interest which is obvious to the eye, yet the historic interest of St. Mary's, which cannot be appreciated without a study of its records, is even greater and more remarkable than the architectural interest of its tower, and for this reason it is well that the monograph on it which has just been issued,* has been undertaken by an architect who is something more than a mere architect, and who can adequately appreciate and describe the important part which the church played in the history and life of Oxford University. This is not indeed the portion of the book with which we are most immediately concerned, but it is impossible to pass it over entirely, or to omit expressing our recognition of the interesting and effective manner in which Mr. Jackson has condensed into a comparatively limited space the main facts as to the part played by St. Mary's Church in the ancient university life and policy of Oxford, as well as its occasional connexion with events of wider significance.

Mr. Jackson commences his historical sketch by asking us to picture a University "with no architectural magnificence, and perhaps with no buildings of any kind at all that could be called absolutely its own." We are so accustomed to conceive of a University, from our own associations with Oxford and Cambridge, as involving a collection of rich and stately buildings, that it is almost a shock to our feelings to be reminded that only a very small proportion of these buildings which make the architectural glory of the two University cities are essential to a University, or are in fact any portion of the University properly so called. They are collective residences for students of the University, that is all.

"At Cambridge the buildings belonging to the University are even now somewhat inconspicuous.

* The Church of St. Mary the Virgin, Oxford. By T. G. Jackson, R.A., Architect. With many illustrations. Oxford: At the Clarendon Press. 1897.

At Oxford, till within the last fifty years, they consisted of little more than the schools, with Bodley's Library over them, the Sheldonian Theatre, and the Clarendon Building. At the time of the Reformation, the Divinity School, with Duke Humphrey's Library over it, was the only building of any consequence attached to the University, for Abbot Hokenorton's schools then standing were mean and insignificant. In the fourteenth century the old Congregation House, with the room over it, was the only structure the University could call its own. Before that time it had no buildings; and its public acts were performed, and its deliberations conducted, by the leave of the parishioners, within the walls of a church."

That church was St. Mary the Virgin, Oxford, whose history, as Mr. Jackson says, during the middle ages was the history of the University. The Parliament of the University met there; the clerks were by its bell summoned to arms whenever the bell at St. Martin's at Carfax summoned the citizens for a fray, the venerable and pretty serious origin of the "town and gown" riots which were only within recent memory put down; the formation of the University library began there, with the books chained to its desks; the worldly possessions of the mediæval University were kept in the church as the place of greatest security. "During the middle ages, besides being the official church of the University, St. Mary's was also its Senate House, its Divinity School, its Library, its Court-house, and its Treasury. And though the secular and educational functions to which it once ministered are now provided for elsewhere, St. Mary's is still, as the church of the University, the scene of the one outward and ceremonial expression of her religious life." And the University recognised the responsibilities incident to this use of the parish church. When the nave and aisles fell into ruins, in the fifteenth century, it was at the cost of the University that they were rebuilt, as at the cost of the University also the tower and spire have more than once been repaired (the recent repair included).

"The nave and aisles have been at least twice since the Reformation refitted with seats in a manner more adapted for the purpose of University sermons than for the ordinary parochial services. In the stately procession of Vice-Chancellor and Proctors, with bedells and maces, and Doctors in scarlet and black velvet, which streams up the nave of St. Mary's on Sundays and festivals, and in the throngs of black-robed scholars that fill the floor and brood like a dark cloud in the galleries, we see the sole survival of the many uses which the

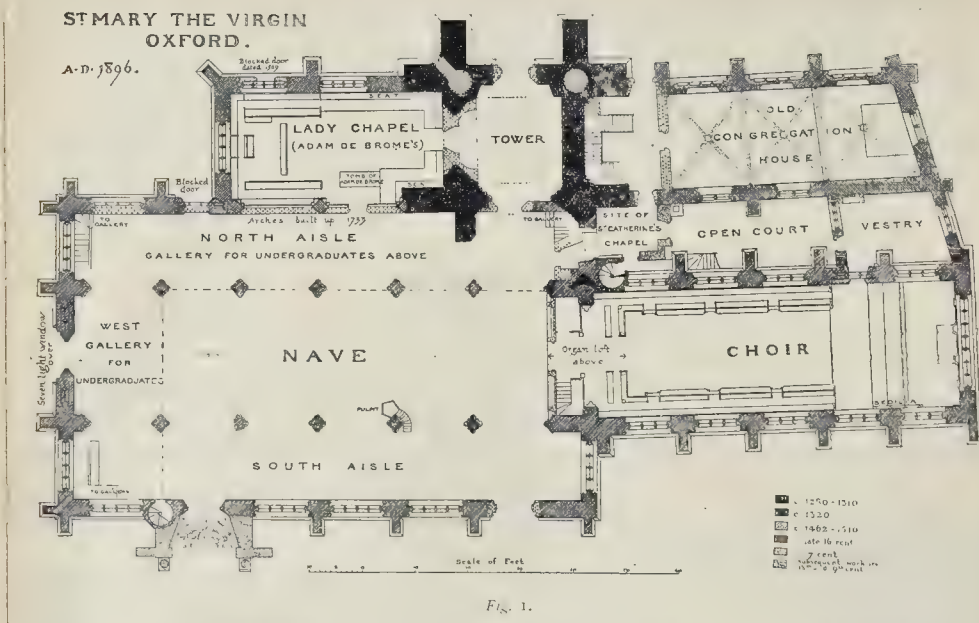


FIG. 1.

University once made of the building; the sole historical rite which speaks to us of the days when the Chancellor and scholars in their corporate character knew no other home than that afforded by the walls of the church of St. Mary the Virgin."

For the details of this history of the church, as the ancient centre of the official life of the University, we must refer the reader to Mr. Jackson's book. We will just notice also here the eloquent and pathetic account which he gives of certain other incidents of which St. Mary's was the centre, the interest of which is still wider and deeper than that of any University history—those, namely, connected with the trial of the martyrs who within these walls showed the world how high principle could triumph over the fear of death even in its most painful form; and we cannot but express our sympathy with the author's comment on "the cheap contempt that has been poured on Cranmer in the present day, for a coward and a timeserver, by those who are never likely to be tried by fire." How the very fabric of the church still bears the probable marks, as it were, of Cranmer's trial, is pointed out in two or three instances, especially in the tradition that the finials of the stalls in the choir were mutilated, by cutting off their tops to facilitate the construction of the stage on which the judicial body of clergy were to sit. "What vandalism!" would have been the cry had there been any "antiscrape society" in those days. But there are occasions of spiritual conflict in the face of which even the most cunningly carved finials do not go for much.

However, we must devote a few words to the more strictly architectural side of the subject. In fig. 1 is shown the plan of St. Mary's as it now exists,* with the different dates distinguished by different shading, the renowned tower being the oldest portion of the building. Of these the most interesting

and curious portion, in a historical sense, is no doubt the oddly shaped adjunct of the old Congregation House, abutting against the east side of the tower, and which was the first building the University could actually call its own. Mr. Jackson observes that the age of this building has been exaggerated (apparently from the mis-reading of supposed documentary evidence), and that the internal evidence of the architecture is conclusive as to its being of the fourteenth century, and a good deal later than the lower portion of the tower. The building is in two stories, and there is a good deal of interesting history as to the original object of the upper story, and the debate about the rights of the University over it and its contents, for which we must refer the reader to Mr. Jackson's pages. It may suffice to say here that the upper story or "solar" was for a considerable period the University Library. The building is at present in a deserted and dilapidated state, and the lower story has been for the present utilised as a storehouse or museum for those remains of the mediæval sculpture from the tower which it was not thought safe to reinstate in their original positions. A sketch is given of its present aspect, with the old statues arranged against the walls. It had been previously, down to as late as 1871, used as the University fire-engine house. It is rather odd that the author gives no explanation of the skew shape of the end of the building, either in the text or on the plan. A peculiar feature in it is that on the outer side, furthest from the choir, its two-storied character was altered in the fifteenth century by the formation of large traceried windows similar to those of the aisle of the church, the lower portion of which cut into the lower chamber and the rest into the upper chamber, the floor crossing them; thus anticipating Lord Grimthorpe's arrangement of the south transept window at St. Albans.

The elevation of St. Mary's as it now

exists shows the spire turrets as rebuilt, by Mr. Jackson. Loggans' print of 1675 is reproduced as an illustration to the book, in which the general outline and proportion of the pinnacles differ a good deal from that seen at present, the middle portion being lower and less massive, and the crowning pinnacle higher and thinner in proportion. This, however, was a Jacobean restoration, and affords no positive evidence as to the original termination. The record of this is now lost, but the probability, to our thinking, is that the outline of the Jacobean restoration came pretty near to that of the mediæval pinnacles, that in fact it was a restoration of them with Jacobean detail; for it is quite possible that the Jacobean architect might have had some record of the mediæval design, although it is lost to us. Mr. Buckler, in his restoration of 1852, assumed the right to neglect the Jacobean restoration and put up a design of his own, for the retention of which a huge clamour was set up by many persons, simply because it was the outline which they in their lifetime had been accustomed to. Buckler's pinnacles might have gone down to posterity as the final form, had he been more careful in the selection of the stone; as it is, they have come in forty years to be in a dangerous state, and the objecting faction seemed to forget that they had no historical value whatever, and that Mr. Jackson was not in the slightest degree bound to adopt Buckler's reading of the problem. Mr. Jackson's restoration of the upper portion, we learned from his report (which is reprinted in this book), was decided on after models had been put up of two designs of his own and one by Mr. Case, Professor of Moral Philosophy (what doth Moral Philosophy with finials?), and the one eventually selected was not the one he himself preferred, though it was not the "moral philosophy" one. There cannot be the slightest question, however, that it is better in effect than either the

* The plan and elevation are reduced, by permission of the publishers, from the larger drawings in the book.

ST. MARY THE VIRGIN
OXFORD

A.D. 1896.



Fig. 2.

Jacobean restoration or Buckler's design, and perhaps better in line than even the mediæval termination, if we are right in our belief that the Jacobean restoration probably is the nearest testimony we have as to the lines of the mediæval design. As this latest design has been carried out in a stone very carefully selected for its enduring quality, it will remain for an indefinite period as the permanent and final form of St. Mary's Spire, and we are inclined to think the best outline it has ever displayed; and as what was taken down had no historic value, we do not see what pretext any lover of St. Mary's has for complaint.

A very full account is given, with illustrations from photographs, of the remarkable series of sculptured figures on the tower, concerning which again a storm was raised on account of their removal from their position; but Mr. Jackson conclusively showed (at least to all but mere bigots) that they were in such a state that if replaced *in situ* there would be danger of detached portions from them falling, without warning, on the heads of passers-by; and at the best they could have lasted, even in that

dangerous condition, but little longer. What should be put in their place was no doubt a question of some difficulty. Mr. Jackson and Mr. Frampton, the sculptor, were of opinion that he (Mr. Frampton) should produce the best modern sculptures of the same subjects that he could, only assimilating their lines, in a decorative sense, to those of the architecture. The authorities decided that he should make accurate copies of the old statues. There is a good deal to be urged in favour of both courses, but on the whole we are inclined to the view of the architect and sculptor, that the ancient work should not have been copied. Sculpture is quite a different thing from such architectural detail as mouldings and arcades.

We have merely touched slightly on the interesting information to be found in the book, which is a worthy commemoration of a celebrated Oxford building by one of the University's own children. A word of appreciation should be added in regard to the illustrations, which, except the reproductions of old prints, are all by the author's own hand. Mr. Jackson is not one of the

writers of architectural books who have to depend upon other persons to make their illustrations.

NOTES.

The fallacy of one of the most cherished arguments of the supporters of the eight hours' movement has just been fully demonstrated —by the Trades-Union Congress! It is contended by the former, with all seriousness, that the men would be so benefited physically by receiving the same wages for eight hours' labour as are at present paid for nine, that they would be able to accomplish the same amount of work in the shorter time. The Trades-Union Congress, on the other hand, foresee that less work would be done, and an opening thus made for some of their unemployed members; and at Tuesday's meeting a resolution was carried by about 7 to 1, in which this anticipation was expressed in the following forcible words: "Seeing that the eight hours' working day is one of the most important preliminary steps towards the ultimate emancipation of the working

class, and will lessen the number of unemployed, . . . this Congress declares that the time has arrived when the hours of labour should be limited to eight hours per day in all trades and occupations in the United Kingdom." The question is, are the employers in a position to absorb the unemployed in the manner suggested? The reply is to be found in their attitude of resistance to the engineers' demand for the eight hours' day. They really cannot afford to solve the great unemployed question in this way.

The Architectural Rooms of the Brussels Exhibition.

The architectural rooms in the Art section of the Brussels International Exhibition are certainly not a success, though arranged under the auspices of the Société Centrale d'Architecture de Belgique, and intended to figure conspicuously in connexion with the Congress of Architects which was held at the Belgian capital last week. The rooms contain chiefly academical drawings by students, or beginners, and there are only a few exceptions in the form of work executed by local architects, with perhaps a dozen exhibits (mostly in the form of photographs) by Austrians, Dutchmen, Frenchmen, and Germans. To call the collection a Belgian Architectural Exhibition, let alone an "International" Exhibition, as some well-wishers appear to have designated it, would be a farce. The drawings certainly did not merit the attention accorded them by the Belgian Minister of Public Works, who "opened" the rooms on the first day of the Congress, and the Société Centrale would have done well to have avoided being associated with so lamentable a show. Berlin, Buda-Pesth, Paris, Turin, and Vienna have in turn arranged very interesting architectural rooms in connexion with their various exhibitions. There was no reason why Brussels should not have done the same, for Belgium has been making rapid strides in architecture, and can boast of many public buildings of considerable pretensions only recently completed. The only design for a Belgian Government block of some importance shown in the architectural rooms was that for a new military college, by Herr Van Massenhovn. A design for a cathedral in the Italian Renaissance style, by Herr Willaert, called for comment among the various "projects," and a design for an Academy of Arts by Herr Defever (Antwerp) might also be mentioned. M. Cordonnier sent his design for the Exchange Buildings for Amsterdam, and a model of his town hall at Dunkirk; Professor Wagner, of Vienna, was represented by some sketches and "ideals" of very excellent draughtsmanship; and the Dutch architects, such as MM. Cuypers, L. Cuypers, Verheul, and Meyers, contributed photographs of a number of buildings, and exhibited them in the hall which was taken up by Holland. In the central room of the Art section a model of the Château Bouillon occupied a prominent position. There were some interesting exhibits of craftsmanship, and some fine publications by Messrs. Lyon-Claeson in connexion with the architectural group; but, taken as a whole, the Brussels Exhibition would have been better without its architectural rooms.

It is stated that the columns of these artificial "ruins" having become unsafe have been dismantled. They were erected at the south-western corner of the lake for

George IV. by Sir Jeffry Wyattville, after the fashion he adopted at Woburn and Kew Gardens; the "ruins" consist of columns, capitals, and entablatures from Greece and the Levant, with pieces of statuary, altars, memorial stones, &c. Virginia Water, originally a part of the Forest, was laid out and planted by Paul Sandby, and added to Windsor Great Park, for William Duke of Cumberland when Ranger, who also erected the Belvidere Fort on Shrubbs Hill. The building on Chinese Island, and the Fishing Temple, were added respectively in the reigns of George III. and his successor. There is a plan by W. A. Delamotte, which shows the "ruins" as crossed by the road to Windsor.

In the course of excavations near the Ilissus at Athens, the Ephor of Antiquities, Mr. A. Skias, has re-discovered a temple known to Stuart and Revett, but the site of which had been since lost. The temple lies about one hundred paces from the spring known as Kallirrhoe, on the rocks south of the river.

In Stuart's time there were substantial remains extant, but now foundations only have come to light, and these in such a fragmentary condition that, but for the drawings made last century, there might have been some doubt as to whether they had actually belonged to a temple. The pronaos of the temple, which originally had four outer and inner two columns, was at one time converted into the apse of a Christian church. There seems no reasonable doubt that Mr. Skias has re-discovered the site of the Temple of Artemis Agrotera, mentioned by Pausanias (I. xix. 7) and seen by him after he crossed the Ilissus and before he went to visit the Stadium.

The Blue Coat School, Westminster. THE Charity Commissioners are about to establish a scheme for the future administration of this endowment. They intend, for the present, to close the school, and sell the site and buildings for not less than 9,500*l.* to the Vestry of the united parishes of St. Margaret and St. John, subject to a covenant that the building shall not be pulled down for at least twenty-five years hence; the Commissioners reserve a power to themselves for dealing hereafter with the charitable endowments. The school stands in what was Palmer's Village, on the south side of Caxton-street, between the walk locally known as Blue Coat Ring and the "London Scottish" Volunteers' drill-hall and headquarters. The triangular plot encloses the master's house, erected by some parishioners in 1709, and the girls' school, 1688. In the pediment of the south front of the boys' school, over a painting of a blue-coat boy, is written, "This School Founded 1688;" on the north front, below a statue of a scholar, "The Blewcoat School Built in the Year 1709." The school-house was erected at the charges of William Greene, owner of the still existing "Stag" brewery, after a design ascribed—yet, it seems, on dubious authority—to Wren.

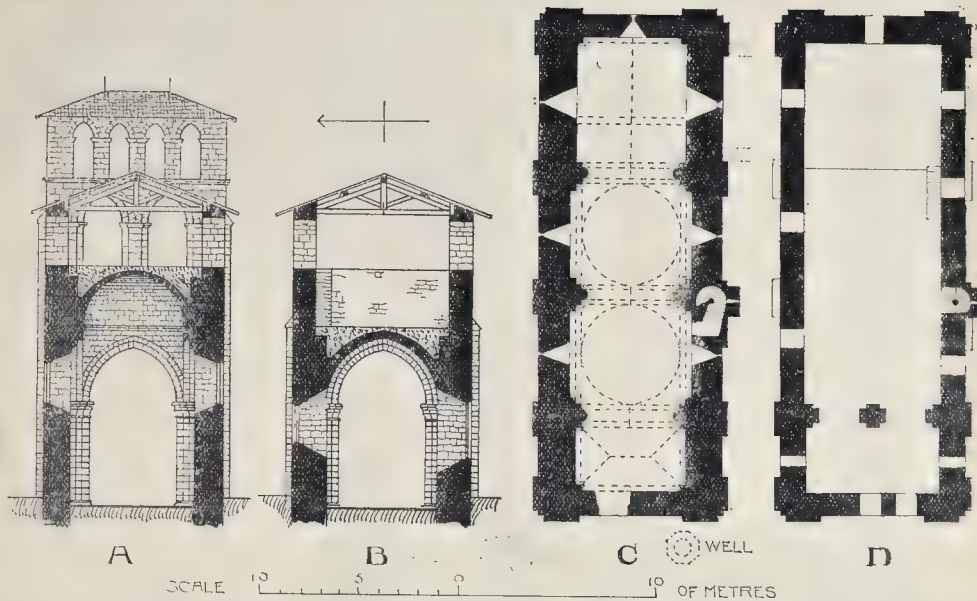
Excavations on the Acropolis. The excavations of the Greek Government on the north slope of the Acropolis have brought

to light an inscription of great importance to the history of Greek architecture. The date of the building of the Niké Temple on the

Acropolis has always been matter of dispute. Some archaeologists hold the temple to be the work of Cimon, and hence older than the Parthenon; others date it as belonging to the administration of Pericles, and others, again, put it as late as the middle of the Peloponnesian War. The new inscription, which dates about the middle of the fifth century B.C., deals with a sanctuary which was to be provided with a new entrance, and in which Kallikrates, the builder of the Parthenon, was to erect a temple and altar of stone. For reasons not yet fully stated, Mr. Kabbadias, the discoverer of the inscription, says there is no doubt that the temple of Niké is in question. The inscription was found below the grotto of Apollo—it had evidently fallen from a height.

Sanitary State of Eaton Bray, Beds. DR. S. W. WHEATON recently presented a report to the Local Government Board on the sanitary

conditions of Eaton Bray, in the Eaton Bray Rural District, and, as a result of his inspection of the parish, he reports that "the conclusion seems unavoidable that the former and present Sanitary Authorities of Eaton Bray have failed to carry out the duties imposed on them by the Public Health Act of 1875, more especially in neglecting to provide a proper water supply and a scheme of sewerage for their district." A perusal of the report appears to thoroughly justify this conclusion, though the condition of the parish appears from time to time to have been improved. There are in the village a number of old-fashioned timber-framed, straw-thatched cottages, as well as a collection of dwellings of an urban type, consisting of rows of houses with, in many instances, only a very small amount of curtilage in the shape of a narrow yard in the rear of each dwelling. Such dwellings were in some instances badly erected in the first place, and appear in many cases to have received very little repair since their erection; consequently a number of them have been closed by the action of the District Council as unfit for habitation. On the other hand, many of these dwellings have been recently placed in proper repair by the action of the District Council, and the narrow yards attached to them, which were obstructed by privies and other outbuildings, have been cleared of these obstructions and properly paved and drained so that the surface water may be carried off. Much, however, still remains to be done for the improvement of other blocks of dwellings in the village. A number of the old fashioned timber-framed cottages scattered up and down the village are untenanted, and are falling into ruin. Three or four houses of this description, occupied at the time of Dr. Wheaton's visit as dwellings, were unfit for habitation, owing to general dilapidation and from dampness arising from the inflow of rain water from the roof. The water supply is obtained almost entirely from wells; there are, in addition, two dipping places in the course of a spring, and water from streams passing through the place is used to a very small extent. There is no public water supply. The level of the water in the wells is subject to great fluctuations. Where situated in gardens, the wells are liable to contamination from surface washings, from manure placed on the surface, and by leakage from the neighbouring vault privies. The wells situated near houses are



A. Transverse section through first bay of nave, looking east. B. Transverse section through choir, looking west. C. Plan of Church. D. Plan of Fortress.
Plans and Sections of the Church of St. Martial-de-Viveyrol, France. (From "L'Architecture.")

also liable to pollution from surface washings. It appears from the report that a supply of pure and wholesome water could be obtained from the springs which issue from the chalk downs near the village, and which might be conducted to stand-pipes in the village at a comparatively small cost. As an alternative, water could be obtained from bore wells made at different points in the village. The remarks about sewerage and drainage and the disposal of excrement and refuse relate to evil conditions similar to those dealt with in many other such reports, and it is to be hoped that something will soon be done to remedy the shortcomings referred to.

ONE of the most successful Municipal Work at the Brussels Collections at the Brussels Exhibition. Exhibition is in the form of a special group known as the "Palais de la Ville," and separately housed in a picturesque building of that name. The collection has been arranged by the Municipality of Brussels with the view of showing the extent of the work for which it is responsible, and M. Ch. Buis, the Mayor, has taken an active part in its formation. Complete plans of the town are shown, together with models to show the contour of the ground. Then there are plans of the sewage system and the water supply, also augmented by models which include full-size sections of various thoroughfares so arranged as to popularly illustrate what a roadway looks like underground. Skeleton plans of the Municipal schools are exhibited, plans of the electrical supply works, and a model with large scale plans of the principal dust destructor and refuse depot. Photographs and drawings of the gas works have been lent for the "Palais de la Ville," together with photographs and models describing the working of the fire brigade, ambulance, and police services.

In the issue of *L'Architecture* for August 28 M. J. Mandin gives a description and measured drawings of the interesting and peculiar little church at Saint-Martial-de-Viveyrol, of which the lower portion is a church and the upper portion a castle, or at all events a place of defence against attack. We give reduced copies of the sections and plans given in *L'Architecture*, with explanatory references. The first bay westward is barrel-vaulted and carries the low tower with its open arcade above, seen in section A, the upper stage of which is later than the rest of the building. The next two bays are vaulted with cupolas on pendentives. The fourth bay, longer than the others, forms the choir, and is roofed with a pointed barrel-vault as shown in section B, the flat filling above forming the floor of the fortress, this portion of which, as will be seen, is connected by a flight of steps with the higher floor over the nave. On the south side of the plan is seen the circular staircase leading from the church to the fort above. It is to be observed that there is a well close to the church door; this could however have been of no use to the besieged if they were driven from the church to take refuge in the apartment above. We may therefore take it that the whole building, church and all, was regarded as a fortress, a place in which to withstand a siege, and that the object of the upper floor was not so much to provide a refuge as for a place whence missiles could be discharged against the enemy. The building dates from the latter part of the twelfth century.

It is desirable that the financial state of the Manchester Ship Canal should be thoroughly appreciated, for we have frequently during the last few years pointed out that it is very undesirable that public funds should be

given to the assistance of ordinary financial enterprises. The interest due to the Corporation of Manchester for the last half-year, which amounted to 112,500*l.*, was not paid, and the accumulated interest due to the Corporation is now over 500,000*l.* This sum it is not likely will ever be repaid, and must be regarded as lost by the ratepayers. It is equally clear that the interest on the mortgage debenture cannot continue indefinitely to be paid, for while part of it comes out of the net profits of the Bridgewater Canal, the other part is taken from the accumulation or reserve of the latter undertaking. There is only one course open. The present company should be wound up; its capital should be treated as lost, and the debt to the city of Manchester as an item which must be written off as a bad debt. A new company, with a capital on which the modest earnings of the canal can pay a percentage, would then be formed to take over the canal. The present condition of things is a financial absurdity.

It is expected that the work under the River of Hudson from Jersey City to New York City will soon be recommenced, and that this unfortunate undertaking, which has already cost so many lives and so much money, will ultimately be completed. It will be remembered that the work was commenced as long ago as 1874, and that in 1881 no less than twenty-one men lost their lives by the water entering the working chamber. The work was soon after suspended, but some years later it was recommenced by Messrs. Pearson & Son, of London, and nearly four-fifths of the sub-aqueous portion was actually completed in 1892, when the work had again to be abandoned for want of the necessary funds. There is still some quarter of a mile of the tunnel to make, and rather more than a mile

of approaches, but it is now hoped that the work will be resumed by Messrs. Pearson & Son before very long.

A New Monument to Victor Hugo.
M. RODIN, the sculptor, whose promised monument to Balzac seems to be indefinitely postponed, has on the other hand been working energetically at the model of a monument to Victor Hugo, which is to be placed under the dome of the Panthéon. The poet is represented standing on a rock by the margin of the sea, clothed in a classic drapery which flies out in the wind, and guided or supported by Iris, as the messenger of the gods; at his feet are a group of Nereids. The effect of the whole is fine, but has not satisfied the sculptor, who intends to modify it a good deal. His other and not very fortunate monument to Hugo, the sketch of which figured in the Champ de Mars Salon, is to be placed, it appears, in the centre alley of the Luxembourg garden which forms the continuation of the Avenue de l'Observatoire.

A Present for the Czar.
THE French Government is about to present the Emperor of Russia with a handsome album in which each Department of France is illustrated by a water-colour drawing executed by an artist who is a native of the Department. Among the number is a view of the old quarter of Rouen, by M. Jules Adeline; a landscape in the Yonne, by M. Allongé; a figure symbolising the Haute-Garonne, by M. Debat-Ponsan; a view of the Port of Dunkerque, by M. Van Driesten; the cathedral of Clermont-Ferrand, by M. Richard; and the Seine at the Pont des Arts, by M. Hista. With these exceptions, unfortunately, the drawings are mostly mediocre, or worse; which seems a pity, considering how many capable artists France possesses.

THE PRESERVATION OF IRON IN BUILDING STRUCTURES.

BY H. C. STANDAGE.

PROBABLY the greatest number of patents in connexion with pigments are for paints to act as preservatives of iron. But although each patentee claims, and perhaps, firmly believes, that his speciality is better than any other product, nevertheless the perfect iron protective paint has yet to be formulated.

In the first place let us consider the nature of the iron used in structures. We shall then be better able to understand the chemical reactions that occur on the surface of the iron, whereby its corrosion is effected by the very paint that is laid over it to preserve it from atmospheric corrosion.

Iron, as we know, in constructors' work, whether wrought or cast, is essentially all metal, that is, it is free from adventitious bodies as far as the metallurgist can produce it. Steel is iron in which carbon has been made to commingle with its particles.

Now iron, whether wrought or cast, has a great affinity for oxygen, and if the iron is placed under suitable conditions the two bodies, iron and oxygen gas, will chemically unite and form oxide of iron. The brown or red "rust" on iron is an oxide of iron; there are many other oxides of iron, since oxygen unites with this metal in several proportions. Now most of these iron oxides are powdery substances; not a hard resistant body like the metal, but a soft powdery body that can be rubbed up between the fingers.

The "suitable" conditions under which oxygen unites with iron is when hydrogen is present in the form of moisture or water, the product of a union of hydrogen and oxygen gases. When you drop a little water on a piece of iron and leave it for some time, the liquid water disappears and a brown or red spot remains in its place. This spot of rust is

an oxide of iron, and has been produced because the metal has exerted a greater elective affinity for the oxygen in the water than the hydrogen gas did, whence the oxygen and metal combine, allowing the hydrogen constituent of the water to escape into the air. Again, oxygen being a large constituent of the atmosphere, this element in moist air has a very large destructive influence on iron surfaces. If, however, the air be perfectly dry the oxygen will have no action whatever on the iron, but if ever so slight an amount of moisture be in the air, then the chemical union between the oxygen and the iron is at once set up, and when once this action is started it continues, whether the air be wet or dry, until all the metallic iron has become converted into oxide of iron, or "rust," as it is more commonly called. It is the object of all paints that are to act as preservatives to prevent this erosive action of humid air on iron. Iron preservative paints do this so long as they remain unchanged themselves by atmospheric action, but when once the paint is decomposed, then the rusting of the iron can also commence. But many of these so-called iron protective paints are actually the first to start the conversion of the iron into oxide, in this way: linseed oil, which is used as a vehicle for binding together the particles of pigment forming the paint, possesses glycerine as a constituent, and this glycerine is liberated from the oil when the latter enters into chemical combination with the pigmentary matter ground up in it.

Now, glycerine is a body which will not combine with pigments to form a paint, and, moreover, it has a great power of absorbing water, consequently if a paint that is laid over an iron surface evolves glycerine during some period of its career, that glycerine whenever it reaches the metal will set up erosion, and thus start the conversion of the metallic iron into rust or oxide of iron. From this we see that although a paint may shield iron from the action of atmospheric agencies, yet it may begin the destruction of the metal itself. This is a point that is too often lost sight of by inventors and compounders of paints for iron surfaces. When we consider that on some of the iron bridges that have been erected during the present century, tens of tons of iron in the shape of rust have been removed, it will be seen that the time can be calculated when such bridges will no longer be able to support their own weight, for the solid metal will have been reduced so much by corrosion as to be a mere skeleton of its original self. Now it is the behaviour of this glycerine in the paint which ought to be watched, because it is on the free, uncombined presence of this body or its combinations with other bodies that depend the preservative qualities of the paint.

It is generally conceded by architects, engineers, and paint compounders that either red oxide of iron (as Venetian or Indian red), or red oxide of lead (as red lead) form the best protective paint, and they explain this protective action on the theory that these oxides, by themselves imbibing oxygen from the air to form higher oxides, so prevent the undesirable union of the oxygen and iron, and also because these oxides, when compounded with linseed oil, cause the latter body to be rapidly converted into tough insoluble linolexide which, while yet hard and elastic, is not chemically acted on by atmospheric agencies. This theory is not half the truth; the true reason for the above two metallic oxides being the best pigments for forming the base of an iron preservative paint is this: red oxide of iron combines to a great extent with the glycerine which is eliminated from the linseed oil, but the red oxide of lead completely combines or absorbs this glycerine; the consequence of this partial and total absorption of the destructive agent, glycerine, by these pigments is that the erosive action that would be set up if the glycerine were free is prevented; in the case of the red oxide of iron partially, and in that of the red oxide of lead totally.

This, then is the chief point that paint compounders should pay particular attention to, viz., to make sure that the components of the paint are such as will not allow any free glycerine in the paint to be present.

I will now ask my readers' close attention while explaining how this may be done. Before doing so I would point out that my researches on the subject do not bear out the theory most recently advanced, viz. that the beginning of corrosion is due to carbonic acid in

the air, and that the thin film of carbonate of iron that is thus formed is acted on by oxygen in moist air. In my researches I found that pure distilled water (i.e., free from carbonic acid) corroded iron when placed in an atmosphere free from carbonic acid, also that iron, in the presence of carbonic acid gas in moist air, did not oxidise quicker than in moist air free from the presence of carbonic acid. I also found that iron filings would not ignite when projected into a jar containing a mixture of oxygen and carbonic acid gases, whereas, when iron filings are projected into a jar of oxygen gas, the metal so rapidly unites with the oxygen as to ignite.

As already mentioned, there are several varieties of oxides of iron, but the typical one that should be used as a paint is the sesquioxide (represented by the chemical formula Fe_2O_3); this is the bright red oxide commercially known as Venetian red. But (and it is important to bear this in mind) the commercial Venetian red is not a pure article, that is, it does not consist solely of oxygen and iron, but lime and other bodies are present, these bodies are added by the pigment manufacturer during the calcination of the iron salt with red oxide. The native oxide that in any way approaches the above chemical composition does not contain perhaps more than 70 per cent. of oxide of iron, the remaining percentages consisting of alumina and silica. Such an oxide is better, however, as a paint than a pure oxide of iron, answering to the above chemical formula, because the silica and alumina give the pigment a certain amount of covering power and binding qualities when the pigment is ground up in linseed oil. Chemically pure sesquioxide of iron does not possess such a good covering power, in fact the chemically pure oxide, when ground up in oil, would so "burn" the oil vehicle during the grinding as to partially decompose the oil.

Again, the artificially produced red oxide of iron called Venetian red is produced by calcining sulphate of iron mixed with sulphate of lime (gypsum) or baryta, usually the former. These bodies are used in the calcination to preserve the bright tint of the red oxide produced, but their employment is chiefly for increasing the weight of the product and thereby cheapening the cost of production. The presence of one of these two bodies, gypsum or baryta, in the paint is detrimental to its preservative qualities. On the other hand, if sulphate of iron is calcined alone to form the red oxide, more often than not a different oxide than the one desired is obtained; and, likewise, there is generally present either free sulphur or the radicle sulphuric acid, because in calcining ferrous sulphate a very great and prolonged heat is required to completely expel all the SO_3 (the formula for ferrous sulphate is FeSO_4 , which, when heated, has the SO_3 radicle expelled, leaving FeO —iron oxide—behind in the red powder; consequently, if any free acid or sulphur be in the red oxide, such a pigment, when ground up in the oil, will sooner or later cause mischievous decomposition to set up, whereby the protective qualities of the paint are considerably weakened. The theory underlying the use of sesquioxide of iron as a protective paint is this: the sesquioxide is the only oxide of iron which does not undergo incipient combustion (i.e., does not change into a lower or a higher oxide, which all other oxides of this metal do), and also because this particular oxide does not set up decomposition in the oil in which it is ground, whence the oil vehicle dries or hardens into a tough impermeable skin that is protective against moisture and atmospheric influences, hence the paint formed with linseed oil and red oxide of iron dries and hardens very rapidly.

The theory of the non-activity of red oxide of iron is a very sound one, but the theorists who pin their faith to it have ignored one chief factor in such a paint, and that is the elimination of glycerine from the linseed oil, and the non-absorption of it by the pigment (the action of this glycerine on metallic iron has already been described). This glycerine is the secret and unsuspected foe, insidiously working destruction on the iron, although the coat of paint may be hard and dry on the exterior surface.

So far as the writer is aware, the presence of this glycerine in paint is not even suspected—much less known to be present—by compounders or inventors of paints for protecting iron surfaces.

Another important point that militates against the perfect preservative properties of red oxide of iron, as apart from metallic iron,

is the very great difficulty of obtaining the oxide free from accidental or intentional impurities. As red oxide of iron does not absorb *all* the glycerine that is eliminated from the oil during the drying process of the latter, and as this glycerine is a good conveyor of oxygen to the oil, all the conditions most suitable for causing oxidation of the iron are inherently present in a paint of which red oxide of iron is the base. Hence we find that paints made from oxides of iron are *not* perfect protectors of iron surfaces.

Let us now consider the question of red lead. There are several oxides of lead, but the red oxide is the best resistant of atmospheric influences on iron. This oxide is a compound of the monoxide and of the dioxide of lead, not a simple oxide, and it is probably due to this fact of there being two different oxides that *all* the glycerine (which is eliminated from the linseed oil vehicle) is absorbed when the red lead is made into paint. A few words concerning the behaviour of lead salts when compounded with linseed oil will explain the cause of the elimination of the glycerine. Linseed oil consists of oleic, margaric, and stearic acids united to a common base, glycerine. Now, when a salt of lead (as lead carbonate, lead hydrate, &c.) is ground up with linseed oil, the lead salts chemically unite with the oleic acid to form a chemical compound which chemists call *linoleate* of lead. As a consequence of these decompositions of linseed oil, the margaric and stearic acids (they are "fatty acids") are set free, likewise, the base, glycerine. The fatty acids, however, are absorbed by the linoleate of lead; the glycerine, however, does not unite therewith, but is merely suspended in the soapy mass. Now this lead soap gradually hardens and forms a skin of paint by absorbing oxygen from the air, and as the process of hardening proceeds, so the glycerine is gradually expelled from the soapy mass (linoleate of lead is called a lead soap), and eventually collects under the skin of paint and forms "blisters" on the paint skin. (If one of these blisters be picked it will be found to be full of a watery fluid. This is the glycerine that has been eliminated from the linseed oil, and it is diluted with water which it has imbibed from the atmosphere while the chemical changes causing the skin of paint to dry, were taking place.)

There are other salts of lead which absorb a great portion of the eliminated glycerine, but not all of it. Red lead, however, does absorb it all, and it is for this reason alone that red lead is the best pigment for preventing oxidation of the iron on which a coat of paint is laid.

A compound of red-lead and linseed oil is waterproof, but any other compound made up of lead salts and linseed oil is *not* waterproof, because all other salts of lead, except the red oxide, form lead soaps, which are soluble in water. Unfortunately, lead paints, including red lead, cannot resist the influence of alkalis; therefore a red lead paint is not a perfect protective one for iron under all conditions of use (*i.e.*, submarine structures, &c.), for although a red lead paint is waterproof, not decomposed by the oxygen in moist air, &c., yet it is at once decomposed when brought into contact with alkalis.

From the above observations it is deducible that neither compound, red oxide of iron nor red oxide of lead with linseed oil, forms a perfectly protective paint for iron surfaces; in the one case because the iron oxide does not absorb the glycerine, and in the latter case because the compound is not proof against the chemical action of alkalis.

To obtain a perfect paint in all respects for the purpose of protecting iron from rust, the compound should be one that forms a thin, hard, elastic, durable, insoluble, adherent coating, and one which is resistant to atmospheric influences, while, at the same time, it should not undergo decomposition or incipient combustion by the components of the paint chemically reacting on each other.

All these qualities, except the last one, can be obtained by some one or other of the pigments at command, but the only pigment that completely absorbs the eliminated glycerine (which is the cause of all the mischief) is red lead. It is the presence of glycerine in a paint that renders it mixable, more or less, in water, and it is the object of adding "driers" to a paint to combine or imbibe the glycerine that is in the paint, so that the union formed between the fatty acids of the oil and pigment shall harden and dry.

Now all adventitious additions to a paint, in

the shape of "driers," lessen its stability and protective qualities on iron surfaces, for the introduction of a "drier" means the introduction of an acid into the paint, and this acid will eventually set up corrosion or oxidation of the metallic iron.

In the course of some researches made by the writer, on compounding linseed oil with various pigmentary bodies, he discovered a singular property in one such compound, *viz.*, that it dried up in a very short time and formed a hard, compact mass, that gave forth a metallic ringing sound like that produced when a piece of steel is struck. This singular compound is prepared by heating together until of the consistency of honey

1 part of dry white lead,

1 " " " flake litharge,

14 " " " raw linseed oil,

and while the mass is still hot and fluid stirring in sufficient of a mixture of chalk, yellow ochre and red oxide of iron in equal parts, to form a stiff dough or putty. This compound, of course, is not suited for a paint, owing to its thickness, but as it is one that is as hard as a stone when dry and *impermeable to water and to alkalis*, it is one eminently suited to form a basis of constructing a preservative paint for iron surfaces, particularly so as the hard mass does not suffer incipient combustion or decomposition.

A PERFECT paint should be simply a combination of pigmentary matter with *linoxine* (linoxine is the oxidised fatty acids of linseed oil) which is more commonly known as linseed-oil varnish. To produce linoxine, raw linseed oil is heated with a borate of a metal, the best of which is borate of manganese, whence the oil-varnish that is produced is essentially manganese linoleate. This substance is one of the best commercial articles for use as a vehicle in which to grind up pigments to form a paint. I have found, however, the following method of producing an oleo-resinous vehicle for grinding up paint nearly perfect, as the paint—no matter what be the chemical nature of the pigment used, whether an oxide, sulphide, carbonate, &c.—sets hard and dry in a very short time, and yet elastic, and never cracks nor peels off, nor blisters, because the compound, while drying, absorbs oxygen, and dries solidly throughout its depth, instead of drying into a skin on the surface with a bed of soft paint underneath, which most paints do.

Heat in a copper vessel raw linseed oil to 450 deg. or 500 deg. Fahr., not higher, but do not continue the heating when acrid fumes are given off. In a separate vessel put 2 oz. of amber chips per gallon of oil to be used, cover the vessel with the lid, and submit the chips to a heat sufficient to soften them and evolve dense whitish yellow fumes (do not let these fumes reach the source of heat, as they are inflammable), then pour the heated oil into the vessel containing the amber through a hole in the cover, so as not to let the fumes escape, as it is the object to condense these fumes or absorb them in the hot oil. When the fumes have all been absorbed by the oil, dilute the mixture with an equal bulk of raw linseed oil (hot), and strain the fluid through wool placed in the neck of a funnel or else through felt filtering bags. This product is the vehicle desired, and it is usable directly it is made. If a layer of this vehicle be exposed on a plate of glass, china, or any other yellow, tough, elastic skin, solid throughout its depth, and perfectly insoluble in the ordinary medium used for dissolving oil or resins.

In the compound of white lead litharge and linseed oil previously referred to there are some peculiar properties. When the compound is prepared from the ingredients used in the proportion named, the product is a tough, elastic mass that can be spread on any surface, yielding a flexible layer of waterproof and acid-proof material. This compound, in fact, is identical with that which is laid on leather to form patent, or enamelled leather. When the compound is dried by steam heat it is hard, yet flexible, and may be coloured with pigmentary colouring bodies, but in such a case it exhibits most peculiar and diverse properties, according to the chemical nature of the body mixed up with it.

For example, if chalk or yellow ochre or red ochre be used, a flexible layer of a waterproof body is obtained, suitable for sail-cloths, tarpaulins, &c. If common plumbago be mixed with the compound, a solid yet elastic body is obtained, as much like indiarubber as possible, and possesses many of the peculiar properties exhibited by gutta-percha, while it can be softened by heat, or moulded any

shape. If red lead be compounded with it, the compound, or putty, obtained can be moulded or pressed into any shape, but it is a very long time before setting hard and stiff. Whereas, if yellow or red oxide of iron, and powdered chalk and sand be mixed with it the compound (of linseed oil and lead carbonate and litharge), a hard, inflexible compound, with the metallic sound referred to, is produced; this compound is practically insoluble and unbreakable.

There are many other peculiar properties exhibited by this compound of white lead, litharge, and linseed oil, but I have not yet fully determined same. The above facts, however, are sufficiently valuable to set experimenters to work in finding a more perfect vehicle than linseed oil alone for making a preservative paint for iron. The paints now on the market as iron protection paints are essentially compounds formed of lead soap, glycerine, and pigment, or colouring matter. But a paint to be perfect should simply consist of pigment completely united with the oil and without the presence of the obnoxious glycerine; when the latter substance is present the paint cannot be a perfect protective covering to any surface, because instead of the oil acids becoming converted into linoleine, part of the oxygen absorbed unites with the glycerine to form glyceride, or some other undesirable body, which sets up oxidation of the metallic iron. H. C. S.

THE CONGRESS OF ARCHITECTS AT BRUSSELS.

OF the many gatherings which have been organised this summer in connexion with the Brussels International Exhibition none have been arranged under such favourable auspices as the Architectural Congress, and we may add that we have but rarely heard of any meeting of a technical profession that has been so well supported by those outside the profession. We have frequently heard of members of princely houses allowing their names to appear as honorary presidents, and Continental Governments have also, from time to time, signified their approval of some special gathering, and have gone so far as to send a minister, or a high official, to attend the opening ceremony; but to our knowledge no meeting of architects has as yet been attended by a reigning sovereign whose patronage took the form of an active participation in the proceedings, as was the case with the King of the Belgians. The Minister of Public Works, M. de Bruyn, and the permanent Mayor and Governor of the capital, M. Charles Buls, also took a prominent part in the discussions. M. Buls also ably translating line for line Professor Aitchison's remarks in one of the discussions; in other words, taking upon himself the onerous task of interpreter. M. Buls also translated from the German a valuable paper by Baurath Stibben, of Cologne, which was subsequently printed in French. The King not only attended the reading of a paper, as promised, but stayed for a protracted discussion, and added to his courtesy by inviting some of the members to join his house-party at Ostend. To those who know how scantily architecture and surveying is recognised by most Governments, let alone by royalty, it must appear that our Belgian brethren have been rather exceptionally favoured. It would seem, however, that the body of architects at Brussels and in the provincial centres of Belgium have not only striven for official recognition as a corporate body, but have individually endeavoured to become indispensable to the State as architects, and also to fill many of the more important honorary appointments which tend to lend prestige to the profession of the holder. Where in England we almost invariably find members of the Bar or solicitors, in Belgium the architect has been much in evidence, and, though perhaps only indirectly at times, this has done much to bring the building professions to the front. Belgian architects holding such offices have also done much to cultivate that taste for buildings of architectural pretensions which is so noticeable in their country, and, now that the design and execution of a structure has become a matter of popular interest, it naturally follows that the standing of those who are responsible for the most important buildings of their locality has very perceptibly risen.

The occasion of the Brussels gathering was ostensibly the International Exhibition, but the date for the meeting was selected with the additional view of coinciding with the celebration of the twenty-fifth anniversary of the

origin of the Belgian Architectural Society ("Société Centrale d'Architecture de Belgique"). This body was founded in 1872 with a membership of fifty-nine; it now has 264 members. The entire management of the Congress was in the hands of this society, which had a special committee to attend to this matter. The president, M. Valère Dumortier, acted as chairman, with M. H. Bernimolin as hon. sec. The programme, including hotel and travelling arrangements, was particularly well carried out, and though the funds of the society did not permit of lavish hospitality, the visitors were practically the guests of the Belgian members from Saturday till Thursday, with a nominal registration fee of 25s. An important point in regard to the preliminary arrangements was that full programmes were obtainable some weeks before the Congress, and that every rendezvous, the facilities for reaching it, &c., were specified with commendable clearness. The usual collection of all manner of tickets so common at gatherings of this description was superseded by a simple "pass," on which an extract of the programme was printed. The agenda for the discussions was very clearly defined, and the papers were not only printed in full, but also in the form of extracts. The locality for the meetings was well chosen, *i.e.*, in the centre of the hotel district, between the two principal railway stations on the line of the principal trains. The Arts Club and the Society of Engineers put their rooms at the disposal of the members, and the lecture hall of the Architectural Society, which was used for ordinary meetings, afforded ample accommodation. Ladies travelling with members could participate in the excursions, and were invited to attend the opening ceremony, and a dance was specially arranged for them. Guide-books for the exhibition, &c., had been printed for the use of members, and with the aid of which much time was saved. Perhaps the only slip on the part of the executive was the omission of any dress regulations. This led to confusion and needless irritation, for at the opening conversation all costumes, from a tourist's tweed to evening dress, were to be seen.

The Congress was thoroughly representative of the leading Continental nations and there have been but few occasions when so many of the recognised leaders of the architectural profession have met together. There was also not that great difference in numbers between home members and foreigners as is usually the case at international gatherings. The total number of members was 330, and of these only about 150 were Belgians. The remaining 180 were made up as follows:—About fifty Germans, about fifty Frenchmen, about twelve Dutchmen, and a few representatives each from Austria, Russia, Scandinavia, Switzerland, and Italy. Of non-continental countries represented there was America with three architects, and England with Professor Aitchison, Mr. John Slater, Mr. Edwin Sachs, and Mr. Percy Hunter.

It was evident throughout the proceedings that the German deputation was the best organised, and in fact the German contingent were travelling together under the auspices of the Rhenish Architectural Society. It has practically become a matter of principle with the German technical professions to see that there is a proper representation at gatherings of this kind, or none at all. As with trade, so with the professions, the Germans are systematically pushing themselves to the front, and the result of this policy is that foreign Governments and Municipalities are frequently giving important commissions to the German architect or engineer and calling for his advice on many matters. The idea of working together for the common good of the German Empire subordinates all petty controversies among individuals or nationality. By dint of careful management the German delegates are now always taking the leading part at Congresses, with the natural result that France, let alone England, take secondary positions. To name only one tangible result of the German policy, we see Herr Stuebben, the City Architect from Cologne, called in to advise the King of the Belgians on various technical matters. He has been asked to join the Royal house party. No Englishman has been as honoured in this way. Yet the subject for which Herr Stuebben is consulted is not only one in which English specialists excel, but one in regard to which English capitalists are considerably interested. We had the good fortune of so distinguished a

representative as Professor Aitchison, to whom the delegates of other countries were constantly showing their marked esteem; but to further the prestige of the English profession on such an occasion, quite apart from any question of utilising the results of the Conference, it is necessary to have a larger deputation, and one that is organised and for which the members will do some work. If there is to be a head to the deputation, presence, powers of oratory, and knowledge of foreign languages must be considered in his selection, and, perhaps above all, that *savoir vivre* which prevents our appearing so insular in the eyes of the foreigner. Why should our representatives appear in morning dress to meet the King and his ministers when every one knows that evening dress is *de rigueur* at Continental functions? Why should no Englishmen respond to the toast of "The Visitors" at the official banquet, when every other country responds? These matters may appear trivial, but a good deal depends on them.

To give some idea of the thoroughly representative character of the gathering, as far as the Continent is concerned, the following list of visitors who were elected *membres d'honneur* may be of interest:—

Italy.—M. Cadolini, President of Italian Society of Architects and Member of the Italian Parliament.

Russia.—Count Luzor, City Architect of St. Petersburg, Member of the Russian Academy, and a Privy Councillor. M. Gilbert, President of the Russian Architectural Society.

Germany.—Herr Stuebben, President of the Amalgamated Societies of German Architects and Civil Engineers, City Architect and Alderman of Cologne, and President of the Rhenish Architectural Society. Herr Hinckeldeyn, Architect-in-Chief of the Prussian Public Works Department, Member of the Ministry of Public Works, and President of the Berlin "Architekten Verein." Herr Von der Hude, President of the Berlin Architectural Society (Verein Berliner Architekten). Herr Mayer, President of the Württemberg Architectural Society. Herr Bräuler, President of the Aix-la-Chapelle Architectural Society.

Portugal.—M. Pedro d'Ávila, Architect to the King of Portugal.

Holland.—M. Salm, President of the Netherland Society of Architects. M. J. Cuypers, the President of the "Architectuur en Amicitie" of Holland, and the last recipient of the English Institute's gold medal.

Sweden.—M. Clason, President of the Society of Architects and Civil Engineers at Stockholm.

France.—M. Charles Garnier, President of the "Société Centrale des Architectes Français," and Member of the "Institut." M. J. Cuvier, the Superintendent Architect of Ecclesiastical Buildings in France, and Member of the "Institut." M. Guillaume, Director of the French Schools at Rome, and Member of the "Institut." M. Loviot, President of the Société des Architectes Diplômés de France. M. Trélat, Director of the Architectural School at Paris.

It goes without saying that some of the leading architects of Belgium were among the *membres d'honneur*, whilst among the "ordinary members" were such men as M. Bonnier, the architect-in-chief for the Paris Exhibition of 1900; Professor Wagner, of Vienna; M. Wieleman, the City Architect of that city, &c. Curious to say, perhaps the majority of Continental Honorary Correspondents to the Royal Institute of British Architects were present, as well as several Gold Medallists. The latter distinction, by the bye, is probably the most coveted on the Continent, and M. Cuypers' election has been very much appreciated.

The proceedings of the Congress were divided under three headings:—*i.e.*, 1. Conferences; 2. Excursions; and 3. Entertainments. As a rule the conferences were planned to be over before noon, whilst the excursions and entertainments filled the afternoons and evenings. This was a better arrangement than giving up entire days to the discussion of technical subjects to be followed by days devoted solely to the social side of a gathering of this description.

The Congress was formally opened on Sunday, August 29, at one o'clock, but prior to that the Minister of Public Works had already opened a small architectural exhibition held in connexion with the meetings. The hour for the last-named function was 10 a.m. There had also on the preceding evening (Saturday) been a conversation, at which there were ample opportunities for introductions, &c. The opening ceremony, which, as already stated, was attended by the King, commenced with the usual formal declarations as to organisation, officers, members, &c. Then came the usual opening address by the President, which

in this case had for its subject a brief recapitulation of the work of the Belgian Architectural Society. The Minister of Public Works followed with a very spirited address on architectural matters, as seen from the point of view of the Government, and then the meeting was favoured by a very classic discourse by the Mayor, who took the occasion to welcome the foreign members on behalf of the municipality. The *membres d'honneur* had already been previously introduced to the King, to the members of the Government present, and to the representatives of the municipality, and they were accorded seats on the dais, Professor Aitchison being placed next to the Minister referred to above. The first paper read at this opening session was by M. J. de Waele, who holds a professorship at the Academy Schools of Ghent. His subject was "The Restoration of Public Monuments," and in accordance with the agenda he had to answer the following questions:—

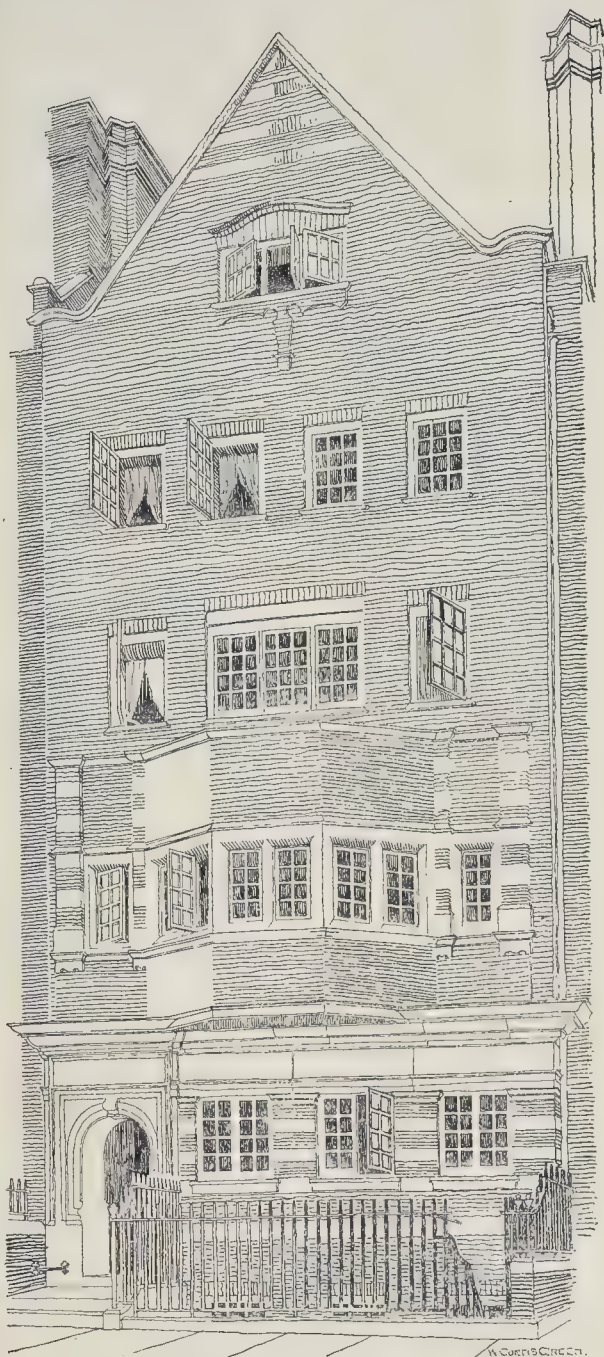
1. Is it admissible to correct stylistic or technical errors in an ancient monument?
2. May parts of a monument, which have not been completed at the time of erection, be subsequently finished?
3. Is it permissible to destroy such parts of a monument as are considered to be out of keeping with the main portions of the work?

It would lead us too far to speak of the paper in detail, or of the long discussion that followed this very controversial subject. The ground has already been frequently covered on various occasions in this country, as Professor Aitchison very pertinently remarked. In fact, perhaps, for once our Belgium colleagues could learn something from us and save themselves much time and labour by studying the results of an experience which has so often been dearly bought in our cathedral towns. The feeling of the meeting was certainly strongly against that modernising of monuments so frequently practised in France and Germany under the misnomer "restoration." Of those who participated in the discussion we would mention that M. le Bruyn again very drastically presented the views of his Government, whilst M. Buis spoke in the name of archaeologists, and Herr Stuebben as the representative of a civic authority with such traditions as Cologne. The King of the Belgians did not fail to mark his approval of the general tendency of the discussion, which he listened to for quite two hours. The Sunday afternoon and evening were spent at the International Exhibition.

The Monday forenoon was devoted to the discussion of the architectural education question, followed by a short paper on the application of iron for the architectural treatment of modern façades. The education question was in the hands of MM. L. Cloquet and J. Benoit. The point under discussion was whether the young architect should be taught in schools and according to fixed programmes, or if he should be allowed the greater freedom of the atelier combined with classes under the auspices of some technical association of practical men. The subject, as treated at Brussels, was essentially of local interest, but those who are studying the question of education would do well to obtain the verbatim report of the meeting, which will be published, together with the reports of the other conferences, at a cost of 10 francs. The proposed distribution of subjects and time should be of particular interest to the Architectural Association. The paper on the application of iron in the architectural treatment of buildings was by M. Viereendech. Any one passing through a Brussels street will be struck by the various applications of metal work in modern façades. Stanchions and girders are no longer being hidden away, they have become prominent features in the designs.

After the forenoon meeting on Monday there was a reception in the town hall, which was thrown open to the members, and then followed a very well-arranged excursion to the principal buildings of Brussels, commencing with the Palais de Justice, and ending with an interesting estate which is being developed on the north-east of the town. In the evening there was a very successful banquet. As at the opening meeting, Professor Aitchison sat on the right of the Minister of Public Works. The number of speeches was rather too large, and some were certainly far too long.

On Tuesday the forenoon meeting was devoted to a discussion of the vexed question of architectural diplomas. M. Bonnier of Paris, opened the conference with a very interesting



Sketches of London Street Architecture.—XVIII. 47, Palace Court-road, W.
Mr. L. A. S. Stokes, Architect.

ference taking place in the historical Council Chamber of the Town Hall in that city. The members of the Congress met at an early hour to use the special train which had been put at their disposal, and were received at Antwerp in turn, first, by the local Architectural Society, then by the Royal Museum Commissioners, and finally by the Municipality. The subject before the meeting was the "Caisse de Défense" of our French colleagues, and the opening paper was read by M. Ch. Lucas, who is the secretary of the fund. The paper urged the desirability of some general rules for funds of this description, and the necessary headings were formulated by M. Lucas, whose proposals received the full approval of the French and Belgian members present. Again, it is impossible to enter into details as regards the proposals made, but the Royal Institute might well give its attention to the advisability of supporting professional test cases. Architects would, perhaps, be able to obtain a better hearing in our law courts if the French methods were adopted. After the conference a Government steamer took the party round the harbour, and lunch was provided on board. Then followed a drive through the town. The works in hand for the new railway station created considerable interest, as also the new central hall at the Casino in the Zoological Gardens. On their return to Brussels the members separated for a short interval, to meet again at the Town Hall, where the Mayor's entertainment was given.

Thursday, the 2nd inst., was the last day of the Congress. The conference was devoted entirely to questions of copyright, papers being read by two Brussels barristers, MM. H. Bruner and P. Janssens, who act for the "mutual defence fund" of the Belgian architects, and by M. Gustave Mankels, the Vice-President of the Société Centrale. On the Continent great efforts are being made by the leading architects to protect their work from piratical publication and from being copied. Their ambition is to have buildings classified as "works of art" in the various Copyright Acts of different nations, and they desire to guard themselves against their work, or part of it, being copied by builders and others. The papers before the conference were certainly the most businesslike that have as yet been read on the subject, though we are still of opinion that copyright in the designs of buildings is an idea which is practically all but unworkable. On Thursday afternoon an excursion was again arranged, followed by a visit to the Royal Opera House, at which seats had been reserved for the members. With the visit to the opera the Congress closed; but a large number of the foreign members are now at Ostend, where they propose spending a few days together.

Taken as a whole, no architectural gathering could be more successful, and though little was done in the way of describing modern work, there has seldom been more of general interest to the profession in the proceedings of such a Congress. Practically every meeting touched on matters of vital importance to architects in practice. Besides the public conference, the amount of interchange of ideas and experience, as well as the general harmony of the proceedings, was remarkable. It was only regrettable that the English profession was not more numerously represented.

SKETCHES OF LONDON STREET ARCHITECTURE.—XVIII.

OUR illustration this week is of a small frontage in Palace-court, Bayswater. The building is in brick, with stone dressings. The architect was Mr. L. A. S. Stokes.

COMPETITIONS.

POLICE STATION AND COURTHOUSE, HALIFAX.—The Watch Committee of the Halifax Corporation have decided to recommend the Town Council "to adopt the plans marked 'Victoria' for a new police station and courthouse, with alterations as recommended by the sub-committee, and that Messrs. G. Buckley & Son, the authors of the said plans, be instructed to prepare working drawings, specifications, and bills of quantities, and obtain tenders for carrying out the various works required in connexion with the erection of the building, at an estimated cost of £1,000."

MUNICIPAL BUILDINGS, RUGBY.—At a recent meeting of the Rugby Urban District Council, the Special Committee for selecting plans for municipal buildings reported that

paper. The requirements formulated for the diploma were, however, much too severe for practical purposes, and Professor Aitchison emphatically expressed this opinion. Nevertheless, M. Bonnier's paper should call for the attention of the Royal Institute as an extremist expression of what many Continental architects desire. The Tuesday afternoon was spent at the Abbaye de Villers, which is situated about an hour out of Brussels. The ruins of this monastery are of considerable importance, and a very interesting description was given on the spot by M. Ch. Licot, who is entrusted with their preservation, and they were illuminated after dark. Wednesday was spent at Antwerp, the con-

they had considered the thirty-nine sets of plans submitted in competition, and recommended the Council to adopt as the design for the first premium the plans marked "Avon B," and to award the second premium to the author of the plans marked "Rataplan." The Committee further recommended that the authors of the design "Avon B" be engaged to carry out the work, and that the Council instruct them to proceed at once with the preparation of the necessary drawings, &c., so as to be able to commence the work early in the new year.—Mr. Loveday contended that it was a farce to place two sets of plans before the Council and ask them to vote upon them, when they had not had an opportunity of examining the others that had been sent in.—Mr. Mumford remarked that it was generally understood it would not be possible for the whole of the Council to go through all the plans, and the matter was referred to the Plans Committee, who undertook to pick out the most suitable and then report to the Council.—Mr. Butcher thought the Plans Committee might have brought four or five plans for the Council to select from. He thought they might see some of the other plans. On the proposition of Mr. Mumford, seconded by Mr. Buchanan, it was decided that the seven sets of plans from which the final selection was made by the Committee should be arranged in the Council Chamber, so that each member should have an opportunity of inspecting them.

Illustrations.

"PADDOCKHURST," SUSSEX.

THIS house, the property of Sir Weetman Pearson, Bart., M.P., is beautifully situated about four miles from Three Bridges, Sussex. The house was greatly enlarged by the previous owner, Mr. Whitehead, from designs by the late Arthur Cawston, who, amongst other things, built a large music saloon.

The present owner has largely remodelled the whole of the interior of the house, and also built a new wing which is the subject of the present view. This wing contains a dining-room 45 ft. by 30 ft., paneled in solid Spanish mahogany, with a chimney-piece at either end the full height of the room, executed in alabaster and Pavonazzo marble. Above the panelling is a plaster frieze, 4 ft. 6 in. high, representing the growth and history of locomotion, designed and modelled by Mr. Walter Crane.

Opening out of the dining-room is a winter garden, with stone grained roof carved by Mr. W. S. Frith, and beyond is a conservatory, on ft. long, divided down the centre by a row of columns supporting the roof, the whole executed in teak; the vista from the dining-room is closed with a marble fountain at the end of the conservatory let flush into the floor. Over the dining-room and winter garden are two floors of bedrooms, all finished and fitted up from special designs by the architect.

The terrace wall and fountain are in course of construction in accordance with the view. New entrance lodge and gates have also been erected, and two other lodges are in course of construction.

The gardens and the houses are being entirely remodelled and rebuilt, under the care of Mr. H. E. Milner, and will be unusually perfect and complete, while the farm buildings, erected by the late owner, are amongst the most extensive in the country.

The whole of the work has been carried out without contract, Sir Weetman employing his own labour, and Mr. S. E. Wallis acting as clerk of the works. Local stone has been used throughout.

The mahogany work has been executed by Messrs. Gillow, the marble work by Messrs. Burke, and the heating by Mr. Rawlings. The ornamental plaster ceilings are by Mr. Priestley.

ASTON WFEH.

INTERIOR VIEWS, CITY BUILDINGS, OXFORD.

VERY little need be said descriptive of these views, which speak for themselves. The whole of the interior stonework is Corsham Down, and the joinery is of wainscot fumigated. The dado of the main staircase is of polished Hopton Wood stone, and dark brown Derbyshire marble.

The Town Hall is finished entirely in modelled plaster, decorated in colour. The

modelling was the work of Mr. F. E. E. Schenck.

The furniture shown in the view of the banquetting-hall was a collection of antique furniture lent for the opening ceremony, on which occasion the Mayor and Mayoress received in this room. The columns of the fireplace are of Fosseley marble, the remainder being of stone. There is a small apartment over, which serves as a musicians' gallery. The dog grate and other metal-work is by Mr. Nelson Dawson.

HENRY T. HARE.

VILLAGE HALL, CLAVERTON, BATH.

THIS building is being erected to supply a long felt want in the picturesque district of Claverton. At the present time there is no room available in the neighbourhood for public meetings of any kind.

The walling is of local stone range work, with Combe Down stone dressings throughout, and the roofs will be covered with green slates. The interior is to be lined to a height of 5 ft. with rich brown salt-glazed bricks, and immediately above is the white plaster. The roof has open principals and the rafters are also exposed; the whole will be stained dark brown. The floor is intended to be laid with wood blocks, and the whole of the windows are to be filled with clear glass in lead lights. In designing the building an effort has been made to adhere to the simple yet quaint characteristics of the stone buildings of Old Claverton. The total cost of the building, including land and boundaries, will be only 500l.

Messrs. Mannings & Mould, of Bath, are the contractors, and the architects are Messrs. T. B. Silcock & S. S. Reay, of that city.

SCULPTURE.

THE plates of sculptural subjects given in this issue formed two of the finest and most important exhibits in the old Salon at Paris this year.

M. Mercie's monument to Mme. Carvalho is an example of a class of work with which his name has been a good deal associated; a symbolical bas-relief figure, with the head in higher relief than the rest, and the drapery and the indications of the figure gradually lowered in relief till at some points they nearly blend with the ground plane. It is an essentially architectural treatment of a sculptured monumental figure, the lines of the architectural stèle being predominant and those of the figure subordinated to it.

The bronze group of "Le Poète" or Pegasus formed M. Faiguier's principal sculpture subject this year, which as usual occupied the central position facing the main entrance to the sculpture court at the Champs Elysées. The idea is too simple and obvious to need any comment; the choice of subject has perhaps arisen partly from the sculptor's desire to treat an equestrian group without departing from the class of purely ideal subjects which he generally prefers to treat.

MAGAZINES AND REVIEWS.*

THE *Art Journal* includes a short article by Mr. S. J. Fisher on Old Palace Yard and Westminster Abbey, chiefly occupied with a review of the various suggestions that have been made for providing a monumental chapel for continuing the list of memorials of the illustrious dead; a subject on which we have already expressed our opinion. Mr. Fisher, we must admit, does not seem enthusiastic about any of them. Mr. Robert Fisher's illustrative sketches are very good. Mr. Scott Morton's "Art in the Home" article for this month contains some good practical and æsthetic suggestions in regard to libraries. Mr. L. B. Thompson contributes an interesting article on "Shells" and their use in art, illustrative and decorative.

The *Magazine of Art* gives an illustrated article to the work of a young French goldsmith, Mr. René Lalique, whose designs, however, strike us as rather eccentric than beautiful, except the silver spray illustrated, which is mere realism in metal. There is fine character however about the design for a

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional eccentric criticism on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

diadem, consisting of a face with luxuriant hair worked on each side into massive conventional scrollwork. Those who are interested in art-education and the development of the faculty of design in young students should look at the article on the People's Palace Art School, and the illustrations of designs made or work executed by the pupils, some of which are excellent. The same issue contains an article on Gilray the caricaturist (whose refined face seems in curious contrast to the often cruel and brutal character of his pictorial satire), and a continuation of the illustrations of the Boule work in the Royal collection at Windsor.

In the *Nineteenth Century* Mr. W. H. Mallock writes a trenchant article with an unfortunate title—"The Buck-Jumping of Labour;" unfortunate, because it will puzzle and be a stumbling-block to just those men who might get good advice from it, viz., the artisans who are hounded into strikes by their unions. The following paragraph, however, is intelligible enough to readers of every class, and artisans who allow themselves to be led like sheep had better ponder it:—

"Considerable as the powers may be which many of the labour leaders may have possessed or may possess at this moment, they have not been powers which the efficiency of civilised industry is entitled to advance or maintain. Some of these, undoubtedly have been and are skilful manual labourers; but not one of them has belonged to that class of master-minds who, by invention, enterprise, or industrial generalship, render labour, whilst stationary as measured by its amount and quality, more and more efficient as measured by the result produced. So far as the labour leaders have influenced production at all, they have influenced it by resisting improved industrial methods, not by devising or introducing them. In other words, they have organised productive labourers, but they have never shown themselves capable of organising productive labour; and the object with which they have organised the labourers has been not only not production, it has been the stoppage of production. It has been not to help the labourers to produce more, but to prevent them from producing anything. . . . The marked deficiency in the labour leader of any of those faculties which make industry more and more productive, and to which the material progress of the whole world has been due, might be set down as an accident from which no conclusion could be drawn, if it were not a fact of which there are two natural explanations. One is, that the task which the labour leaders have accomplished successfully is incalculably easier than the task for which they have shown no aptitude. To organise obstruction, which they continually do, is a very simple thing; to organise production, which they they have never done, is a very difficult thing; and the power to do the one is in consequence common, whereas the power to do the other is, by comparison, very rare. A hundred thousand men could organise the blowing up of the Forth Bridge, for every one man who could undertake the building of it. The other explanation is that if the labour leaders did, as a fact, possess the faculties necessary for successfully organising production, they would be organising it and making their fortunes by it, and would not be organising obstruction."

The *National Review* contains an article by Mr. H. H. Statham on the "Treatment of Ancient Buildings" to a certain extent polemical, only it does not take the side of any particular society or clique, but urges the view that each case of restoration is to be decided on its own merits and in regard to special circumstances, and not according to any hard and fast rule to be applicable to all cases. The article is, in fact, an attempt to sum up, in a judicial spirit, what the author of it regards as the common sense of the philosophy of restoration, and we may invite those who are specially interested in the subject to consider the views there expressed.

In the *Antiquary* we find a note as to the recent explorations at Furness Abbey by a small body of antiquaries led by Mr. St. John Hope and Chancellor Ferguson. An enormous mass of earth and rubbish has been taken away, and the searchers were rewarded by the clearing out of what they believe to be the Abbot's buildings. The work will be resumed during the present month. The same issue contains the second instalment of Miss Peacock's article on "Domestic Mortars," with illustrations of several very interesting examples.

Under the title "A New Note in American Sculpture," *The Century* gives some illustrations of portrait sketches by a young lady sculptor, Miss Bessie Potter, which, however, are merely pretty clay figurines of women and girls in their everyday attitudes and dress; there is nothing "new" about this, though these examples shows a decidedly clever and facile



Edwin Kelly Architect
1867



THE RECEPTION ROOM AND BANQUET HALL.



FIREPLACE IN RECEPTION ROOM.



THE COUNCIL CHAMBER.



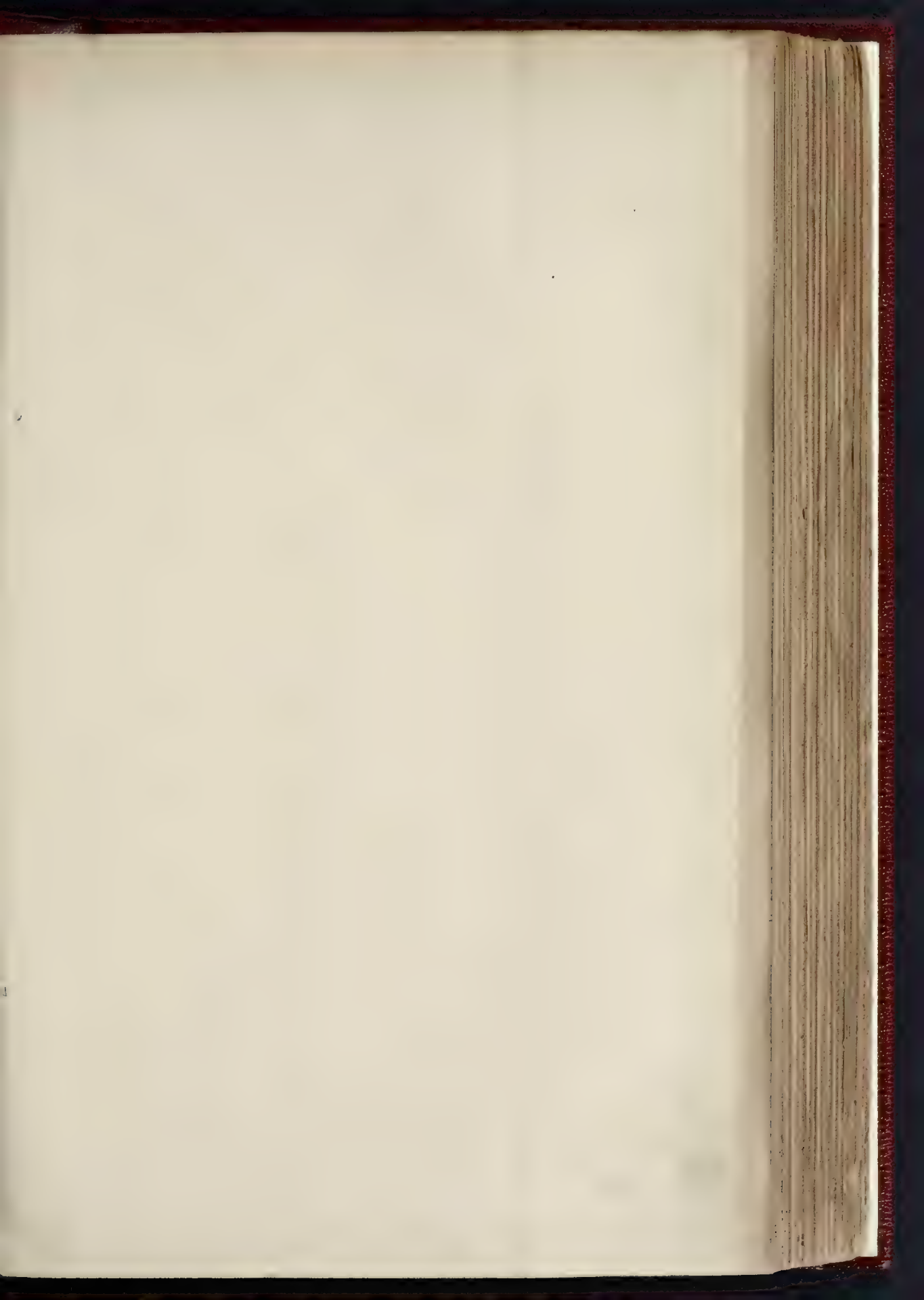
THE TOWN HALL.



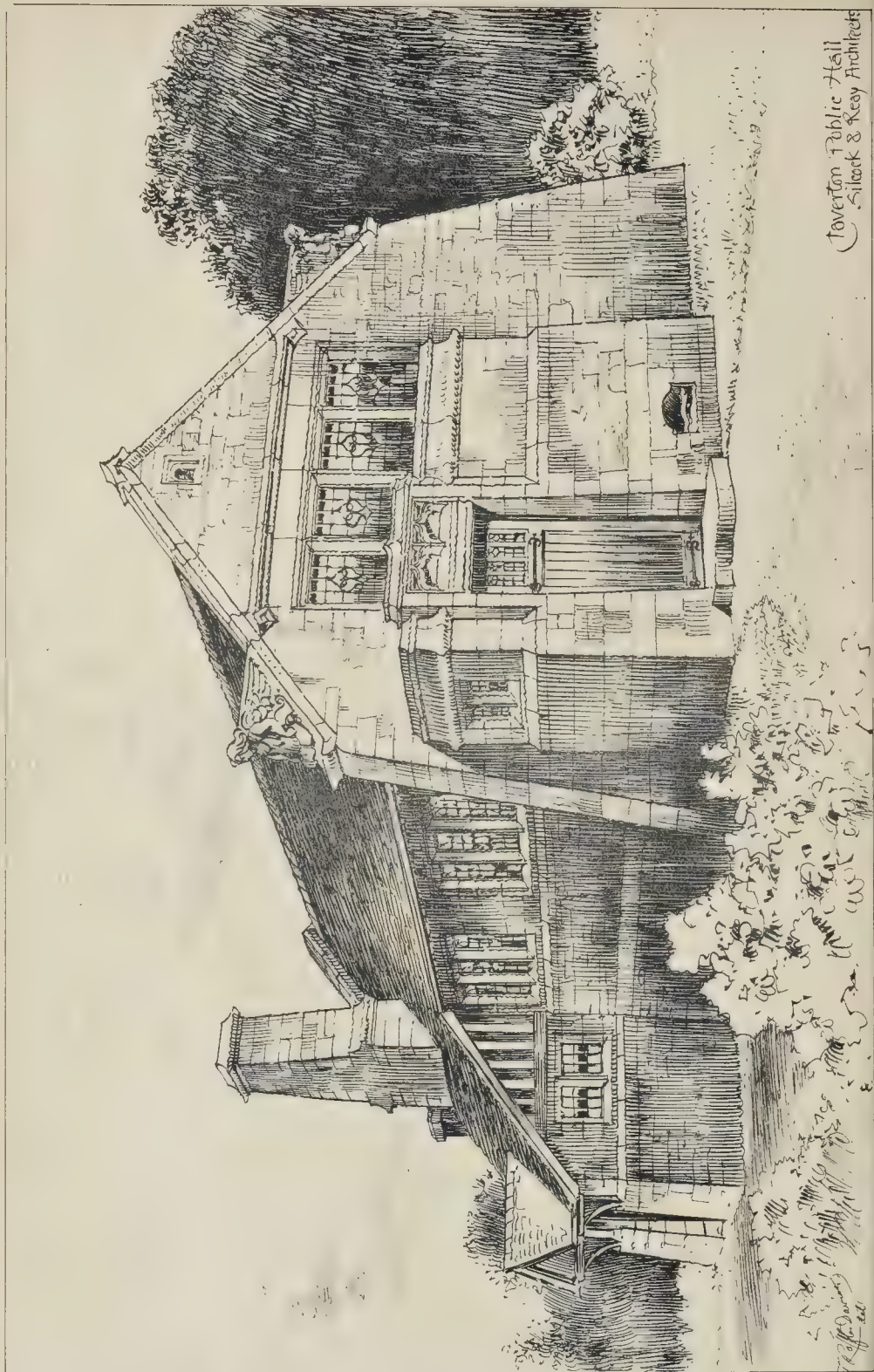
THE MAIN STAIRCASE.



IN THE COUNCIL CORRIDOR.

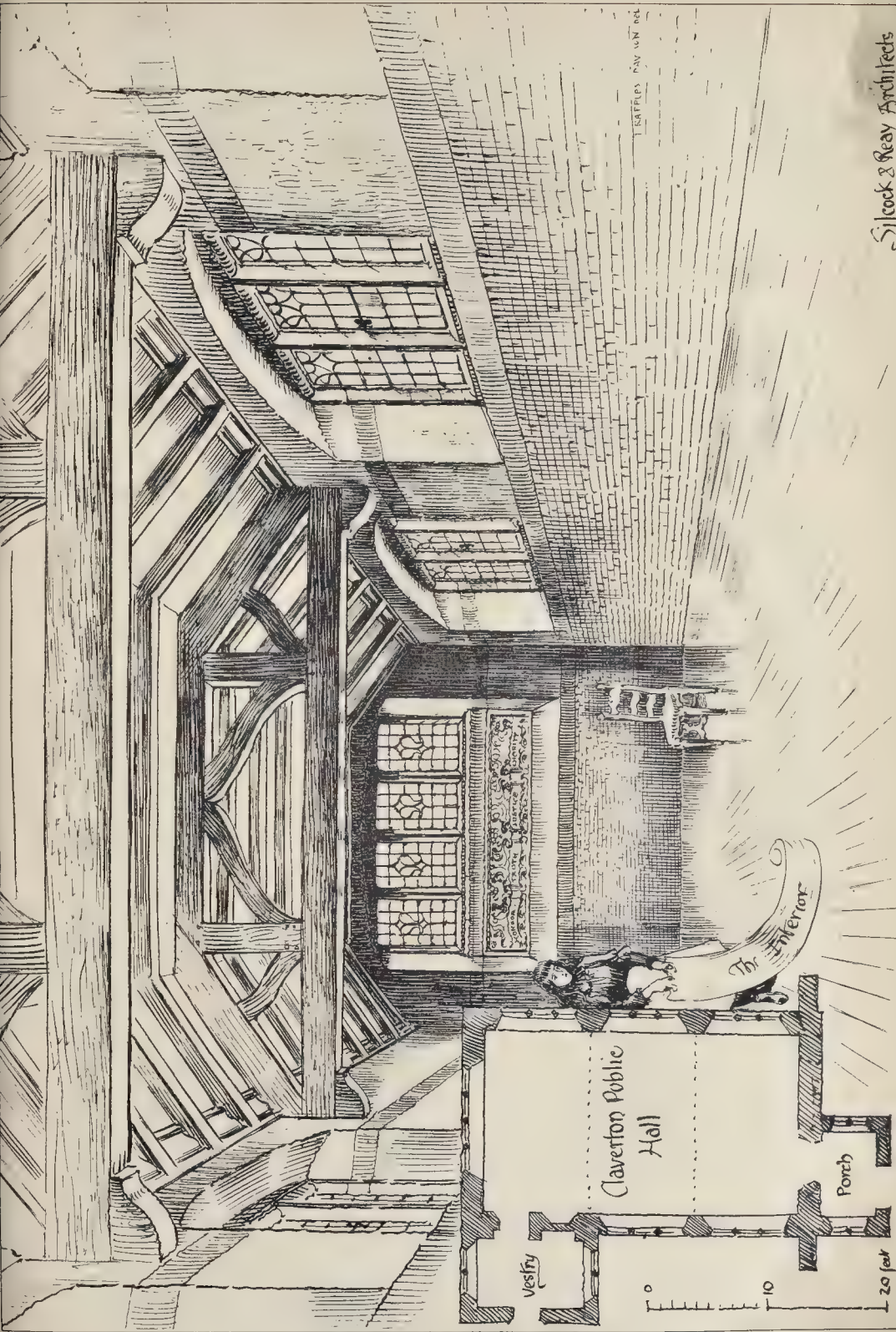


THE BUILDER, SEPTEMBER 11, 1897.

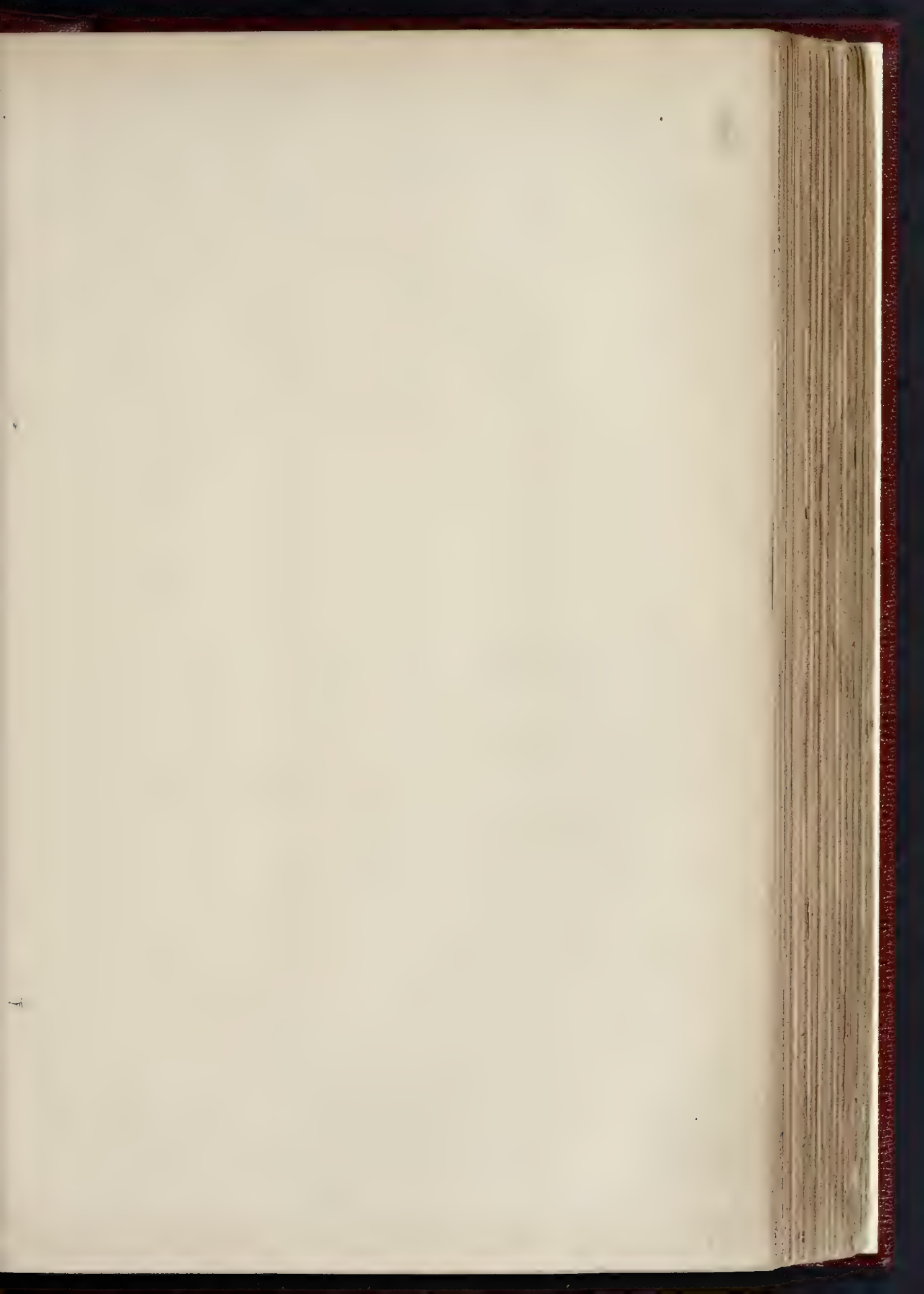


Taverner Public Hall
Gillock & Key Architects

PHOTOGRAPH BY J. H. DAVIS, 1897. ART BY J. H. DAVIS, 1897.



Silcock & Reay Architects
PHOTO-LITHO SPRINGER C-423 EAST HANING STREET, PETER LANE, E.C.





SCULPTURE MONUMENT TO MDME CARVALHO (MARBLE) —By M. Mercié



SCULPTURE: "LE POÈTE" (BRONZE) —BY M. FALGUIÈRE

hand. The American magazines are in fact rather too persistent in calling on the world to wonder at the achievements of American sculpture, which one would say seems to need a good deal of advertising.

The *Fortnightly Review* contains an interesting account of an episode in Dürer's life, his visit to the Netherlands, with some notes of Dürer's own recorded impressions and criticisms on some of the artists whom he met, or whose works he saw on this occasion.

Scribner gives us some notes and sketches of the Tennessee Centennial exhibition, where among other things there appears to have been a "staff" reproduction of the Parthenon, and the classic element evidently ruled in the exhibition buildings generally.

To the *Gentleman's Magazine* Mr. Percy Fitzgerald contributes an article, under the title "What is the Scene?" the tendency of which is exactly the reverse of Professor Herkomer's recent teaching in regard to stage effect. Mr. Fitzgerald urges that "the scene" is only the centre of interest on the stage, and not a space bounded by realistic walls with "practicable" doors, and that a great deal of money expended on modern realism of effect is money thrown away. We can only agree with Mr. Fitzgerald so far as this—that there is a great temptation at present to make elaborate scenic effect a cloak for poor acting. If the acting is carried to the highest point of excellence, the scenic refinement can only be a help and not a hindrance; and when Mr. Fitzgerald suggests that historical accuracy of costume is of no consequence he is stating a theory that can only lead us back to Julius Caesar or Macbeth "in Spanish habits."

The *Cornhill* contains an appreciative and well-written article on Brunel by Mr. Acworth, who has done so much to popularise a knowledge of railways and their working. In regard to Brunel's longitudinal sleepers for the rails Mr. Acworth suggests that his system was the best commercially, at the time, for producing a strong road in an economical manner, though it would not be the best now; and there may be something in that view. He mentions one fact which, as he implies, is probably known to few people, viz.: that "every single over-bridge on the Liverpool and Manchester Railway has had to be removed and rebuilt, because George Stephenson only left 4 ft. between the two lines of rails, whereas modern practice enforces 6 ft. as a minimum."

Macmillan contains a somewhat sarcastic article, not uncalled for, on "The Craze of the Coloured Print," referring to the conventionally coloured lithographs of the subjects of Cipriani, Cosway, Angelica Kaufmann, &c., which at present enjoy a market value far beyond any that their artistic value could justify.

The *Pall Mall Magazine* contains an illustrated article on "American Express Locomotives," by Mr. Angus Sinclair. "Cawdor Castle" and "Capetown" are the subjects of two illustrated articles.

The *House* includes illustrative sketches of the old furniture sold at Hengrave Hall last month, and some sketches of the loving cups of the City Companies.

THE TRADES-UNION CONGRESS.

The thirtieth annual Congress of the Trades-Union of the United Kingdom assembled on Monday at the Central Hall, Birmingham, when Mr. J. V. Stevens was elected President.

The Parliamentary Committee, in their report, stated that since the Congress in Edinburgh many things had occurred in regard to industrial legislation which were of the greatest import to the Labour movement of the country. They had not only had new and startling legislation of quite a novel and experimental character introduced by the Government of the day, dealing with subjects which were of the deepest concern to the Congress and to the working classes generally, but they had also had placed upon the existing Labour laws by the judges interpretations and constructions which endangered the position of the trade union movement. . . . With regard to the defeat during the session of the *Miners' Eight Hours Bill*, the Committee were of opinion that this result was a serious blow at the general policy of the Congress in respect to a legislative eight hours' day, and they wished to point out as forcibly as they could to all the trade unions of the country, and to the Congress itself, that if they desired the general policy of the Congress to be practically effective they

would have to use greater diligence in giving effect to that policy, and in the various constituencies of the country they would have to return to the Imperial Parliament men who were in sympathy with their views. At the commencement of last session of Parliament the Committee on the "Fair Wages Resolution of 1891" was again reappointed. . . . In this connexion there were two points of special interest to the Congress in reference to Government contracts. The Committee recommended: 1st, "That in future the Government shall be responsible for all Government contractors in so far as they are under obligation to carry out the 'Fair Wages Resolution of 1891';" and 2nd, "That all contracts for Government work shall be presented to Parliament and made public." It would be remembered that for a long time now the Congress had been urging upon the Government the adoption of these two principles, which, if carried out, would no doubt be of immense advantage to the trades interested, and would tend to purify the administration of Government work. Early in the year the Committee were approached on the subject of workmen's trains, and they at once put themselves in communication with all the railway companies, and asked them if they would grant the workmen certain facilities, chiefly in reference to running trains on their different lines until eight o'clock in the morning at reduced rates. Since then several of the companies had granted concessions, and as the result of a joint meeting between the London members of Parliament and those interested in the workmen's train movement, it was hoped that the various railway companies would shortly be able to meet the wishes of the working-class community, who were chiefly affected. . . .

With regard to the proposed International Trades-Union Congress (1898), the Committee, acting upon instructions from the Edinburgh Congress, at once put themselves into communication, by circular, with the trades, and since then had again reminded them of the resolution. Up to the present about one hundred replies had been received, a fairly large majority of which were in favour of holding such a Congress. . . . The Government Compensation Bill, although in many respects a useful measure, so far as the providing of compensation was concerned, in the opinion of the Committee scarcely touched the question of employers' liability in the sense in which it had always been understood in the past by the working classes. The Government had stated, and frequently repeated during the debates in the House, that this Bill introduced for the first time in our industrial legislation a new and novel principle, which was purely of an experimental character; that there was no attempt at finality; that it was not based either on the principle of logic or justice; but that if this partial attempt to provide compensation for accidents succeeded, this legislation could be further extended in years to come. The principal advantages of this Act, in the opinion of the Committee, were

1. It makes employers of labour responsible for the payment of compensation.
2. Although it permits contracting out of its provisions, it at the same time lays down the condition on which such contract can only be effected, viz., that the employer must pay a sum of money at least equal to that which is provided in the Bill.
3. That the criminal responsibility of the employer is not in any way relaxed under the *Employers' Liability Act of 1880* by any provision made in this Bill.
4. It creates a new mode of procedure for the settlement of all disputes in reference to compensation, viz., the appointment of Joint Committees of Workmen and Employers, and also the establishment of Courts of Arbitration.

The principal disadvantages of this measure were:—

1. There is no compensation provided in cases of disablement until the third week from the time of accident.
2. The total exclusion from its provisions of many of the most important trades in the country.
3. It allows the objectionable principle of "contracting out" of its provisions.
4. It contains, entirely at the instigation of the House of Lords, with the approval of the Government, the obnoxious doctrine of "Contributory Negligence."

This, in the opinion of the Committee, would lead to friction and litigation. The Bill having now become law, the Committee strongly urged upon the Congress and upon the individual trades of the country the necessity of carefully watching the operation of this important Act

of Parliament with a view of remedying its imperfections, and relaxing no effort until the question of employers' liability to their workmen and the criminal and civil responsibility of employers of labour was based on a sound and satisfactory footing.

The President's Address.

Mr. Stevens, in the course of his Presidential address, said that, since the Congress last visited the Midland city, in 1896, much progress had been made, alike in national and in local matters, for the well-being of the workers. Factory and Workshops, Employers' Liability, Trade Union, Public Health, and Railway Servants (Hours of Labour) Acts had been passed, and all these reforms and concessions were largely due to the work of that Congress and to the trade unions throughout the country. He rejoiced to know that they had the powers conferred by these reforms, and he had every confidence that the time was not far distant when they would use them to the great advantage of the workers, without injury to the country's good. In regard to the present strike of engineers, the President said that it was certain that if the struggle was prolonged the engineers would have to appeal throughout the country to their fellow trade unionists for help. That help must be given, as under no circumstances could they allow the engineers to be defeated. It was a clumsy, out-of-date way to finance labour struggles. A better way must be found. They saw springing up trade federations, and the federation of kindred trades, and he hoped that in the near future these would be the forerunners of a grand federation of all trades throughout the United Kingdom, which would create a pool to which all might contribute, and into which all who contributed should have a right to dip in times of need, not as a charity, but as a right. With regard to the legislation of the past year, the Workmen's Compensation Act could only be regarded as a half measure. It could not be accepted as a settlement of that very important question.

A vote of thanks was accorded to Mr. Stevens for his address.

Proposed International Congress.

A motion sympathising with the engineers in the present dispute having been agreed to, the delegates proceeded with the discussion of the Parliamentary Committee's report. Mr. Sam Woods, M.P., said that as an outcome of the House of Commons Committee on the "Fair Wages" resolution, there was a recommendation that in the future the contractors should be responsible to the Government for carrying out its terms. With regard to the proposal for an International Trades-Union Congress next year, the Committee had made the necessary inquiries, with the result that replies had been received from thirty-five trades. Of these, twenty-four, representing 251,683 members, were in favour of holding Congress, while eleven trades, representing 245,782 members, were against it. As a rule, the larger trades were opposed to the holding of the Congress, while the smaller trades were in favour of the meeting.

Contracts and Fair Wages.

Mr. Knight (Newcastle) moved a resolution condemning the Government for not carrying out the terms of the "Fair Wages" resolution of the House of Commons. Mr. Gibbs (London) seconded the resolution, which was carried.

General Eight Hours' Day.

Mr. William Thorne (London) moved a resolution in favour of the limitation by law of the hours of labour to eight per day in all trades and occupations in the United Kingdom, and instructing the Parliamentary Committee to draft a Bill on the lines of the resolution. Mr. Mitchell (Glasgow) seconded the resolution, which was carried by 923,000 to 141,000. The Congress soon after adjourned.

ST. GEORGE'S CHURCH, GATESHEAD.—On the 2nd inst. the district church of St. George, in the parish of Christ Church, Gateshead, was consecrated by Bishop Sandford. The building has been built from the designs of Mr. Stephen Piper, of Newcastle, is capable of accommodating 624 persons, and is situated at the top of Durham-road. The building has cost, with the tower, 6,400l. In the tower there is a peal of eight tubular bells, which have been supplied by Messrs. Walker & Coxon, of Newcastle. The reredos was designed and executed by Mr. Ralph Hedley, of Newcastle. The contractor for the church was Mr. Alexander Pringle, Gateshead. The glazing has been done by the Gateshead Stained Glass Co., and the heating by Messrs. Dinning and Cooke, of Newcastle.

Correspondence.

To the Editor of THE BUILDER.

A DISCLAIMER.

SIR,—In your issue of August 28 you refer to us (on page 165) as being the architects of a house in the suburb of Carrington.

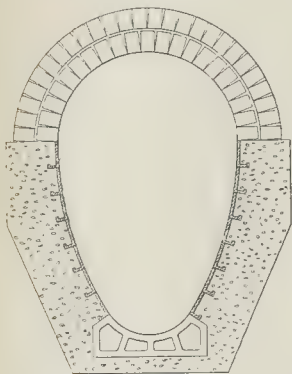
As we are not desirous of taking the credit for work we have not carried out, we write to inform you that the house referred to was designed and carried out under the superintendence of the late Mr. Statham.

BREWELL & BAILY.

GLAZED TILE SEWERS.

SIR,—It may be interesting to your readers to learn that Germany is not the only place in which concrete sewers with glazed tile surfaces have been constructed.

In 1804 I constructed about a mile of the sewer shown in the drawing herewith. This has proved to be extremely durable, and has to-day as bright and clean a surface as when first laid, an advantage over the form of the German tiles being that the upright sides of the sewer can be constructed without any form of framing, which cannot be done with the German tile, or with the tile originally shown in Messrs. Doulton's list, and patented by them many years ago.



I would add that my tile was designed not for sewer construction, but for the purpose of erecting a concrete wall without any timber framing, and I have constructed a considerable quantity of concrete walls, with some five acres of glazed face, at a cost of 30 per cent. less than brick walls could be built with glazed surface.

The sewer shown cost me about 7s. per yard run less than it would have done had it been constructed in ordinary porous brickwork, and I have built all manholes, flushing-tanks, &c., in the same material.

J. W. COCKRILL.

Doulton Surveys, Great Yarmouth.

EFFECT OF TEAK ON IRON.

SIR,—Will Mr. R. Phillips kindly give some further information as to the injurious effect of teak on iron?

Gwilt says, "Its oily properties render it less injurious to iron than oak."

Tredgold says, "It is rather of an oily nature, therefore does not injure iron."

The article on teak in Chambers' Encyclopædia says, "It is usually said to contain an aromatic essential oil which prevents iron in contact with it from becoming rusted, and for this reason it is always used for the backing to the armour plates of ships of war. A sticky elastic extract, to some extent resembling india-rubber, is obtained from teak, which is the real cause of the wood preventing iron from rusting."

All these authorities seem to be against Mr. Phillips' experience, and my own experience of work executed fifteen years ago is quite the reverse of Mr. Phillips'.

J. H. MARTINDALE.

USE OF SLATES IN LONDON.

SIR,—In Tegg's "Chronology, or the Historian's Companion," published in the year 1815, is the following:—"London.—Houses of timber, thatched with straw, but to prevent fire ordered to be built of stone and covered with slates; but the order not observed." Further on it says:—"Alderman first appointed, 1242; the houses still thatched with straw."

JOHN SHEXTON.

REEREDS, MOULSOE, BUCKS.—A new reeredos has just been dedicated at Moulsoe Church. It has been erected from designs by Mr. Swinfen Harris, architect, and was carried out by Messrs. Burlison & Grylls, and Mr. Hitch.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER VIII.—MODES OF MEASUREMENT.

Carpenters' Work.

HERE is one point to be observed in the measurement of carpenters' work, and that is, that in measuring the lengths, every allowance must be made for the extra length required for the tenons and scarfings in constructional work. This is a matter of some moment, as in the case of large timbers this amounts to a considerable proportion of the whole. The proportions for scarfings generally may be considered to be three times the depth of the timber in every 20 ft. length. Thus for a 9 in. by 4 in. purlin the allowance would be 2 ft. 3 in. Some surveyors number the extra labour involved in this, and if there is any special wedging or cutting it is advisable to do this, but in the event of small timbers, which are merely halved, it is hardly necessary, as the term framed will probably cover any such labour, the proportion of "framing" in the event of lengths requiring scarfing being proportionately small for the total cube quantity of timber.

It is generally usual to Bill the items of "Use and Waste," first. Therefore, the first items that appear in the carpenter's bill are centering, horsing, &c.

Centering, &c.

Centering for concrete floors, per square superficial.—The system of measuring this item was fully described in Chapter III.

Centering to vaulting, per square superficial.—Take the surface of the soffit of the vaulting. Mitres and groin points are measured at per foot run, "including waste," as are also raking cuttings.

Centering to apertures, arches, &c., per foot superficial when not less than 9 in. wide on soffit stating the shape, i.e., whether flat, segmental, semicircular, elliptical, or otherwise. If less than 9 in. wide on soffit, measure at per foot run. **Note.**—That if the soffit of an arch is in more than one plane a separate centre must be taken for each. Keep centering to gauged arches separate, as these require to be planed on the back on account of the finer finish of the soffit of the arch.

Turning pieces, per foot run.—Take these to flat or slightly curved arches when less than 9 in. wide on soffit.

Centering to trimmer arches, per foot superficial.—These are sometimes required to be left in. If so, state this. In this case it will not be necessary to take the item of "filleting soffits of trimmer arches" hereafter described, as the centre is fixed so that the underside may be lathed to carry through the ceiling under same.

Centres to Bulls' Eyes.—Number these, giving the diameter and the widths of soffits. This is sometimes done in the case of semicircular centres, some surveyors going so far as to number the whole of the centres.

Notches in Centering.—Number any notches required in centering for key blocks, &c.

Horsing and Strutting Stone Lintols.—Number these, giving the lengths these are "averaged" by the abstractor.

Constructional Work.

Fir in Plates, per foot cube.—6 in. to be allowed in every 20 ft. running length for laps. **Note.**—That if the building is hipped, cross ties and dragon pieces will be required at the angles.

Circular plates should be measured at per foot run stating the radius.

Fir in Lintols, per foot cube.—These are frequently billed with the lintols, and the item then appears as "fir in plates and lintols."

Fir in Ground Joists and Sleepers, per foot cube.—These to be kept separate from the other joists.

Fir in Floors, per foot cube.—Describe this work as "framed," and take the deductions and additions for trimmings, and include with the cube quantity, allowing in the lengths for the tenons, this being practically the whole of the "framing" required. Take here any iron, stone, or brick corbels required to carry ends of joists next flues. The ends of joists are built in, therefore an item of cutting and pinning is not required.

Fir in Partitions, per foot cube.—Describe this work as "framed," keeping that in trussed partitions separate. The enteries being in short pieces are frequently measured at per foot run.

Fir in Roofs, per foot cube.—Describe this work as framed, keeping that in trusses separate. It is also advisable to give an item of "Hoisting trusses," describing as "King post truss," "Queen post," &c., as the case may be, with the span and rise and the height they have to be raised. Allow for trimmings as described to floor joists.

General Note.—In addition to the allowances for "scarfings," previously mentioned, it must be borne in mind that if the lengths of rafters, joists, &c., are over 25 ft. long, allowances must be made for "passings." If, however, it is necessary for these to be in one length, the item must be kept separate and the length stated. This also applies in the case of timbers of any exceptional size.

Timbers less than 2 in. thick and over 4 in. wide to be measured at per foot superficial, but if less than 4 in. wide and $2\frac{1}{2}$ in. thick at per foot run. The latter is sometimes kept at per foot cube in "small scantlings," but the former method is preferable.

If timbers are to be of the sizes specified, i.e., without any reduction in size for saw cuts and planing, this fact should be stated in the heading. This will also apply to the thicknesses of boarding.

Labours on Timbers.

Planing, per foot superficial.—This should be all measured and not included with the item of timber. The latter is a slipshod method sometimes adopted to save time and trouble, but gives the contractor very little idea as to the quantity of planing required.

Circular Cutting, per foot superficial, if over 6 in. wide; if under, at per foot run. State whether "rough" or "wrot."

Splays and Chamfers, per foot superficial, if over 6 in. wide; if under, at per foot run.—State whether "rough" or "wrot," number stops (those to the running items following the item, the others "averaged" and following the superficial dimension). State whether splayed or moulded, and if the latter give a sketch if in any degree elaborate. The stops to include the extra labour working up to stop. Keep circular work separate, and state whether to "flat" or "quick" sweep.

Moldings are measured as last described. **Sinkings, number** these, giving size, shape, depth, and the finish around the edges, giving the widths or girths of the chamfer, or molding to edges.

The following items are also to be billed as numbers: Cutting and shaping finial posts and neckings, caps, &c., to same. If the finials are small, number same complete with necking, caps, &c., giving sketch. Fixing bolts, straps, &c., averaging the lengths. Letting in and pelleting bolt-heads. Short wrot ends to timbers, giving sizes and lengths. If shaped, give sketch.

Coverings, &c.

Battening for Tiling, Slating, &c., per square superficial.—State size of battens and what it is for (to enable builder to judge of spacing), and if for weather tiling keep separate, and state if plugged to brickwork.

Wall Battening, per square superficial.—State size of battens and the spacing, and if plugged to brickwork.

Roof Boarding, per square superficial.—State thickness and whether "rough" or "wrot."

Boarding for Lead or Zinc Flats, &c., per square superficial.—State thickness and describe as "traversed for lead." If with firrings include with the item, if of ordinary depth. If firrings are extra deep, as in the case of the upper end of a large flat, it is advisable to take these separate up to the lower level at drip, still, describing the boarding as "including firrings." Dormer tops and other small items are measured at per foot superficial, and described as "firrings dormer tops."

Boarding to Checks of Dormers, &c., per foot superficial.—If for lead describe as "traversed for lead," and if in spandrels measure these net, stating this in the item. If very small these may be numbered.

Weather Boarding, per square superficial.—State average thickness, or mention the thickness of both edges and the lap, and describe as "measured net as seen."

Cuttings, &c., on Foregoing Battening and Boarding.—For all raking cuttings and to hips, valleys, &c., allow the length of the cutting by 3 in. on each side, and add to the bulk of the boarding, &c., and describe as including all cutting, or take an item per foot run of "Raking, Cutting, and Waste." Take splayed edges to boarding at per foot run. Keep circular battening

ing and boarding separate from the remainder, stating the radius, if to conical roof the radius at eaves.

Valley and Lier Boards, per foot superficial.—If the roofs are battened for tiling or slating, valley and liew boards will be necessary for lead valleys, and the turn-ups of lead from gutters. State thickness, and include the splayed edges and deduct the surface from the battening.

Gutter Boards, per foot superficial if over 6 in. wide; if under this width, at *per foot run*. State thickness of boards and size of bearers, whether the items include bearers, and if so, whether these are framed.

Gutter Sides, per foot superficial, if over 4 in. wide; if under this width, at *per foot run*. State thickness, and if edge cut to slope of gutter.

Felling to Roofs, per square superficial.—Give full description, how nailed, and the width of laps; measure this *as seen*, and describe the item as such, the builder making his allowance for laps. It is usual to allow the same for raking, cutting, and waste as described to boarding, &c.

Grooves, Rebates, &c., per foot run.—If over 2 in. girt, state the girt, and also if "stopped." **Joining Pieces, per foot run.**—Measure these the width of jambs for fixing joiners' work. These are frequently numbered, giving the sizes.

Tilting Fillets, per foot run.—No size need be given for these unless exceptionally large.

Eaves Boards, per foot run.—State thickness, and if feather-edged state this also, and also if "wrot."

Feather-edged Springing Pieces, per foot run.—These to be taken on the side of trimmer joists as skewbacks for trimmer arches.

Secret Gutters.—It is not often necessary to measure this as a separate item, unless the roof is battened only. Even in this case an extra rafter and a tilting fillet will generally cover anything to this item.

Drips, per foot run, unless in gutters less than 12 in. wide; in the latter case, they should be numbered as "short drips in gutters." The depth should be stated and also whether rebated, cross-rebated, or rounded.

Rolls, per foot run.—State size and whether for lead or zinc; if the former they must be rounded, and if the latter double splayed. State if "bird's-mouthed to hips" or ridges. **Number mitres**, stating, if more than an ordinary mitre, whether "3 way" or "4 way," or otherwise as the case may be.

Eaves Fascias, per foot run.—State thickness and describe whether rough or wrought, and include with the item mouldings, splays, grooves, &c. **Number mitres**, &c.

Eaves Soffits, per foot run.—Measure as last described. If over 6 in. wide this item can be measured at *per foot superficial*, taking the labours separately.

Herring-bone Strutting, per foot run.—Measure the extreme length, including the joists, state size of strutting, and the depth of joists, and describe as "double." If solid strutting is required state thickness of strutting and the depth of the joists.

The following items should be billed as *labours*.—Gusset pieces to gutters, stating size. Cesspools, stating size and depth, and, if extra over gutters, mention this in item. Short sprocket pieces, state size and length, and, if cut, the character of the cutting (a sketch is frequently advisable with this item). Felt pads to rolled joists. Filletting joists of trimmer arches for lathing to, &c. Also any small labours to notchings, cuttings, scribbings, &c.

Half Timber Work, Gables, Finishing to Dormers, &c.

Half Timber Work.—Although this work is frequently in large timbers, it is advisable to measure this at *per foot run*, including with the items the labour to faces and edges, such as grooves, &c., and describe as "framed," and, if pinned, state this also, and if pins left projecting. If "sham" half timber work, describe whether plugged to brickwork or fixed to studding, and how fixed. **Circular and shaped pieces** are frequently better numbered, giving the full sizes and description of labour, &c.

Beams in Half Timber Work, per foot run.—Measure these, including the ordinary labour to moulding, &c., but, if cambered, measure the labour to cutting to camber separately, and also the moulding, &c., on cambered edge.

Barge Boards, per foot run, including all labours to moulding, &c. Take any "planted" mouldings separate. **Number mitres**, &c., and returned ends at feet, and if shaped or made out to curve, give sketch. State how barge

boards fixed, **number** housed ends of timbers to same, and measure bolts (if any).

Cornices, per foot run.—State size and girth of moulding. If "sprung," state this, and give width (on slope) and the thickness of material cornice is cut from, and also the girth of moulding and the edges, if splayed, grooved, &c., and if including blockings. **Number mitres**, ends, &c.

Dentils, per foot run.—State if worked on solid or planted on, and give size (three dimensions) and distance apart, state if in undercut moulding, and if dentils themselves are moulded. A sketch is frequently necessary in this item.

Brackets, Corbels, &c.—Number these, giving full description, sizes of timber, &c., the labour, girth of mouldings, &c., and how fixed.

Carving.—The same remarks apply to this as to "Carving in Stone."

External carpenter's work is frequently put together in white lead. If this is the case incorporate with the heading, and also state whether secret fired, and if copper or brass screws are to be used. It is generally advisable to keep all external finishings under a separate heading, giving these particulars and any others that may be necessary to enable the contractor to arrive at a fair idea as to the quantity of the labour involved. Some surveyors put these items in the joiner's bill, and it is sometimes somewhat difficult to draw an exact distinction, but this is of little moment providing the descriptions are thoroughly self-explanatory.

Slaters' Work.

It should have been stated that the system of measuring slating described does not apply to *Westmorland slating*, which is laid in diminishing courses from eaves to ridge, which fact, as well as a full description of the slates, &c., should be stated.

The allowances for cuttings, &c., to *Westmorland slating* generally accepted are as follows:—*Eaves* by 1 ft. 6 in.; *hips and valleys* by 9 in. for each side; *dormers, chimneys, &c.*, by 9 in. down each side in addition to the allowance for eaves at top; *verges and ends of roof next gables* by 3 in.

GENERAL BUILDING NEWS.

CENTRAL HIGHER GRADE SCHOOL, BOLTON.—The new Central Higher Grade School, in Great Moor-street, has just been opened by Sir George Kekewich, K.C.B. The architect was Mr. R. K. Freeman, whose designs were, as the result of competition, placed first by the assessor, Mr. Robson, Architect to the Education Department. The building provides accommodation for 1,080 children. The main entrance is in Great Moor-street, the boys and girls' entrances being at opposite ends of the building and approached from their respective playgrounds. Features of the design are the central halls, which measure 96 ft. by 32 ft., and are carried up the full height of the building, the basement floor being used as a gymnasium and the top floor as a chemical laboratory. On the ground and first floors, which are devoted to class-rooms, these central halls are used as assembly halls, all the class-rooms opening out of them and being separated from them by glazed screens. In the basement the light is obtained by means of sunk areas, of which those at the ends of the building will be faced with glazed bricks, and are also excavated to the level of the basement floor. In the basement are also provided a physical lecture-room, with stepped gallery, physical laboratory, manual instruction-room, kitchen, and dining-room, heating-chamber, and the necessary store-rooms. From the book-store, which can also be approached from the outside, a lift is carried up the entire height of the building. Three staircases have been provided, those for boys and girls being near their respective entrances, while a central one has also been provided near the main entrance. On the ground and first-floors, which are similar in arrangement, are provided seven class-rooms on each floor, all opening off the central hall, and each providing accommodation for sixty scholars. On the ground floor, near the main entrance, has been placed the head-master's room, while the corresponding room on the first floor will be used as a managers' meeting, &c. On the top floor the central hall is to be utilised as a chemical laboratory; and a chemical lecture room, with gallery, laboratory, chemical store room, preparation room, dark room, &c., is also provided on this floor. The front portion of the building on this story will be used for the teaching of drawing, and separate rooms are provided for each branch, with a room for the art master. In the respective playgrounds, but at some distance from the main buildings, will be placed the boys and girls' latrines, and also the covered playgrounds. A caretaker's house, having a large cookery school with scullery and stores over it, is provided in a separate building facing Johnson-street. The external design of the

school is Renaissance. The building rises to a height of 64 ft. to the ridge. The central gable over the main entrance is surmounted by a turret with ornamental weather vane, and the roofs are covered with blue Welsh slates. The bricks used throughout the building, with the exception of the glazed bricks, are of local manufacture, while the terra cotta for all dressings has been supplied by Messrs. Dennis & Son, of Rulon. The general contractors for the work are Messrs. E. & D. Maginnis, their sub-contractors being Messrs. Gornall & Son, for the brickwork; Mr. Wm. Pollitt, for the excavating, concreting, and draining; Messrs. Vause & Sons, for plumbing and glazing; Messrs. Gregsons & Smith, for mason work; Mr. A. Warburton, for plastering, painting, &c.; Mr. Wm. Altham, for slating; and the gas fitting in some parts of the building by Messrs. Vause & Sons; the heating of the building has been entrusted to Messrs. Marsden & Co.; the rolled steel girders have been supplied by Messrs. Thomas Walmsley & Sons. The new building is to be lighted throughout by electric light, this part of the work having been entrusted to Messrs. George Hill & Co., of Manchester. Mr. David Welch has acted as clerk of works. The total cost, including the site, is 32,500l.

HOME FOR AGED MINERS, RYTON.—On the 28th ult. the foundation stone was laid, at Ryton, of a block of buildings which are to be known as "The Robert Simpson Memorial Homes for Aged Miners." The site abuts on the main turnpike from Newcastle to Hexham, and is situated at a place known as Burnmoor. The homes, which will have a south aspect, consist of eight one-story homes and two two-story homes, one of each of the latter being placed at the two ends of the block. Each of the eight homes will consist of two rooms; the two end homes will have three rooms each. The block will be built of white bricks, with red brick ornamentation, and the roof will be of Bridgewater red tiles. The homes have been designed by Mr. Jas. Archibald, engineer to the Stella Coal Company, and will be built by Mr. Peter Fellowes, Greenside.

BANK AT BRINSCALL, CHORLEY, LANCASHIRE.—New bank premises have just been erected in Railway-road, Brinscall, by the Williams Deacon and the Manchester and Salford Bank, Limited. The building is two-storied, and has frontages to Railway-road, and a street running at right angles therefrom. The exterior is faced with Yorkshire stone. The windows are of cathedral glass, supplied by Messrs. Seward & Co., Lancaster. All the rooms are fitted with hot-water heating apparatus by Messrs. Holt & Co., Chorley. The building has been erected from the designs of Mr. W. H. Dinsley, architect, Chorley. The contractor is Mr. J. Leigh, of Brinscall.

CATHOLIC CHURCH, DARRARAH, CLOANILITY, CORK.—The new church at Darrarah, in the Parish of Clonakilty, was dedicated on the 29th ult. by the Rev. Dr. Kelly, Bishop of Ross. The church is in the Early Gothic style, built of local stone, with white limestone dressings. It consists of a nave and aisles, chancel and side chapel, the latter being a mortuary chapel for, and having underneath, the family vault of the donor. Opposite this chapel is the sacristy. The nave is separated from the aisles by arcades of five pointed arches on either side, carried on Aberdeen granite polished shafts, with moulded caps and bases, and is lighted by a rose window at the west end and ten cinquefoil windows in the clerestory. The aisles have lancet windows, and the chancel is furnished with two large windows, surmounted by a rose window, these being filled with stained glass by Messrs. Mayer & Co., Munich. The roofs are of open construction in pitch pine, varnished, and the floors of nave and aisles tiled, with pitch pine flooring under the seats, the chancel being tiled with encaustic tiling. The entrance is by a large porch at the west end of nave, and the west gable is crowned by a stone belfry. The Communion rails are in ornamental wrought-iron work, by Messrs. M'Gloughlin, Limited, of Dublin; the high altar in Caen stone and marble, with crocketed canopy and foliated panels, is by Mr. O'Connell, of Cork. The builder was Mr. John Sisk, Cork, the architect being Mr. G. G. Ashlin, of Dublin.

NEW MILITARY HOSPITAL, EDINBURGH CASTLE.—Several old buildings are being removed at the Castle, Edinburgh, to make room for a military hospital. The new Military Hospital will have architectural features of a Scottish character which the old buildings did not possess. The ground plan covers an area of 160 ft. by 120 ft. The block, which will face Princes-street, will be three stories in height; and towards Castle-terrace, there will be an annex of the same height, the wall of a promenade and the gable of the south block, which will only be of two stories. On the east side will be the kitchen and entrance gateway. To Princes-street a prominent architectural feature of the building is a range of dormer windows deeply set in the wall-head, and rising considerably over it. From the apex of the stone gable to the foot of the window the measurement is 15 ft. The wall-head between shows a corbelled cornice with embrasures, and round the dormers is carried an ornamental string course. The windows of the lower stories are square-headed, with jambs of dressed stones. Between the building and its annex, which faces Castle-terrace, the façade is broken by a large recess. The whole of the buildings will be of stone

The gable of the south block has bold crow-steps, and the windows show varied features. On the ground floor of the Princes street block will be a ward with fourteen beds. There will be a lobby with entrance from a courtyard, round which the buildings will be grouped. This will lead to a waiting-room, which in turn will communicate with the surgery. The other accommodation at this level is set apart as pack and linen stores. A stone staircase, which is shown in the elevation as a projection, will give access to the floors above. On the first floor there will be a sixteen-bed ward, a day room, and three small wards, with the usual rooms for orderlies. The floor above in its internal arrangements corresponds to a large extent with that just described. There will be a sixteen-bed ward, and one of three other small wards will be set apart for officers. In it there will be two beds. From this block a corridor runs southwards, at the end of which a completely new kitchen establishment for the hospital is to be constructed. The kitchen will only be one story in height, and will be lighted from the top as well as the sides. In the south block, on the ground floor, is a ward of five beds for special infectious cases, with separate entrance and sanitary arrangements, so as to isolate it from the rest of the building. There will be two wards for orderlies and stores, on the ground level, and in the floor above will be the quarters for the warrant officer. The beds in the wards are placed two between each window. The wards will be heated by hot-water pipes and by special stoves. Between the two blocks on the west side a raised promenade will be constructed overlooking the Castle race, on which the patients may take the air. It is approached from the courtyard by a double flight of steps, and between the pillars carrying it there will be seats placed for the patients. The hospital buildings on the Castle side are enclosed by a wall, and for entrance the old Queen Anne pillars will be used. They are to be taken down and put up in another position from that which they now occupy. The courtyard has been formed by removing the old magazine building, which was 74 ft. by 41 ft., and part of the space thus secured will be laid out as an ornamental ground. The cost of the hospital will be about £18,000. The plans were designed in the War Office, and have been adapted locally by District Surveyor T. Ivor Moore, R.E. The specifications were prepared locally under Colonel W. H. Patten, commanding the Royal Engineers in Scotland, and the District Surveyor.

RENOVATION OF MADDERTY PARISH CHURCH, N.B.—This church has just been reopened, after having been renovated. A new entrance upon the north side, with porch facing west, takes the place of the two openings now built up, and the old square-sashed windows have been superseded by stone mullioned and arch-headed openings of two and three lights; while new windows have been pierced on the north and east walls, and a little rose window has been introduced in the west gable. The entrance has been changed from the west gable to the centre of the north wall of the church. The gallery in the interior has been taken away, and the church enlarged by utilising the space formerly occupied by the old lobby and staircases. The pulpit, with its new carved panels, is placed in the north-east corner on a raised and level platform, on which also the choir is to be accommodated. Three stained glass windows have been put in, while all the other windows have been filled in with cathedral tinted glass. The glasswork of the windows has been executed by Messrs. Ballantyne & Gardiner, Edinburgh. The contractors for the various departments of the work were: Messrs. D. Buchanan, mason; W. Drummond & Sons, joiners; James Tainsh, plasterer; and T. & J. Phillips, slaters—all of Crieff. The heating engineers were Messrs. McCormack & Sons, Glasgow. The whole works have been carried out from designs and under the superintendence of Mr. G. T. Ewing, architect, Crieff.

WORKHOUSE INFIRMARY, SELBY OAK, WORCESTER.—The formal opening of this new Infirmary has just taken place. The infirmary, the foundation-stone of which was laid in August, 1895, is situated on elevated ground adjoining the workhouse. The land slopes from east to west about 11 ft., an inclination which has been taken advantage of in the planning of the pavilions, of which there are four, with sufficient space for an extension of another four. The administrative department is in the centre, with the laundry, boiler-house, engine-house, dynamo-rooms, and water-tower at the rear, the whole covering an area of about six acres. The buildings have been erected by Mr. Thomas Rowbotham, Small Heath, from the designs of Mr. Daniel Arkell. Externally the buildings are of red brick, relieved by dark red coloured brick and terra-cotta strings, the roofs being covered with bright red Broseley tiles. The style is a free treatment of Renaissance. Accommodation is provided for about 300 beds for patients and officials, whilst provision has been made for a future extension of a similar number. In the centre are the one-story kitchen block and administrative buildings, which are connected to the building by covered ways. The doctors' room, nurses' general sitting-room, sewing-rooms, matron's rooms, steward's stores, dispensary, telephone exchange room, and nurses' and servants' residences are in the centre and under the supervision of the matron, with lavatories, bath rooms, &c. The cooking kitchen

sculleries, pantries, stores, &c., are at the rear of the administrative block, centrally placed, and easy of access from the male or female portion of the block. Adjoining the central or administration block, and off the main corridor, are placed the receiving wards for male and female patients. The pavilions are axially arranged nearly north and south, with fire and sound proof floors. There is no direct internal communication between them, the upper floors being reached by an external staircase, opening from the staircase. A corridor leads left and right to the different rooms, which comprise eight wards for twenty-four beds each, eight wards for five beds each, and eight wards for two beds each for special cases. The large wards are overlooked from the nurses' duty rooms and kitchens by a small window. The labour wards are provided for five beds each, and two separate female pavilions, to be used for maternity cases, these wards being cut off from the main pavilion by corridors. Two large wards are lighted by means of windows on either side; all angles and corners are rounded; and the whole of the floors are of marble mosaic. Access and egress fire-proof staircases are provided in each block, and in each of the pavilions for the use of convalescent patients. The male and female pavilions on the first floor are connected with the official block by a wide open asphalted roadway, which forms the roof of the corridor beneath. A boiler-house, engine-house, dynamo-rooms, laundries, and water tower have been built on the north side of the main building, together with three large boilers and a tank in the water tower capable of holding a sufficient supply of water. Adjoining the boiler-house is a large coal store. Near to a high chimney shaft, built to carry the smoke away from the new building, is the engine and dynamo-room, in which are placed steam engines to create the electric supply for lighting the whole of the rooms in the infirmary, and also the are lamps to illuminate the grounds at night when necessary. No gas pipes are laid in any portion of the building. The total cost of the infirmary is estimated at from 45,000l. to 50,000l.

CONGREGATIONAL CHURCH, FOLKESTONE.—On the 1st inst. the new Congregational Church, erected at Rednor Park, Folkestone, was opened. The site is near the Central Railway Station. The new building, from designs by the late Mr. Joseph Gardner (who died soon after the laying of the memorial-stones), is in the Early Decorated style, is free from galleries, and will seat 800 persons. In the rear will be a lecture-hall 45 ft. by 25 ft., with offices in the basement. The church is faced with Kentish-rag coursed work, with Bath stone dressings, and the roofs are covered with tinted Broseley tiles. The principal porch is carried up to a tower 80 ft. high, with pinnacled parapet, and a clock with four faces, by Messrs. Gillett, of Croydon. The church is to be heated by hot air. The two central windows of the chancel windows represent the "Good Shepherd" and the "Light of the World." The cost of the new structure complete is estimated at between 6,000l. and 7,000l.

PORCH, CHURCH OF ALL HALLOWS, KEA, CORNWALL.—A new porch has just been erected at the church of All Hallows, Kea. The exterior design, as originated by the architect, Mr. G. Fellowes Pryne, The work was carried out by Mr. Carkeek, of Redruth, in the church of the porch.

PROPOSED HOTEL, CADOXTON, BARRY.—A new hotel is to be erected at Cadoxton, from plans prepared by Mr. H. Tudor Thomas, architect, Cardiff. **AT ALHAMBRA, BLACKPOOL.**—The new buildings on the site of the Prince of Wales Theatre at Blackpool, which are to be erected for the Alhambra (Blackpool), Limited, from the designs of Messrs. Wylson and Long, architects, of London, will be started immediately. The site is in the Promenade next to the Tower-buildings. Included in the scheme are a theatre of varieties, circus, restaurant, and ball room. The tender of Messrs. Whitehead, of Blackpool, has been accepted for the erection of the general building work, furnishing, and decorations, at a cost of 76,200l., and that of Mr. Samuel Butler, of Leeds, for the constructional ironwork, at a cost of 12,788l.

CHILDREN'S WARD, OF WIGHT INFIRMARY AND COUNTY HOSPITAL, RYDE.—Princess Henry of Battenberg, President of the Isle of Wight Infirmary and County Hospital, laid the foundation stone of the children's ward recently. The new building will extend due east and west at right angles to the old building. The present isolation ward will be adapted so as to work with the new, and will contain rooms for male and female patients respectively, besides rooms for the nurses. Next to this will be the children's ward, containing accommodation for ten beds. This will open by a French window to a balcony on the south side, from which steps will afford access to the grounds. It is proposed to erect a sun-room for the convalescent children at the east end of the building. The architects are Messrs. Young & Hall.

PARISH CHURCH ENLARGEMENT, MATLOCK.—On the 2nd inst. the foundation stone was laid of the new aisle and chapel to be erected at this church in commemoration of the sixtieth year of the reign of the Queen. The cost is over 1,000l. The architect is Mr. Percy H. Currey, of Derby, and the work is being done by local tradesmen—Mr. William Boden

the masonry, Mr. W. Holmes the woodwork, and Mr. A. R. Keeling the plumbing. The accommodation will be increased by about 140.

ALTERATIONS, &c., TO PARISH CHURCH, KNUTSFORD.—The parish church of Knutsford is now being repaired and altered under the superintendence of the architects, Messrs Darbyshire & Smith. The work consists of general repairs to the fabric, new staircases to the north and south galleries, and removal of the west gallery, together with a scheme of decorations.

LIBERAL CLUB, KNOTTINGLEY.—The Earl of Crewe has just opened the Liberal Club at Knottingley. The building is situated in Aire-street, opposite the Flatts. Below are two shops, while on the first floor is a reading room, 14 ft. long by 21 ft. wide. On the story above this are the billiard and reading rooms. Close by is the recreation room, and adjoining these rooms are lavatories. The architects were Messrs. Tennant and Bagley, of Pontefract.

CHURCH FOR COATBRIDGE, LANARKSHIRE.—At a special meeting of the Coatbridge Dean of Guild Court recently plans were passed for the erection of a new church for the parishes of St. Augustine's, Coatbridge. The building, which will accommodate over 1,000 worshippers, is to be erected at the junction of Buchanan-street and Dundyan-road, and will be in the Gothic style. It will be built of red stone from Lockerbie Quarries, and it is estimated that it will cost over 10,000l. The architects are Messrs. Pugin & Pugin, London.

METHODIST CHURCH, EXTENSION, BALSALL HEATH, WORCESTER.—The memorial stones of a new Methodist New Connexion Chapel were laid recently in Ombersley-road, Balsall Heath. The new building is to be Gothic in style, with a main entrance from Ombersley-road, and the plan is based on the nave and chancel, with a small gallery over the entrance lobby, and a choir gallery and organ loft at the rear of the rostrum. When completed, the chapel will afford accommodation for close upon 500 persons. The contractor is Mr. George Webb, of Handsworth; and the architect is Mr. A. H. Goodall, of Nottingham.

CATHOLIC CHURCH, SHIELDMILL, LANARKSHIRE.—The foundation-stone has just been laid at Shieldmill, near Motherwell, of the chancel arch column of the new Roman Catholic Church of St. Patrick. The church, when completed, will have a seating capacity of about 1,000. The building will consist of chancel, nave, side chapels, aisles, baptistry, sacristies, confessionals, &c., and the internal length is 125 ft., and 58 ft. in width, while the height is 58 ft. Red sandstone is being used in the construction, and the estimated cost is 6,250l., the designs being by Messrs. Pugin & Pugin, London. The nave, 97 ft. long and 28 ft. wide, is divided into seven bays. The chancel, apsidal in form, is divided from the nave by a chancel arch.

NEW TOWN MISSION HALL, FALKIRK.—A new town mission hall building is to be erected for Falkirk, on a site at the top of Dundee Court. In the building there is to be a large hall and a small one, and on the upper floor a large club or reading-room. The building, which will cost about 1,000l., has been designed by Mr. A. Gauld, architect, Falkirk.

PROPOSED FREE CHURCH, MACDUFF, BANFF.—It is proposed to erect a new Free Church and Hall at Macduff. Messrs. Matthews & Mackenzie, architects, Aberdeen, have prepared plans.

CHANCEL, CHRIST CHURCH, GREENEVES, LANCA-SHIRE.—Another stage in the rebuilding of this church has just been reached by the completion of the chancel, and the provision of a temporary corrugated iron nave, which will be used for the seating of the congregation pending the erection over it of the larger and permanent nave. Mr. W. Cecil Hardisty is the architect of the new church. Bricks, with stone dressings, are used in the erection of the edifice, the contractors being Messrs. Statham & Whitby, of Pendleton.

MASONIC HALL, CARRICKFERGUS.—The foundation stone of a new Masonic Hall, was laid at Carrickfergus recently. The building, which will occupy a site in Victoria-street, will be 30 ft. by 48 ft., and two stories high. The ground floor will contain, according to the plan, dining-room, cloakrooms, kitchen, and serving departments, whilst on the second floor there will be lodge-rooms, billiard-room, and ante-rooms. The execution of the work has been entrusted to Mr. Ezekiel Caters, builder; Mr. S. P. Close is the architect.

SANITARY AND ENGINEERING NEWS.

EXTENSION OF PIER, WALTON-ON-THAMES.—The first pile of the pier extension at Walton-on-Thames was driven on the 31st ult. by Mrs. Round, wife of Mr. Round, M.P. The present pier, about 600 ft. long, is to be widened, and to have an addition of 1,010 ft. as well as a new entrance, a pavilion, and electric trams. The engineers are Messrs. Kinnipole & Jaffray, and the contractors, Messrs. J. Cochrane & Sons.

WATER SUPPLY WORKS, &c., ST. HELENS.—At the Town Hall, St. Helens, on the 2nd inst. Colonel W. Langley, C.B.E., M.Inst. C.E., an inspector of the Local Government Board, opened an inquiry into the application of the St. Helens Corporation to borrow 67,328l. for several works which have been decided upon by the Council. The first item to be

borrowed, 20,281*l.*, is for works of water supply, viz., the erection of a new pumping station and works on the site already acquired at Melling, near Ormskirk, at an estimated cost of 17,428*l.*, and the laying of an additional 21 in. main from Portico to Brown Edge at an estimated cost of 2,800*l.* Another item is 25,000*l.* for gasworks purposes, and includes the extension of the works which was decided on some few months ago, including the reconstruction of two of the present gasholders, extension of the retort-house, new condenser and exhausters with engine, and new distributing mains. A further item of 17,000*l.* is required for the extension of the electricity works and the laying down of additional plant for the production of electric light. The next item was 2,600*l.* for works of paving, including the relaying of the following streets with granite—Peter-street (from Raglan-street to Wilton-street), Water-street, and Barrow-street. The last item is 2,500*l.* for the conversion of the portion of the Town Hall, formerly used as a library, into offices for the Borough Treasurer, and other alterations in the Town Hall. The various items were explained to the inspector by Mr. W. J. Jeeves (the Town Clerk), and further elucidated by the officers of the Corporation, Mr. J. J. Lachland (Water Engineer), Mr. E. L. Morgan (Assistant Surveyor), Mr. Samuel Glover (Gas Engineer), and Mr. Robert Hammond, of London (Consulting Electrical Engineer to the Corporation).

CATRINE WATER SUPPLY, KILMARNOCK.—At a meeting of the Kilmarnock District Committee, the Council, plans by Mr. Copland, C.E., for the proposed extension of Catrine water supply were submitted. Mr. Morton, Catrine, stated that the scheme was estimated to cost about 1,600*l.* The scheme was adopted, and the sub-committee instructed to proceed with it.

WATER-SUPPLY WORKS, HOLMFIRTH.—On the 2nd inst. Colonel W. Langton Coke, M.Inst.C.E., an Inspector appointed by the Local Government Board, held an inquiry at the Holmfirth District Council Room into an application by the Council for sanction to borrow 1,000*l.* for works of water supply, and for the erection of storage deposit buildings and public dustbins. There were present Mr. F. S. Whittell (Surveyor), Mr. H. Lomax (Clerk), Mr. Isaac Sykes (Sanitary Inspector), and others.

PROPOSED OVER-SEA PROMENADE, BLACKPOOL.—The authorities at Blackpool have been considering a scheme prepared by the Borough Surveyor for widening the promenade. As an alternative to this scheme, another is suggested by Mr. John Worthington. Briefly, Mr. Worthington proposes to relieve the promenade by erecting three large piers, each 600 yards long and 20 yards wide. He would erect first a large pier opposite the tower, with an entrance 100 yards wide, narrowing to 50 yards. Upon the pier will be erected shops, &c., and in every other respect the promenade space will be a free public highway. Mr. Worthington thus proposes to erect promenade over the sea. There is to be an upper deck and a lower deck, the lower deck being made of iron grating. The whole of this promenade space will be equal to four and a half acres. At the pierhead he proposes to erect a hydro, hotel, or pavilion, and the total cost will be 14,000*l.*

When the three piers are erected there will be added some fifteen acres of promenading space, which is equal to the entire space of the present promenade. He also includes in it a new sewerage scheme, shelters, and public conveniences, and other advantages. He claims that with the promenade thus relieved the existing promenade can be utilised without alteration for a double line of trams.—*Manchester Evening News.*

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, BROCKMOOR CHURCH, NEAR STOURBRIDGE.—A memorial window of three lights was recently placed in the chancel of Brockmoor Church, near Stourbridge. The subject is the Crucifixion, and the work has been executed by Mr. T. W. Camm, Smethwick, near Birmingham. A circular window has also been placed above the chancel arch, with the emblem of the Divine Spirit as a central feature.

WINDOW, KING'S COLLEGE CHAPEL, ABERDEEN.—A stained-glass window, in memory of Dr. N. Cam Robertson Smith, late Professor of Arabic at Cambridge, was unveiled in King's College Chapel, Aberdeen, on the 31st ult. The four principal lights of the window contain figures of the Hebrew prophets, Isaiah, Jeremiah, Ezekiel, and Daniel. These are from pictures by Sir Edward Burne-Jones. The window was executed by Messrs. Morris & Co., of Merton Abbey. The architect was Mr. A. Marshall Mackenzie.

WINDOW, CLEEVE CHURCH, GLOUCESTERSHIRE.—The west window of this church has been filled with stained glass in commemoration of the Diamond Jubilee of Queen Victoria. The subject selected is "Christ Raising Children," designed to occupy two panels, which are formed by an arrangement of foliated work of Early English type. In one of the bases is introduced the Royal arms, and in the other the shield of the Diocese. The window is the design and work of Messrs. Joseph Bell & Sons, of Bristol.

WINDOW, AXBRIDGE PARISH CHURCH, SOMERSETSHIRE.—A stained-glass window has been fixed in the east end of the Lady Chapel of Axbridge Church.

The subjects of the window are:—The Annunciation, the Presentation, and the Adoration of the Magi. The window is the design and work of Messrs. Joseph Bell & Sons, of Bristol.

WINDOW, ST. NICHOLAS'S CHURCH, FRANCIS-STREET, DUBLIN.—A new stained-glass window has just been erected in the Church of St. Nicholas of Myra, Francis-street, Dublin. The subject of the new window is the patron saint of the parish. The work has been carried out by Mr. John Earley, of Dublin.

FOREIGN.

FRANCE.—It is announced that M. Polipol, the painter, is to execute for the 1900 Exhibition a grand panorama representing all the principal phases of M. Faure's visit to Russia. We regret to announce the demolition of a very interesting old house in the Rue des Archives, built in 1687 from the designs of Mansard, and decorated with carved bas-reliefs by Coysevox. The house contained also decorative paintings by Lebrun, Coyvel, and La Fosse. The building of the large exhibition palace at the Champs Elysées has been commenced. M. Thomas, who undertakes the façade facing the Avenue d'Antin, has completed his design, which will include a large portico with pilasters, between two long galleries, the ceilings of which will be supported by twelve sets of coupled columns. The edifice will be surmounted by three domes, a large one in the centre and smaller ones at the two ends.

M. Lombard has obtained the first premium in the competition for the monument to Puget to be erected at Marseilles. He represents Puget standing on a square pedestal, holding in one hand a mallet; on the front of the pedestal is a figure of a woman in Provencal costume carrying flowers, and on the reverse side two children supporting a cartouche bearing the names of the sculptor's principal works. The monument, which is to be erected on the Place de la Bourse, will cost some 125,000 francs. The jury in the competition opened by the municipality of Avignon for a Market Hall, has awarded the first premium to M. Gabelle, "constructeur," of Marseilles. A considerable length of Roman road, with granite paving, has been unearthed at Fourvières, near Lyons; and some other remains, supposed to be those of a theatre. Reims is shortly to be connected more directly with Laon by a new railway line. The last remaining portion of the Palais de l'Industrie was demolished last week.

The French Government is taking into consideration the provision of a palace for the sovereigns who are expected to attend the exhibition of 1900. The palaces of Compiègne, Fontainebleau, and Versailles (all which have been thought of for the occasion) have been put out of consideration on account of their distance from Paris; and it is now proposed to purchase either the Château de la Muette, or Sir Richard Wallace's former château of "Bagatelle," in the Bois de Boulogne.

MISCELLANEOUS.

BUILDING CONSTRUCTION CLASSES, HIGH (EVENING) SCHOOL, GLASGOW.—All the twenty-six elementary, and nine out of ten advanced students, who were presented in the recent Science and Art examinations, have passed the respective stages. In addition to certificates resulting therefrom, the Glasgow School Board have granted class certificates of proficiency to twenty-six elementary, ten advanced, and four honours students. The opening lecture of the new session was delivered on the 6th inst.

SALE OF PROPERTIES.—The directors of the London Joint Stock Bank, Limited, have acquired the site of St. Michael's Church, Wood-street, for the erection of new branch premises. The church was closed a year ago, and the monuments and tablets were removed to St. Alban's, Wood-street. On July 21st, by order of the Ecclesiastical Commissioners, the materials and freestone (3,700 ft. superficial) were sold at auction for 31,500*l.*—Studley Castle estate, Warwickshire: the castle was built in 1834 for Sir Francis Goodricke, Bart., and it is said an offer of 100,000*l.* was refused in 1803 for the property, which covers 2,550 acres with a rent roll of 2,534*l.* per annum. The old castle at Studley, in what is now the Home Farm, belonged to William Corbusecon, temp. the Conqueror; his successor, Peter, gave lands and a mill there to the Knights of Jerusalem, which passed to the Knights of St. John of Jerusalem, 1313. Peter canons regular of St. Augustine, who removed to Studley in the reign of Edward III. William de Cantilupe, of Aston, and his son re-endowed the priory whose yearly revenue at the suppression was assessed at 125*l.* 4*s.* 8*d.*—Breadsall Priory, in the vale of the Derwent, and three miles distant from Derby, built late in the sixteenth century on the site of Holy Trinity Priory, founded temp. Henry III. for friars Eremitic, but afterwards converted into one for Augustinian friars. Edward VI. granted the property to Henry, Duke of Suffolk; it has since belonged to the Bentleys, Moseleys, Blands, and other county families. In the chancel of the parish church is a monument to Erasmus Darwin, the physiologist and

poet, who passed the last three years of his life at Breadsall Priory, which he inherited from his son, and which remained in his family until Sir Francis's death in 1859.

PROPOSED QUEEN'S STATUE, BELFAST.—It is proposed to erect a statue of the Queen in Belfast. The statue will be executed in Sicilian marble, and will be 11 ft. high. Her Majesty is represented in Royal robes, holding the orb in her left hand, and the sceptre in her right. Across her breast she wears the Ribbon of the Garter, and the skirt of her dress is embroidered with the rose, shamrock, and thistle. The pedestal is 14 ft. high, and will be executed in Irish limestone. The front is enriched with a large bronze cartouch, bearing the dates 1837-1897. On each side is a large bronze figure, representing the spinning and shipbuilding industries; and at the back is a figure, also in bronze, of a child reading, typical of education. The panel in front will bear the inscription of her Majesty's Diamond Jubilee message. The execution of the statue has been entrusted to Mr. Thos. Brock, R.A.—*Irish News.*

SCULPTURE MEMORIAL, NEAR DUPPLIN CASTLE, PERTH.—An angel figure is to be placed over the graves of the late Earl and Countess of Kinross in the old churchyard near Dupplin Castle. The winged figure, of Sicilian marble, is 5 ft. 6 in. in height. The figure is to stand on a rocky base, and the design of the memorial, which has been carried out under the supervision of Mr. Henry Seymour, architect, Edinburgh, includes an enclosing low balustrade of marble round the graves. The sculptor was Mr. Rhind.

VISIT OF THE SANITARY INSPECTORS' ASSOCIATION TO BELGIUM.—Very nearly one hundred members of this Association left Charing Cross on the 4th inst. for Dover, on their way to Belgium, reserved saloon carriages being provided by the South-Eastern Railway for the party, who were met at Dover by a contingent from the provinces. The party proceeded to Antwerp by the Belgian mail packet, and they were received by the Burgomaster at the Hotel de Ville at Antwerp. Sunday was devoted to visits to the sights of Antwerp, and on Monday the sanitary inspections were inspected. The members were due at Brussels on Monday evening to attend a reception by M. Bruyn, the Minister of Agriculture. Tuesday and Wednesday were devoted to business and pleasure, there being visits to the Exhibitions and a reception by the Burgomaster, M. Buis, a banquet to the members of the Conference, and a reception by the King. On Thursday there were receptions at Ghent and Bruges by the Burgomasters, at the Hotel de Ville in each case. The members of the Association were due at Ostend on Friday, where their final reception was to be held, and on Saturday morning they are due at Charing Cross on their return to England.

ORGAN CASE, ROYAL MANCHESTER COLLEGE OF MUSIC.—It is stated that the Council of the Manchester College of Music has recently received and accepted the offer of a new organ to replace the one at present in the large hall of the College. The case will be designed by Mr. Edward Salomons, and Messrs. Wadsworth & Brother, of Manchester, will be the builders.

CITY AND SOUTH LONDON ELECTRIC RAILWAY EXTENSION.—We understand that Mr. T. Phillips Figgis, of 5, Adelaide-place, E.C., has been appointed architect for the proposed new stations at London Bridge and Moorgate-street, the sites for which are at present in the hands of the contractors, who are boring for the tunnels.

PROTECTION FROM FIRE IN LONDON.—According to the report of the Fire Brigade Committee of the London County Council for the year ending March 31 last, the staff of the Brigade numbers 963. The actual disbursements during 1896-7 on maintenance, including pensions, were 164,726*l.*, and on capital 75,031*l.* 2*s.* 7*d.* The number of fires that occurred in the year was 3,616, of which only 122 are described as serious, there being in all seventy-seven lives lost. The number of points at which an alarm can be given is 583. Hydrants have yet to be provided in a considerable area.

CAPITAL AND LABOUR.

DUNFERMLINE JOINERS' STRIKE.—The Dunfermline joiners struck work a fortnight ago for an advance of wages to the extent of 1*d.* per hour, from 7*d.* to 8*d.* per hour. The masters have offered a compromise of ½*d.* and another ½*d.* in March when existing contracts are completed, and this offer the men have accepted and have returned to work.

LEGAL.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS AT NEWCASTLE-ON-TYNE.

THE case of Thwaites v. Wilkinson came before Mr. Justice Byrne, sitting as Vacation Judge, on the 8th inst., it being a motion by the plaintiff, of 26, Clarence-crescent, Newcastle-on-Tyne, to restrain the defendant from continuing or further proceeding with a building so as to obstruct the access of light to his ancient windows.

Mr. Cutler, Q.C., appeared in support of the application, and Mr. Millar, Q.C., opposed it.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Technical School, Public Library, and Public Hall,	Coine Corporation	50l. and 25l.	Oct. 20
Town Hall and Law Courts	Canter Corp.	500l., 200l., 200l.	Dec. 4
Board School for 550 Boys	Carlisle Sch. Bd.	20l. and 10l.	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Concreting (about 1,500 yards)	Bulman Bros Kirkcaldie,	Sept. 12
Additions, &c. Schoolhouse, Finsbury	Walker & Francis, Pl. Col-	Sept. 13
Bricklayers and Plasterers' Work at	James & Norman, Archt.	do.
Forty-seven Houses	Ewt Preston Union	James & Norman, Archt.	do.
Additions to Sch. 's	Governors, Deansfield	James & Norman, Archt.	do.
Works at Town Hall	County School	James & Norman, Archt.	do.
Painting Warehouse Buildings,	James & Norman, Archt.	do.
Gravelly Hill	James & Norman, Archt.	do.
New Draining Ties, Fawcett Work	James & Norman, Archt.	do.
House Hospital	James & Norman, Archt.	do.
Construction of railways	James & Norman, Archt.	do.
Business Premises, Abbey-street,	James & Norman, Archt.	do.
Accommodation	James & Norman, Archt.	do.
Bridge in Brickwork, Chat M. &c.	James & Norman, Archt.	do.
Painting, &c. Trinity Congregational	James & Norman, Archt.	do.
Church, Dewbury	James & Norman, Archt.	do.
Refectory House, Kesteven, Alford	James & Norman, Archt.	do.
Back Fittings, Halifax	James & Norman, Archt.	do.
Children's Hospital, &c. at the Broom	James & Norman, Archt.	do.
Attendance (to) various House	James & Norman, Archt.	do.
Forty-five Cottages, Postgraduate	James & Norman, Archt.	do.
Repairs to Bridges	James & Norman, Archt.	do.
Alterations to Bridge, Saltburn	James & Norman, Archt.	do.
Painting Sanatorium, Lylwell	James & Norman, Archt.	do.
Reconstruction of Roof over Yard	James & Norman, Archt.	do.
Painting, &c. Central Free Library	James & Norman, Archt.	do.
Cycle Factory	James & Norman, Archt.	do.
Two Blocks of Artisans' Dwellings	James & Norman, Archt.	do.
Alterations, &c. Premises	James & Norman, Archt.	do.
Additions, &c. Lark Edge Chapel	James & Norman, Archt.	do.
*Underground Conduits	James & Norman, Archt.	do.
Four-and-a-half Miles Pipe Sewers	James & Norman, Archt.	do.
Supply of Materials	James & Norman, Archt.	do.
Sixty-five Dwelling-houses	James & Norman, Archt.	do.
Maeser Hall, Portadown	James & Norman, Archt.	do.
Pair of Cottages, Slakeham-place	James & Norman, Archt.	do.
Pair of Cottages, Tottenham	James & Norman, Archt.	do.
Alterations to Virgin's House, Leeds	James & Norman, Archt.	do.
Warehouse, Harwell	James & Norman, Archt.	do.
Mixed School for 55 Children	James & Norman, Archt.	do.
Bacon Factory, Selby	James & Norman, Archt.	do.
Pipe Track, Bolinas Waterworks	James & Norman, Archt.	do.
Wooden Platform for Entertainment	James & Norman, Archt.	do.
Supply of Stores	James & Norman, Archt.	do.
Artisans' Dwellings, Ravenshorpe	James & Norman, Archt.	do.
Hire of H. res, Carls, &c.; Barging	James & Norman, Archt.	do.
Rebuilding	James & Norman, Archt.	do.
Harbour and Drainage Works	James & Norman, Archt.	do.
Harbour and Paving Road	James & Norman, Archt.	do.
Painting, &c. Water Tower and Tank	James & Norman, Archt.	do.
Water Supply Works, Llandudno	James & Norman, Archt.	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Cottage Houses, Shotley Bridge	Guardians of Gates-	C. A. Sharp, Archt. 24	Sept. 21
Pipe Sewers	Walway U.D.C.	W. H. Travers, Dist. Engr.	do.
*New Camp Sheathing at Lett's Wharf	Comms. of Sewers	Public Office, Church-	do.
1,700 tons of Limestone	Nastyle and Blain	H. M. Bates, Principal	do.
700 tons of Gravel	U.D.C.	W. L. Roach, Blains	Sept. 22
Enlarging Cylindrical Schools	Postyprid Sch. Bd.	A. O. Evans, Archt. Post	do.
*Hiring and Ventilating (Municipal	Plymouth Corporation	J. Paton, Borough Engr.	do.
*Removal of School	St. John (Hampstead) .....	.....	do.
School, &c. Des. Les.	A. W. Mackinn (U.D.) .....	.....	Sept. 21
Engine and Boilers for the Workshop	P. contract Union .....	.....	Sept. 24
Alterations, &c. to Board Schools, &c. .....	.....	.....	do.
Additions to Cluny Hill Hydro, Forres .....	.....	.....	Sept. 27
Grates for Cluny Hill Hydro .....	.....	.....	do.
Mater's for M. Fine Lake .....	.....	.....	do.
Mater's for M. Fine Lake .....	.....	.....	do.
*Broken Grand	Edmondston U.D.C. ....	.....	Sept. 29
*Asylum Foundations, &c.	West Ham Council .....	.....	do.
*Alterations, Underground Conven-	Comms. of Sewers .....	.....	do.
*Making-up Roads	Edmondston U.D.C. ....	.....	do.
*Building a Shelter	Met. Asylum Board .....	.....	Sept. 14
Dwelling-house, Pelson .....	.....	.....	do.
Widening R. way	North Eastern Ry. ....	.....	do.
*Erection of School	Booth School Board .....	.....	Sept. 30
Sinking and Boring Well, York-street	Yorkshire Pure Ice Co. .....	.....	No date
Alterations at Magdala Mills, Leeds .....	.....	.....	do.
*Enlargement, &c. of Workshop .....	.....	.....	do.
Four Cottages, St. Luke's-avenue .....	.....	.....	do.
Two Houses, Clowrie .....	.....	.....	do.
Warehouses, &c. Scotch-street .....	.....	.....	do.
Town Hall, Rother .....	.....	.....	do.
Drainage Works, District Infirmary .....	.....	.....	do.
Convent, Portadown .....	.....	.....	do.
*New Church, Ramsey, Huntingdon .....	.....	.....	do.
Six Houses, Delgrave-street, Skipton .....	.....	.....	do.
Farmhouse, &c. Water Fulford .....	.....	.....	do.
Steel Joists, &c. for a Convent .....	.....	.....	do.
Detached Villa, Fronton .....	.....	.....	do.
Hotel, Swanage .....	.....	.....	do.
Residence, Bransgrove, Looe .....	.....	.....	do.
Alteration to Licensed Premises .....	.....	.....	do.
Alterations to Licensed Premises .....	.....	.....	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applica- tions to be in.
*Clerk of Works	Enfield U.D.C.	£1. per week	Sept. 15
*Assistant Clerk of Works	Enfield U.D.C.	120l. per annum	do.
*Assistant Building Inspector	Balford Corporation	150l. per annum	Sept. 16
*Engineering Assistant	Aberdeen Harb. Burd.	200l. per annum	do.
*Surveyor	Aldershot U.D.C.	200l. per annum	Sept. 21
*A. Granger of Watering	Leeds Union of Art. .....	.....	Sept. 22
*Inspector in Mason's Work	Battersea Polytechnic .....	.....	No date

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. & viii. Public Appointments, pp. xvi. xvii. & xiv.

Mr. Cutler, in the course of his opening statement, said that on June 27 the plaintiff was informed by letter from the Town Surveyor of Newcastle of the fact that there had been deposited with the defendant the plans of the adjoining house (of plans for the defendant was the owner), and inviting the plaintiff to come and inspect them. The plaintiff went, but, being a postman and not a builder, he failed to grasp what the alterations meant; and on the next day he wrote a letter to the Surveyor, saying that he should object to the plans in order to shut the door to his making any possible objection. The plaintiff's affidavit in support of the motion was to the effect that he purchased the freehold of his house on April 25, 1884, subject to certain building regulations, and that there was a wall about 8 ft. 2 in. in height dividing his and the defendant's house and upon which the defendant was erecting his new building.

His Lordship asked how much higher the defendant's building had to go? Mr. Cutler said that when the plaintiff first saw the plans, the whole height was to be 22 ft. The defendant had not gone to that height, but what he had done was to go on building till the writ was issued, and then he stopped and filed an affidavit saying that there had been a change in the plan. His Lordship: How much higher is he going? Mr. Cutler: There must be in any circumstances a roof and chimneys, which, we say, cannot be less than another 5 ft. The learned counsel said that since the writ had been issued and served, the defendant's architect, in an affidavit filed on August 18, said that the plans had been changed, and that they were going to build 7 ft. less at the end of the wall most remote from the plaintiff's house, and 7 ft. less where it joined the plaintiff's house.

His Lordship: How much higher do you propose to take it, Mr. Millar? Mr. Millar replied that the walls, as he understood, were complete, and all that was desired to be done was to add the roof and chimneys. His Lordship: Will you undertake, if you are allowed to put the roof and chimneys on, to pull down if the Court orders at the trial? Mr. Millar said that he would do so. After some further discussion, his Lordship said, that on the defendant's undertaking not to raise the height of the wall, except to the extent of putting on the roof and necessary chimneys and undertaking to pull down if so directed by the Court at the trial, there would be no order on the motion, except that the costs be costs in the action. He directed that the action should be set down in the witness list at once, the parties to be at liberty (if they so agreed) to deliver pleadings in the vacation.

FARRINGDON ROAD, E.C.
THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 65,274 Holborn. Tels. Address: "SNEWIN, London"

TO CORRESPONDENTS.

W. H. Lascelles & Co.

ESTIMATES GIVEN ON APPLICATION

WHITE SILICA PAVING
SEYSSSEL ASPHALTE.

FARRINGDON ROAD, E.C.
THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 65,274 Holborn. Tels. Address: "SNEWIN, London"

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.
 Works—Aberllefenny, North Wales. Midland Wharf, Bow. Payne-road Wharf, Bow.
 Head Office and only City Address, 61, ST. MARY AXE, E.C. Branch House, 37, Victoria-street, Bristol.
 SEND FOR ILLUSTRATED PRICE LIST.

The Builder.

VOL. LXXIII. No. 2850.

SEPT. 12, 1897.

ILLUSTRATIONS.

Selby Abbey: Proposed Rebuilding of South Transept and Tower.—Mr. J. Oldrid Scott, F.R.I.B.A., Architect *Double-Page Ink-Photo.*
Colchester Town Hall: Third Premiated Design.—By Mr. E. W. Mountford, F.R.I.B.A. *Two Double-Page Ink-Photos.*
The Emperor William Memorial, Berlin. *Two Single-Page Tint Blocks.*

Blocks in Text.

Skellig Michael from the North	Page 215	Wall of enclosure, or "Cashel," at Skellig Michael	Page 216
Map of Skellig Michael	" 216	Ornaments on stone at entrance of the tumulus of Newgrange, by the	
Skellig Michael from the East	" 216	Boyne, Ireland	" 217
Skellig Michael, ascent to old door	" 216	Sandycroft Lodge, Turner's House at Twickenham	" 219
Some Furniture Sketches from South Kensington		Pages 220-221	

CONTENTS.

Plasterer on his Craft	213	The Auctioneers' Institute	223	Miscellaneous	226
The Ancient Architecture of Ireland	214	Competitions	223	Capital and Labour	227
Notes	217	The Tabernacle, Milton Abbas	223	Legal	227
Some Furniture Sketches from South Kensington	219	To Ambitious Architects and Others	223	Meetings	227
Selby Abbey: Tower and South Transept as Proposed to be		Effect of Iron on Teak	223	Recent Patents	227
Rebuilt	220	Student's Column: Quantities and Quantity-Taking. IX.	224	Competitions, Contracts, and Public Appointments	228
Colchester Town Hall	220	General Building News	224	Some Recent Sales	229
The Emperor William Memorial, Berlin	222	Sanitary and Engineering News	226	Prices Current	229
The Sanitary Institute Congress at Leeds	222	Foreign	226	Tenders	229

A Plasterer on his Craft.



THE importance of the plasterer's craft is a theme which needs no enlarging upon; never, certainly, can it have received so large a share of general attention as during the last few years.

Yet, as the author of a new, and in many senses remarkable, treatise* on this subject tells us in his preface, there does not exist a satisfactory modern guide to the practice of plasterer's work. "So far back as the time of my apprenticeship," says Mr. Millar, "when attending the classes of the Edinburgh School of Arts—the need of a practical book on plastering and modelling was greatly felt. It was thought remarkable that although many books, varying in size and in degrees of merit, dealing with other branches of the building trades, were in use, no such book existed on this ancient and honourable craft, and I believe that this is the first complete and practical work published on the subject." Mr. Millar, of whom, in a prefatory note, Mr. Robinson gives some interesting biographical particulars, is a working plasterer, a descendant from a long line of plasterers. Beginning with what his biographer well calls the *rare* advantage, in these versatile days, of a rigorous apprenticeship, he has worked through most parts of the United Kingdom, and even further, all the while accumulating material for this book, the writing of which has been his life-long ambition. The work was regularly begun so long ago as 1880, but has been hindered by an almost unparalleled series of misfortunes, surmounted with a pluck and persistency really admirable. The author has both worked and observed, and read extensively besides; he has seen both sides of trade questions, from the point of view of workman and of master, and can very justly claim that he is fortified by a life-long study of the subject, together with a most varied experience, for the task of furnishing, for the use of his brethren of the craft, "a practical treatise on the manufacture, use, and manipulation of all materials, and a description of

the numerous processes employed by plasterers and modellers."

"Plastering" is truly a monumental work, and, whatsoever its shortcomings, it is, and must for long continue to be, a text-book of primary importance. In these days of brief and scrappy manuals, of compilations written to order by versatile penmen, ready to work up any subject for the nonce, it is in the highest degree refreshing to meet with a book such as this, having the deliberate aim of being complete at all costs, written by a man steeped in his subject to the core, evidently from first to last a labour of love. A short time ago the Bishop of London, speaking to students on the subject of reading, declared in the most emphatic manner that knowledge, so far as it could be gained from books, must be sought for in "big books"; folios actually, the Bishop went so far as to say, he most preferred himself and recommended to others. This is advice worth remembering, when there are so many people always ready to quote the shallow proverb about a great book being a great evil: although the book we are considering is certain to be called ponderous, that quality is by no means in itself a fault. We are far from saying that in the six hundred and odd pages which compose this particular book there is nothing which might not, without any loss, be omitted. There are passages in plenty which the most lenient critic would call either verbose or superfluous. But there is much more to be learnt from a man who *knows* his subject, when he is allowed to tell everything that his heart prompts him to say about it, than when he is bound down to give the best account of it he can in, say, the two hundred and fifty small octavo pages of an ordinary handbook. So Mr. Millar, as a genuine lover of everything even remotely pertaining to his craft, may be pardoned for his general diffuseness and frequent digressions, on account of the immense body of really valuable *first-hand* information which his book unquestionably contains. His work becomes of great importance when it is considered as the first attempt of a comprehensive kind, by a man who has spent his life in the actual handling of plaster and the cognate materials, to impart freely and fully all the results of his experience. This experience seems to have been unique in combined extent and variety, and the time will probably be long before the appearance of a rival in this particular field; so, for better or for worse, "Millar on Plastering" may be expected to be the

standard authority on the subject for many years to come.

Of the three sections—"plain," "decorative," and "historical"—into which, according to the title-page, this book may be divided (though they do not form distinct and consecutive parts, but are considerably interwoven), the first is altogether the best as well as the most prominent. Technical excellence as an ideal is, in fact, the predominant note of the book, and it is for practical, rather than for artistic or literary, virtues that it chiefly deserves to be recommended. Chapters II. and III., dealing with materials, give as comprehensive and thorough descriptions as could be desired of the various kinds of plasters and cements, from the stage of raw material to that of readiness for use; they include directions for many methods of testing, clearly explained, and qualified by pertinent remarks as to their respective values; and are well brought up to date in respect to patented plasters and metallic lathing. No decided opinion is pronounced upon the desirability of adding salt to mortar as an antidote to frost, or sugar to obtain greater tenacity, but these questions are very fully discussed; their treatment being a good example of the author's general method. He gives, as a rule, the complete facts of all the observations attainable both from ordinary work and from special experiments, thus allowing the reader to gain an idea of the *pros* and *cons* which so often prevent building practice, even in its most strictly constructional aspect, from being treated as an exact science. Yet it cannot be said that Mr. Millar is never dogmatic; as, for instance, when he asserts that "in the case of cements of all kinds sand is only good for lessening the cost of the aggregate"—a sweeping disposal of a matter about which there is room for legitimate variety of opinion. Chapter VI. is a good and workmanlike exposition of the ordinary processes of lime-plastering. The care of the author to include everything which might even seem worthy of notice is well exemplified here. After devoting a whole page, and three figures, to describing a mitre-mould for cornices, he tells us that it is utterly useless, since an average plasterer could put in all the mitres of a room while the mould was being made. Nevertheless, he is "constrained to give a description, not only to save future futile controversy, but to show that in this book the much-debated trade subject has not been omitted." There is a ring of finality about this very expressive of

*"Plastering, Plain and Decorative. A Practical Treatise on the Art and Craft of Plastering and Modelling." By William Millar. With an introductory chapter, entitled "A Glimpse of its History," by George T. Robinson, F.S.A., pp. xvi., 604, pl. 52., 4to. London: E. T. Batsford. 1897.

the spirit in which the book has been conceived and carried out. This chapter contains ample advice on dealing with cracked and damaged plaster work, which should be as acceptable to surveyors as to plasterers, and concludes with a discussion of "joist lines" on ceilings and their prevention.

"Decorative ceilings" (to be again referred to) and "Running diminished and circular mouldings" occupy the next two chapters. In the latter many highly ingenious instruments and methods of working, some of them of the author's own invention, are described. These are useful and even necessary for carrying out designs of a certain sort, though on the whole they appear too elaborate and mechanical; that, however, is not primarily the fault of the plasterers. "Exterior plastering" is the title of Chapter VII, and the greater part of it has a very old-fashioned air, being nothing less than a glorification of the practice, happily not at present in much repute, of imitating Classic and Renaissance façades in Portland cement. Many "beautiful," "noble," and even "exquisite" instances of the use of that material for London exteriors are described, with unquestionably genuine enthusiasm, and the cement-fronted portion of Victoria-street comes in for a degree of admiration which it is commonly supposed to have out-lived. Examples follow of appropriate details for this class of work—Doric porticos, Ionic niches, and the like, taken bodily from Gibbs and Chambers, till we seem to have slipped backwards half a century at least. Mr. Millar does not quote the epigram on the designer of Regent-street:—

Angustus at Rome was for building renown'd,
For of marble he left what of brick he had found;
But is not our Nash, too, a very great master?
He finds us all brick, and he leaves us all plaster.

But he would doubtless consider it a very high compliment. Under the same heading of "exterior plastering" are described, rather inappropriately, the processes of sgraffito and fresco decoration. As to the former, although no physical impossibility precludes its adoption, it is a thing which, for external use at any rate, is better avoided in this climate; while to work in fresco out of doors in this country would verily be "ploughing the sands." The important branches of the plasterer's craft comprised under the heads of modelling, moulding, and casting, including fibrous plaster work, are most exhaustively treated. Several chapters, plentifully furnished with clear illustrations of details, and containing many useful recipes, are devoted to these subjects, and are followed by one on the making and using of "compositions," gesso, papier-mâché, and carton pierre, besides newer inventions. It was probably considered necessary from a "trade" point of view to instruct the young plasterer to concoct that detestable substance "scagliola;" though it seems a grievous waste of time to give such minute directions for producing effects of spurious grandeur by the imitation of the noblest of nature's materials; such unhealthy "art" deserves condemnation rather than encouragement.

Terra-cotta work might appear to be somewhat beside the scope of Mr. Millar's book, but he thinks that the modelling and moulding stages may pertain to the plaster-modeller, and accordingly gives general instructions for terra-cotta manufacture. Concrete, however, in the form called "fine concrete," is a material the handling of

which is becoming one of the principal sources of employment for plasterers. The author is not so much alone here as in other portions of his book, the modern literature of concrete being fairly voluminous; to mention no others, there are the very useful works of Mr. Potter, to which, we are pleased to see, Mr. Millar makes reference. But among the pioneers of the new developments of concrete, which have given it so large a place in modern building, Mr. Millar has himself been one of the busiest, and the information which he gives on this subject is both varied and interesting. His account of the construction of floors, pavements, and stairs, is particularly good, and leaves little room for improvement; as to steps, however, merely grooving or indenting the treads is hardly enough to ensure pleasantness in use, and there is much to be said for the addition of hard-wood treads to such stairs, a combination which Mr. Millar does not notice. Concrete lintels are disposed of in two lines, though some less desirable applications of the material receive more than adequate attention. The practical section of the book comes to an end with a chapter on "Rudimentary geometry and architecture," in which the architecture is of a singularly dry and antiquated type, suggesting an early edition of "Gwilt," and a much more useful one on "Tools and appliances," wherein the author shows himself thoroughly at home, as also in the Appendix, containing memoranda, quantities, and recipes.

One remarkable omission must be noted here. Nothing at all is said, except in the historical section, about the use of plaster in combination with timber for external work. Seeing the popularity of this class of work, the quantity of it constantly in progress in every part of the country, and the variety of questions concerning it perpetually recurring in the building journals, it might be expected that the best methods of carrying it out would have received due consideration. There are plenty of practical points in this connexion upon which good instructions are greatly needed, and would, we believe, be much welcomed. Whatever purists may say about such work being nowadays out of place, there is no question but that people like it, and will have it; wherefore it seems a mistake to ignore it altogether in what professes to be a complete craftsman's guide, and in which economy of space has certainly not been thought of.

The artistic interest of the book is mainly concentrated in the historical portions, the joint production of the author and of Mr. George T. Robinson, which are copiously illustrated with engravings and photographs from various sources. To the modern specimens of ornamental plaster work designed or collected by Mr. Millar it is impossible to give any praise; they may be faultless in execution—from a clerk of works' point of view, but regarded as examples of what designing in plaster ought to be, they can only be described as pretentious failures. Mr. Millar appears to be impressed with the idea that the principal function of the plasterer is to imitate the work of the mason, and, next to that, of the wood-carver; of real "style" in plaster he has no conception, and in artistic discernment generally he is sadly lacking. Mr. Robinson's introductory chapter is, of course, well done, and contains a great deal of curious information; it is a pity,


however, that it overlaps so much with Mr. Millar's own first chapter, oddly entitled "An Account of Historical Plastering in England, Scotland, and Ireland," and also with his sixteenth chapter on "Foreign Plaster Work." The greater part of these three chapters might have been thrown together into one consecutive account with much advantage. As to Mr. Millar's own share of the book we may, as his coadjutor says, be well satisfied that he has written down his own "shop knowledge" as intelligently and intelligibly as he has done, and he himself modestly depreciates literary criticism. Seeing, however, that Mr. Robinson undertook the revision of the work and a general editorial responsibility, it is to be regretted that he did not take greater care to secure the accuracy proper to a permanent book of reference. Passing by the awkward inversion on the title-page, "An Account of Historical Plastering, &c.," for "A Historical Account of Plastering," we several times come across evidence of the strange confusion of ideas implied in such headings as "Plastic Literature," "Plastic Terms," and even "Plastic Materials," the last including such distinctly non-plastic things as laths and nails. After this it is not so surprising to be told that gypsum is "so named from two Greek words—*ge*, the earth, and *epsun*, to concoct, *i.e.*, concocted in the earth;" that "Callimachus was called by the Athenians 'Katatexnos';" or that "the Mediævalists were excellent plasterers." Another form of carelessness is shown in assigning work by Inigo Jones to the year 1750, and in describing Sir Charles Barry as architect of the new rooms added to the National Gallery in 1876. Of ordinary printers' errors there are not many of importance, and the typography generally is very good, especially considering the price (18s.) at which the book is published. The number and quality of the illustrations by themselves render this a remarkably cheap book; many architects as well as master-plasterers ought to be glad to obtain so reasonably such a representative series of specimens of old work, together with such clear diagrams, explanatory of modern processes; and notwithstanding that Mr. Millar is not quite in touch with present-day tendencies in design, there can be no question as to the solid, practical usefulness of the major portion of his work. In taking leave of him we feel that we have been in the company of a thoroughly conscientious, as well as capable, worker, well endowed with that peculiarly Scottish form of genius, "an infinite capacity for taking pains," and congratulate him on having left such a legacy to his craft as will connect his name with it as intimately and as durably as that of Tredgold is with carpentry.

THE ANCIENT ARCHITECTURE OF IRELAND:

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

By PROFESSOR BALDWIN BROWN.

I.

N commencing a brief series of papers on early Irish buildings it may be well to note that many of the types that they present are not confined to Erin, but are found also in Wales, in Western Scotland, in Cornwall, in the Isle of Man. There, however, we

have to deal rather with fragments and indications than with existing monuments. The Hibernian examples, on the other hand, are comparatively numerous and well preserved, and exhibit some interesting types peculiar to the country and not actually found in other parts of our islands. Hence it is convenient to apply the term "Irish" to the whole class of structures in question, though examples of them may occur elsewhere. What is said about the Irish work will be, of course, appropriate to similar monuments along the whole of our western sea-board.

Irish architecture has been fortunate in its literary treatment. Since the epoch-making work of George Petrie there have been published Lord Dunraven's "Notes," with the invaluable photographs which give the aspect of the monuments prior to the progress of restoration applied to them in more recent times, while Brash's "Ecclesiastical Architecture of Ireland" and the widely-known works of Miss Margaret Stokes have been supplemented by numerous monographs and papers in antiquarian journals, in one or another of which almost every structure of importance has been dealt with in a thoroughly critical spirit. In what follows it is proposed to keep in view the special object of determining what light Irish monuments may throw on the problems of pre-Conquest architecture in our own country.

The early architectural history of Ireland, and, if we like to add, of Wales and Western Scotland, has this special element of interest, that it unfolds itself in almost entire independence of classical influences. Elsewhere in Europe mediæval architecture is based in the main upon Roman traditions of building; in the Romanised West, antique models were naturally followed; while the lands that lay beyond the Empire to the North received their Christianity so largely from Roman sources that their ecclesiastical architecture conformed to the types established to the south and west of the Rhine. Even in Norway the wooden churches of the eleventh and twelfth centuries exhibit, in many features, a timber rendering of classical forms, while early Saxon buildings in England have always Roman elements, which appear in details if not in plans and methods of construction. Ireland, on the other hand, never received Roman civilisation, and her Christianity was of a markedly non-Roman character. It is true that there was close intercourse in early Christian times between Hibernia and the Continent, and this would have made it natural for the Irish, had no native models been available, to conform, in their ecclesiastical buildings, to Continental fashions. As a fact, however, Ireland, with the adjacent lands already indicated, enjoyed in this respect a certain advantage over the rest of Europe. Elsewhere in the West there are abundant remains of remote pre-Christian antiquity, but they are generally in the form of sepulchral monuments or works of defence, not in that of habitations. They have no distinct architectural character, and in consequence make no appreciable contribution to the future forms of mediæval building. The habitations of the same primitive period were of slight and perishable materials, and incapable of starting a constructive tradition. On the other hand, upon the exposed sea-board of Western Britain the exigencies of the

climate made it necessary for dwellings to be erected with the same solidity as walls of defence, and we find accordingly a technique of stone roofing established there from a very early period that was specially elaborated in Ireland, and has had there a remarkable influence on the subsequent development of architecture. In these regions the first Christians could erect a stone house or a stone church in a purely native manner without recourse to Continental models, and that the Irish made a specially full and consistent use of this facility is the first point of interest about this unique phase of Christian art.

Connected with this continuity between Pagan and Christian traditions, there is another noteworthy feature about Irish mediæval buildings—the sequence of clearly marked types which they present. The approximate dates of individual examples may be as difficult to fix as in the case of any other phase of architecture, but the chronological relation of type to type is fairly clear, so that when we find Christian structures agreeing closely in type with those of Pagan origin, we may with confidence ascribe them to an early period. A building connected by tradition with the name of an early Irish saint, that is constructed entirely on native principles, and shows no sign of Roman features or technique, may be ascribed with some probability to the sixth or seventh century, while those that exhibit Roman forms and a greater conformity to Continental patterns, or have features which, like that of the tower, belong to mediæval rather than early Christian times, are proportionately later. Here, again, the student of Irish architecture is exceptionally favoured. Elsewhere in Europe it is not easy to find representative works of the ninth and tenth centuries. Such must doubtless exist, especially in Italy, but they are not easily identified. Their scarcity is, in certain regions, often accounted for by the invasions of the Northmen, which are held to have checked building operations within the sphere of their devastating influence. In Ireland, however, there is a whole class of structures that belong to this very period and represent an architecture not crushed but stimulated by these very invasions. The reference is, of course, to the round towers, the earliest of which, according to the view now generally accepted, were built as refuges and places of safeguard for lives and treasure in these times of danger. The round towers are always found in connexion with other ecclesiastical structures, with which they afford valuable points of comparison, and we may thus claim that in Ireland we have not only early Christian but also early Mediæval architecture illustrated by abundant and interesting monuments.

If the centuries from the sixth to the eleventh are thus continuously represented, we find new features of interest when we approach the date of about 1100 A.D. This brings us to the period of Irish Romanesque. The earlier ecclesiastical structures already noticed are practically unadorned, but some of those dating about 1100 to 1150 A.D. exhibit a profusion of carved enrichment in which the spirals, the interlacings, and the lacertine grotesques of Hibernian illuminations and metal work are seen mingling with other more regular elements of European Romanesque. The question how far this interesting phase of art was original, how

far derived from Continental sources, has been much discussed, and some attention must be given to it in the sequel. The almost universal use in it of the chevron ornament suggests at once the influence of the Norman carver, though it must be borne in mind that the work appears at its best in Ireland before the Normans actually entered the country. The chevron, if we admit it to be Norman, supplies a valuable criterion of date, for the limits of time within which it was used in Norman or Normanised lands admit of being pretty narrowly fixed. These points, however, must be left for a future paper.

The earliest ecclesiastical structures in Ireland are monastic. All over the country these are to be found in the form of small churches, often in groups of three or four, in connexion with which came to be erected at a later time the famous and interesting round towers. In the west, moreover, these churches are accompanied by the remains of domestic buildings that are, in their way, of equal interest. The preservation of these is due to the fact before noted that they are in these regions built of stone to resist the storms of that wind-swept shore, while in more sheltered parts they were of wood or wattle and clay, and have now naturally disappeared. Along the western coast of Erin these monastic settlements are almost as numerous as are the capes and islands themselves, and they are equally abundant on the islets that stud the inland lakes, such as those along the course of the Shannon. The most remote and least accessible of all is at the same time one of the most interesting. This is the monastic settlement near the summit of St. Michael's Rock, or Skellig Michael, one of two lonely crags that shoot up from the Atlantic waves some eight miles from one of the westernmost promontories of Kerry. Skellig Michael was described and illustrated in the *Builder* of September 12, 1891, and February 20, 1892, and what will be said here is only supplementary to the accounts there given. The view in fig. 1 shows the aspect of the rock as it is

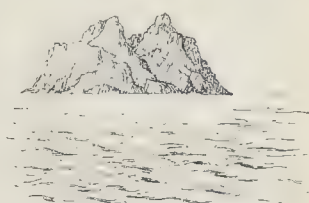


Fig. 1.—Skellig Michael, from the North.

approached from the North, and the sketch map, fig. 2, exhibits the topography with sufficient clearness to make any fresh description unnecessary. The traces of human handiwork on the rock are of three periods, early Christian, mediæval, and modern. The high antiquity of the monastic structures themselves is rendered certain by the fact that they exhibit that resemblance to pagan works which, as we have seen, is the surest test of age, while there is only one of them, the so-called church of St. Michael, that gives any indication of a more advanced technique. The Irish annals tell us little about the settlement; but it was important enough in 823 to attract the hostile notice of the Vikings, who carried away and starved to death one of its



Fig. 2.

inmates. It is stated to have been revived later on in the ninth century, but at some subsequent period that cannot be fixed the settlement was transferred to the mainland. The rock became then a place of pilgrimage rather than of residence, and was frequented for this purpose throughout the mediæval and more modern epochs. Dr. Smith in his "State of the County of Kerry," published in 1756, gives the authority of Keating for the statement that this "high and stupendous rock" had been visited by great numbers of people "ever since the time of St. Patrick," and tells us also—in this case upon his own authority—that, though about twenty years before his own time people used to come from the remotest parts of Ireland to perform the pilgrimage, "the zeal of such adventurous devotees hath been very much cooled of late." These facts show that the various stations, crosses, retaining walls, steps of access, and the like, on the rock need not all be referred to a remote antiquity. It would be the work of some days to trace out the connexions and probable history of all these, and the visitor to the Great Skellig has generally to confine his visit within the space of a few hours. Hence a good deal still remains to be done on this most interesting site.

Besides the monastic settlement itself, the oldest thing on the rock is doubtless the stair of access leading straight up from the landing-place at the north-east corner of the island to the original, but now blocked, door of the enclosure. The view of the rock given in fig. 3 shows on the left this landing-place, while the outer wall of the enclosure or "cashel" is seen far above, just at the top of the rounded hollow on the left of the peak. The lower part of this access has been destroyed, and the point where it now begins,

about 120 ft. above the sea, can only be reached by a scramble. From this point it is well preserved, and consists of a stairway



Fig. 3.—Skellig Michael, from the East.

of more than 600 steps that zigzag up the steep bed of the gully shown in the view. The date of the existing steps it would be

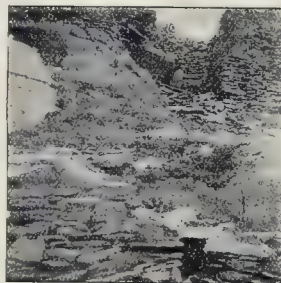


Fig. 4.—Skellig Michael, ascent to old door.

rash to attempt to fix, but they are very carefully formed of slabs of slate bedded well

into the ground of the gully, and in places elaborately terraced up with dry stone walls similar to those of the monastic enclosure above, while they end at a doorway shown in fig. 4, whose joints of upright stones and flat lintel recall the entrances to Pagan forts. The character of the enclosing wall at this point, where it is carried along the top of a steep, though not actually precipitous, slope, is shown in fig. 5. The rock in the middle



Fig. 5.—Wall of enclosure, or "Cashel," at Skellig Michael.

distance is the Little Skellig, a famous haunt of the Gannet, or Solan Goose.

On the map will be seen a point in the centre of the island between the two peaks that is marked "Christ's Saddle." This is in the form of a grassy hollow carpeted with sea-pinks, from which various paths will be seen diverging. From here a flight of steps lead in a north-westerly direction to the monastery, and there was, apparently, also a descent to the North at the back of the peak behind the monastery, which was not explored by the writer. There is a way also from here to the highest point of the rock on its south-western summit, where it rises to a very sharp peak girdled by precipices and only accessible up a narrow gully. This is the scene of the pilgrimages referred to above, and there are crosses and stations and points in the rock so hazardous of access that to climb out to them was an act of penance. From Christ's Saddle long flights of steps descend towards the sea. These are not nearly so well put together or so antique-looking as the direct flight leading to the monastery from the landing-place, and the slabs forming the steps are not so deeply bedded in. The access is probably mediæval in origin and only dates from the era of the pilgrimages, while the present steps have a quite modern appearance.

The third era in the works upon the rock is marked by the long modern path half way round the island, from the cove on the north-east to the light-houses at the south-western extremity. This was constructed by blasting some years ago by the Trinity Board, and has brought into use again what must have been, as we have seen, the original landing-place. This was, apparently, disused in mediæval and later times, for Smith tells us that in his day the only two landing-places were on the south and the south-west. Visitors now land at the ancient spot, where there is an imposing cave, and follow the modern path skirting the sea to the foot of the mediæval ascent to Christ's Saddle, from which they reach the monastery through a comparatively modern entrance.

The character and arrangement of the

monastic structures, consisting of small oratories and bee-hive cells, have been illustrated in the previous numbers of the *Builder* already referred to, and need not here be described, but before we leave this spot of unique interest and beauty we may allow our thoughts to dwell for a moment on the life of which it was one of the centres, and on all that that life meant for Christendom.

An effort has been made by Professor George Stokes to connect the Irish monastic system with the East, and especially with Egypt. The connexion is possible, but direct proofs of it are, apparently, not forthcoming. One piece of evidence of the kind may be worth recording. Gregory of Tours (*Hist. Franc.* vi. 6), tells us of a monk inhabiting the Mediterranean coast, near the modern Nice, who had a fancy for living on the same roots that served for food among the ascetics in Egypt, and that were brought to him by vessels trading with Alexandria. This story associates Egyptian monasticism with that of Provence, and when we remember that a very good authority for the life of St. Patrick makes the Irish evangelist study for his life work in the "islands of the Tyrrhene sea" (Lérins, &c.), we can carry the thread of connexion in the same early times to distant Hibernia. Yet to insist on such a connexion is quite unnecessary. It is



Fig. 6.—Ornaments on stone at entrance of the tumulus of Newgrange, by the Boyne, Ireland.

true that Celtic monasticism agrees with Oriental in its adoption of the solitary life in contradistinction to the life in common of the Benedictine communities. But the love of solitude is only one of the tendencies in Celtic monasticism, and is balanced by the quite opposite passion for wandering, and for missionary enterprise. The Irish monks were no mere hermits whose energies stagnated in such isolation as the Oriental ascetic made the law of his existence. They were men of force and of initiative, as well as of meditation. The most profound and heart-searching introspection alternated in the habit of their lives with outbursts of missionary fervour, that carried them through infinite dangers and hardships to far-off goals. The striking early Christian romance, known as the voyage of St. Brendan, represents a poetic embellishment of real incidents. St. Brendan's countrymen extended their missionary voyages certainly to Ireland, if not to regions much further west.* On the continent of Europe they became the most indefatigable of missionaries, and their work in Great Britain forms one of the most interesting episodes in our ecclesiastical history. At a time when

the Augustinian mission to Canterbury is attracting some special attention, it is worth while to recall the words of Bishop Lightfoot, who calls Augustine the Apostle of Kent, while the Apostle of Britain was Aidan of Lindisfarne. It was Aidan and his companions who had the largest share in the conversion of the Teutonic conquerors of England, while the emissaries of the Gallic Church and the monks sent over by Pope Gregory divided the rest of the work. Lindisfarne was the mother of the most enthusiastic and effective missionaries to our forefathers, and Lindisfarne was a daughter of that Iona which represented a great crusading movement of the Irish against the heathenism of Northern Britain. It was in places of solitude and retirement, like the capes and islands of Erin, that the missionary fire was kindled and fed till it burst, ever and anon, into the fervour of a Columba, an Aidan, or a Cuthbert. These island monasteries, like the Skellig, were not the haunts only of self-absorbed devotees whose only reck was of their own private salvation, but of men who were ready, when occasion came, to lay down their own lives to win the souls of others to Christ. We breathe upon the peaks of this "high and stupendous rock" the free air of sky and sea, but not less exhilarating is the mental impression that we are here at the source of a stream of Christian influence that flowed with beneficent effect over all the land of Britain and beyond. It is true that the work of the Celtic missionaries was, as far as could be, obliterated by the ecclesiastical statesmen who ultimately won for Rome the supremacy of the West. We may suppose that the cause of Rome was pleasing to the gods, for at any rate it was the victorious cause, and ecclesiasticism conquered and ruled the mediæval world. The true successor of the Apostles was, however, neither Pope nor territorial prelate, but rather the single-hearted preacher of the faith whose memory is still alive in Northern Britain, and who drew his inspiration from among the mountain breezes and the waves of wind-swept Erin.

NOTES.

WE have before referred to the occasional practice in Paris of inscribing the architect's name on a building. It may be of interest to notice that the Belgian architects have now, practically one and all, adopted the custom of inscribing their names on buildings executed from their designs. The position selected for the name is generally at the right-hand corner of the main front, the lettering, as a rule, being in small capitals, and by no means arranged in such a manner as to look like an advertisement. We understand that this custom was first initiated by some of the younger members of the profession, but with the increasing public interest in architectural matters—an interest which has been so carefully fostered by the representative societies of Belgian architects—there has actually been a demand on the part of the general public to have the name of the author of a design as easily available as is the case with a painting or a piece of sculpture. Of course there have been a few black sheep in the profession who attempted to utilise the new custom for advertising purposes, but fortunately, both the Belgian authorities and the public appear

to be able to discriminate between the so-called "signature" and the mere *affiche*. There is one peculiarity in connexion with the custom, and that is that the architect's name is rarely to be found on bad work, and we have even noticed one or two buildings which look like those of a beginner, where the name has been on, but has subsequently been erased. A leading Belgian architect only lately remarked that the "signing" should be compulsory for all architects. The bad designer would then soon be weeded out as public taste was sufficiently advanced in Brussels to recognise an architectural eyesore, and public opinion sufficiently strong to boycott the author of a monstrosity. Surely we are yet far from having such an ideal state of affairs?

In a preprint that has reached the "Old Athens Temple," us from the forthcoming number of the "Athenian Mittheilungen" (1897, xxii.), Dr. Dörpfeld reopens the vexed question of the relations between the "Old Athens Temple," the Parthenon, and the Erechtheion. Since he last discussed the matter (in 1890) no less than nine monographs on the subject have appeared, one of which, by Mr. J. G. Frazer (in the "Journal of Hell. Studies," 1892-93, page 153), had been widely read in England. Mr. Frazer's main contention was that the "Old Athens Temple" was never rebuilt after the Persian wars. Dr. Dörpfeld, as is well known, has steadily maintained that the Temple was never fundamentally destroyed, that it was immediately restored, and its opisthodomos was constantly in use as a treasure house; moreover, that it was visited by Pausanias and its contents described, and alluded to by Strabo as the ancient temple of Polias, which contained the famous lamp of Kallimachos. It is impossible in the brief space of a Note even to summarise the complex argument with its many side issues. We can only briefly state that Dr. Dörpfeld maintains his old view, supporting it by fresh arguments and with but one important modification. Formerly he held that the old Temple was seen and described in the famous lacuna (I. 42. 3), now he holds that at that point Pausanias only passed *outside* the Temple, deferring his description of the inside till after he had visited both Parthenon and Erechtheion. Further, he now maintains that the ancient image of Athene, which was to have been re-inshrined in the Erechtheion, never left the old Temple, but was seen there by Pausanias.

THE Société Centrale d'Architecture de Belgique, which celebrated the twenty-fifth year of its existence this summer, has published a pamphlet dealing with its origin, purposes, and the results achieved by its activity. Founded in 1872 with a membership of fifty-nine, the society now has a roll of 264. The library already counts over one thousand volumes, besides a collection of no less than sixty technical journals, which are kept on files, and the fine lecture hall and rooms in the Royal Exchange certainly rival those of many of the older societies. The President of 1872 (M. V. Dumortier) was re-elected to this office for the present year. He has also been in the chair from 1873-1876, and 1884-1886. The exhibitions arranged by the societies during the eighties

* See an article on St. Brendan by Rev. J. G. Mackay, in *Blackwood* for July, 1897.

were of considerable importance, whilst its excursions were particularly well managed, and included two visits to England, and several to Germany, France, and Holland, respectively. About one hundred important public competitions have been arranged under the auspices of the Belgian society, including the principal ones for the Belgian Government and municipal buildings. Our contemporary *L'Emulation* is the organ of the Society, which founded it in 1874. Among other matters taken in hand by the executive, were the regulation of architects' charges, the definition of professional responsibilities, the formation of a mutual defence fund for the support of test cases and watching legal proceedings of general interest to the profession, &c. The Society also took up the question of diplomas for architects, and the formation of a special architectural college with a five years' course.

In accordance with a recommendation of their Parks and Open Spaces Committee (see the report in our columns of March 27) the London County Council are putting into repair the iron railing, with its dwarf retaining wall, around the garden. We are credibly informed that it is the original railing which replaced the earlier wooden post-and-rail upon the passing of an Act in 1735 enabling the residents around to levy a rate upon themselves in order to enclose and beautify the Fields, and to keep them free from the disreputable characters, cited in Gay's "Trivia," who used the ground as a common resort. The design of the then new palisade, which retains some of the lamp standards, was approved by the Duke of Newcastle, who lived in Powis House. The railing is about 2,100 ft. long. The Council, who voted 600*l.* for the work, will also widen the gateways to 7 ft.

THE Municipal Administrative Authority of Paris has just published a very interesting account of the subterranean quarries above which entire districts, and those very populous, have been constructed. It appears from this document that the area of undermined streets is 771 hectares, and that, of the twenty arrondissements of Paris, seven only are exempt (the 1st, 2nd, 3rd, 4th, 7th, 11th, and 17th). All the others are in part undermined more or less extensively, especially the 14th arrondissement, Montrouge, where serious accidents have already occurred, and under which the honeycombing extends for 1,233,349 metres. The total length of the streets which are undermined is 164,328 m., of which 69,322 have been underpinned. The park of Montsouris, the Buttes Chaumont, the Trocadéro, part of Montmartre, the Church of the Sacred Heart, &c., cover very extensive caverns. This condition of the Parisian terrain necessitates great precautions and incessant vigilance, and although during the last half century the subsoil of the capital has been upturned in all directions, the Survey Department believes that there may still exist under the streets other caverns quite unknown, which are not shown in the important publication issued under its care.

A DAILY contemporary says that the Marquis of Lothian has just restored portions of this highly interesting example of Scottish

domestic architecture in the sixteenth century, which occupies the site of an earlier fortified stronghold on the Jed, within a short distance southwards from Jedburgh. The Kerrs of Ferniehurst—now represented by the Marquis of Lothian—with the Kerrs of Cessford (Dukes of Roxburghe), settled on the borders in the thirteenth century. Thomas Kerr, of Kerraheugh, built a castle in Jedburgh Forest, which he named Fairhurst, or Ferniehurst, in or about 1470; it was ultimately destroyed in 1571 by Lord Ruthven. Its successor, which bears over the doorway "A. K., 1598," is L-shaped on plan, with an angle turret containing a wheel stair for access to the upper floors. Against the south end is a round tower whose first floor is a circular room, 7 ft. 6 in. in diameter, fitted for a library, the shelves resting on finely moulded and carved brackets, and having a beautiful wooden ceiling, with pendants. To the south stands a long two-storied building, called the chapel, which has a highly ornamented seventeenth century doorway. Views of the exterior and interior, with details and plan, are given by Messrs. D. Macgibbon and T. Ross in their "Castellated and Domestic Architecture of Scotland," to which work we are indebted for some of the foregoing particulars.

THERE is no system of lighting that requires greater care in its selection than lighting by arc lamps. The varieties of arc lighting are so numerous that only an expert can advise which is the best in any particular case. For interior lighting, although they have not become so popular as their advocates would like, yet steady progress is being made. The opinion prevalent amongst electricians that this system of lighting is ever so much cheaper than lighting by glow-lamps has been proved by some recent experiments of Professor Elihu Thomson to be founded on inaccurate data. He shows that the luminous yield of those lamps which have the arc enclosed in an inner globe is very little better than that got by incandescent lighting. He points out, however, that if we take into account the quality as well as the quantity of the light given out, this needs modification. The effect of the arc burning in the inert gases of the small globe is to produce a light much whiter than the light produced by glow lamps, and which is almost the same as daylight. Enclosed alternating current arcs, whilst possible, are not to be recommended, as they have the drawback common to all alternating current arc lamps of making a distracting hum. For lighting large areas, arc lamps in series are almost universally used, and some of the dynamos they use in America are capable of keeping three hundred of them alight at once, and the tendency is to make even larger dynamos. Whilst this system is economical, the very high voltage used makes special precautions necessary.

It is, perhaps, fortunate for the people of Swanage that Dr. S. W. Wheaton's report to the Local Government Board on the sanitary condition of Swanage, and on administration by the Swanage Urban District Council, has only just been made public, for the report, in addition to an account of some lesser evils, contains the following

remarks in regard to the sewage of the town:—

"There are on the foreshore of Swanage Bay three points at which sewage is discharged, and in addition there are several private sewers from dwellings near the sea which discharge on the same foreshore. Of the three main points of discharge for sewage, two are situated at the southern end of the promenade and one at its northern end. The promenade is in the centre of the bay, and is nearly half a mile in length; the part of the foreshore below the promenade is sandy, and convenient for bathing, and here the District Council have marked off two bathing places, one for each sex. The bathing places and sands below the promenade are thus situated between two points of discharge for sewage. Many complaints have reached the Board from inhabitants of Swanage, and from visitors, respecting the nuisance arising from the deposit of sewage on the foreshore of the bay. With a rising tide the sewage from the main point of discharge at the southern end of the promenade can be seen to be carried directly towards the bathing grounds."

It appears that in 1893 the Swanage Local Board decided to provide sewers for the town, and the consent of the Local Government Board was obtained to the borrowing of 6,000*l.* for that purpose. In the plans submitted to the Board all the sewers were shown converging to an outfall sewer, by which the sewage would be discharged into the sea below low-water mark, at a place a little north of the southern headland bounding Swanage Bay. No outfall sewer has, however, been constructed, the Urban District Council having failed to carry out in its entirety the scheme of sewerage works which obtained the Board's approval. The 4,500*l.* spent have so far been of very doubtful benefit to the district. There is, indeed, now, discharge of a greater quantity of sewage through the old culvert, with consequent increase of the nuisance which had existed before on the foreshore abreast of the town, and which the new scheme was intended to remedy. If the original sewage scheme had been carried out, the sewage would have been carried away by the outfall sewer to a headland, with a view to being swept by the tide out of the bay.

THE summer season in the Alps of the Grisons is now at an end, and the numerous invalids who every winter resort to the Engadine, to Davos, and to Arosa, where the rarified air has such curative effects on diseased lungs, are beginning to proceed to their several hotels or pensions. It is desirable, therefore, to call attention to the absolute necessity for perfect sanitation in these places. Undoubtedly the sanitation inside the Swiss hotels is, on the whole, good, but it is doubtful if it is in an equally satisfactory condition so far as regards what may be called main drainage. Hotels and pensions keep increasing; they have the newest sanitary appliances, which they rightly count upon as likely to induce English people to resort to them. But this increase, spasmodic and without a plan, makes the main drainage of a locality more difficult. The visitor knows nothing about it, and, however good the sanitary arrangements may be inside a house, they are nullified if the general system of the place is defective. St. Moritz and Davos have grown almost into towns of late years, and Arosa is increasing, though it is, fortunately, yet far smaller than the two older places. But it has yet to establish a really good system of drainage. We refer to this matter, as the authorities in health resorts are less alive to

Lincoln's Inn
Fields and the
Garden.

Subterranean
Quarries, Paris.

Ferniehurst
Castle, Co.
Roxburgh.

Lighting by
Arc Lamps

The Sanitary
Condition of
Swiss Health
Resorts.

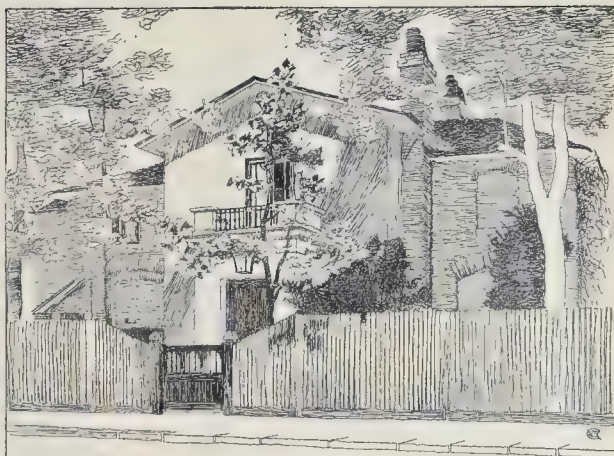
Sanitary
Condition of
Swanage.

their responsibility than [are the individual hotel proprietors.

DR. THEODORE THOMSON'S
Sanitary State
of Bewdley.

Report to the Local Government Board on the general sanitary circumstances of the borough of Bewdley is an interesting document in more ways than one. It deals with a borough which has a slowly decreasing population, and the death rate of which, in spite of the insanitary conditions which prevail, is not more than 17·3 per thousand, though the infant mortality has been considerable. The chief defects in the sanitary condition of the borough relate to the dwellings, the water supply, and the disposal of excreta and house refuse. Very many of the dwellings are old, badly lighted, dilapidated, and damp; "indeed," the inspector remarks, "of the large number inspected by me there were few that did not present some defective condition or conditions." The only means attempted of flushing the sewers is by emptying bucketsful of water down street gullies, the water being conveyed for this purpose in a water-cart. The three sets of sewers all discharge their contents in a crude state into the River Severn, each set having a separate outfall opposite respectively the north-eastern extremity, the centre, and the south-eastern extremity of the town. There are certain houses entirely unprovided with means of drainage. The inhabitants of these undrained houses either throw their slops on the yard surface or into the street gutter. The prevailing system of excrement disposal is by cesspit privies, which are in almost every instance offensive nuisances. The cesspit, usually of large size, is nearly always sunk a foot or more below the ground level; and in this pit large quantities of decomposing excrement and urine are allowed to accumulate. There are also a few pail-closets and water-closets. The Town Council of Bewdley pay a contractor to remove both excreta and house refuse. He is, however, entitled to charge the occupiers of houses, the excreta or refuse of which he has been asked to remove, a sum which may be 1s., 1s. 6d., or even more; in default of which payment he may refuse to undertake such removal, which then devolves on the occupiers, with the usual consequences. The water supply of Bewdley is derived in part from private wells and in part from public wells; in times of drought the water becomes very scanty, and, at the best of times, the quality leaves much to be desired. After more than ten years' procrastination, however, the Local Government Board have at last received from the Bewdley Town Council application for sanction of a loan of 4,000l. for purposes of water supply, and it is to be hoped that other sanitary improvements may follow.

THIS house is to be offered for sale on the 21st inst. at the Mart. Sandycombe, originally Solus, Lodge, in St. Margaret's, Twickenham, was built, it is believed, for Turner, and after his own designs, for occupation by himself and his father, on his vacating his riverside house at West-end, Upper Mall, Hammersmith. The house, to which a pretty garden is attached, has been enlarged since his day. Turner's town residence was then No. 64, Harley-street, whither he had removed from Maiden-



Sandycombe Lodge, Turner's House at Twickenham.

lane, Covent Garden, in 1800, after his election as A.R.A. According to the memoir by Mr. R. N. Wornum, in his "Turner Gallery," Fo. 1861, Turner bought the ground at Twickenham in 1807, and sold the property in 1827. By another account he resided there during the interval 1814-26. Meanwhile he had built, in 1812, the house and picture gallery in Queen Anne-street West, which he retained until his death, though latterly only as a depository for his pictures. It was pulled down seventeen years ago, when the site was taken for new offices, No. 23, for the Duke of Portland's Estate. Turner died at his lodgings in the house at the western end of Cheyne-walk, Chelsea, on December 19, 1851.

M. ROTY, President of the French Academy of Fine Arts, has presented to the Numismatic Museum on the Quai Conté, the series of designs that have been prepared for the new silver coinage which will be issued, with the exception of the five franc piece, before the close of the year. The series comprises four large scale models in plaster, three for the reverse and one only for the obverse, which represents France disseminating the Ideal through the world, illumined by the rising sun. The first design for the reverse is a torch placed on an olive branch; in the second the torch is replaced by a balance; whilst in the last design adopted by M. Roty for the reverse, with some slight modifications, an oak branch, a sheaf of wheat, and an olive branch are united within the legend "Liberté, égalité, fraternité," which is completed by the date 1897.

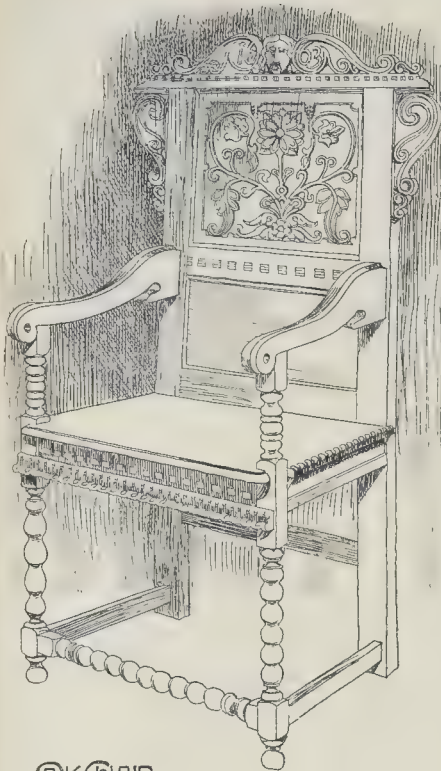
CITY ENGINEER AND SURVEYOR, NORWICH.—At a quarterly meeting of the Norwich Town Council, held on the 7th inst. in the Guildhall, the Mayor moved "That the salary of Mr. A. E. Collins, City Engineer, Architect and Surveyor, be increased from 600l. to 800l. per annum from June 24 last." He was sure that all the members of that Council were well aware that in Mr. Collins they had a most able and energetic engineer and surveyor; and that he was performing most excellently the many duties, and he might truly say, the responsible duties, now devolving on him in the post which he occupied. There were in the city just now many works of importance, and on the making or the mending of these a great deal depended. Mr. Holmes seconded, and the motion was, after discussion, adopted, only one voting against it.

SOME FURNITURE SKETCHES FROM SOUTH KENSINGTON.

THE examples of furniture sketched here are all of one epoch, early seventeenth century, with the exception of the French table shown in fig. 4, which belongs to the previous century. They are mostly simple and unpretending in detail, but serve to show how much effect may be obtained by the moulding and shaping of the constructional parts of furniture, for it is upon this a great deal more than on the carved ornament that their effect depends; and they also illustrate one or two points in regard to the best manner of placing and combining the constructional features.

The English and French examples, figs. 1 and 2, form an instructive contrast. The English is the richest in effect, and a certain dignity is added to it by the prolongation of the top-rail of the back, supported by carved consols under the projecting ends; but the best portions after all are the treatment of the arms, shaped out of the solid so as to be convenient as well as agreeable in outline, and the simple beaded or spiral ornament of the legs and cross-rail, a method of treating wood work which was such a favourite in England during the Elizabethan and Jacobean periods. A good point in the design is that, though the front and side connecting rails are (necessarily) placed near the bottom of the legs, so as to tenon into the square portions of the latter, the back connecting rail, between the plain back legs, is placed at a higher level, so as to avoid the cage-like appearance formed by the four rails carried round on the same level and close to the floor. This will be seen on comparison with the lower portion of fig. 5, where the four cross-pieces close to the floor have a decidedly bad effect; they ought at least to have been kept up to the top portion of the square part of the front legs. Fig. 2, though less ornate, is unquestionably a more refined and artistic piece of work than fig. 1, though slightly-looking; the plan of the seat and arms is better suited to the figure; the shaping of the legs and of the colonnettes supporting the arms is less characteristic and less sturdy-looking than in the English example, but it is more refined in line, and affords a good example of the manner in which a reminiscence of the Classic column may be used in furniture design, without attempting anything like an imitation of a stone architectural feature, which always looks weak when executed on a small scale as a miniature feature.

Fig. 3, another French example, has the same kind of merit as fig. 2, and is superior to it in fancy and delicacy of shaping and in the picturesque line of the arms; the only weak point is the piece at the back, which is awkwardly shaped and does not seem to belong to the rest. The table, fig. 4, also French, is very well designed in regard to the placing, shaping, and structural connexion of the legs; it would really be much better without the rather flagee-looking carving at



OAK CHAIR

ENGLISH. 1603.

Fig. 1.

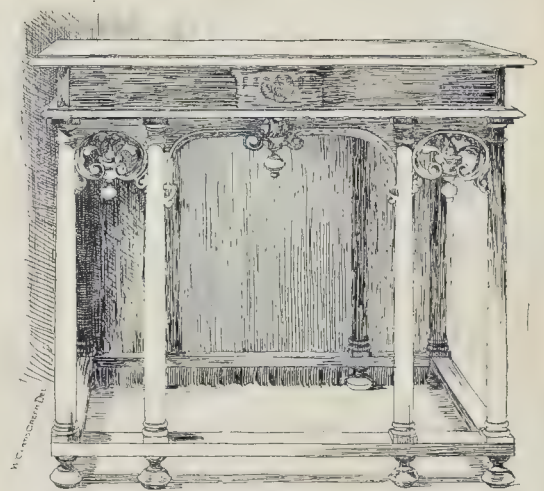
OAK CHAIR, FRENCH.
MIDDLE OF THE 16TH CENT.

Fig. 2.



OAK CHAIR, FRENCH. 17TH CENT.

Fig. 3.



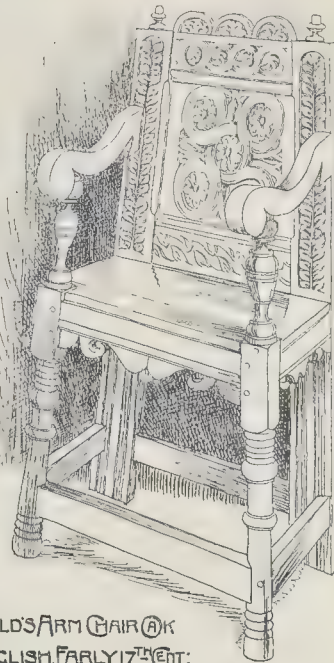
CARVED WALNUT WOOD TABLE, FRENCH. SECOND HALF OF 16TH CENT.

Fig. 4.

CHILD'S CHAIR. OAK.
ENGLISH. EARLY 17TH CENT.



Fig. 5



CHILD'S ARM CHAIR. OAK.
ENGLISH. EARLY 17TH CENT.

Fig. 6.

base so that it is not easy to turn it over; there is a satisfactory pyramidal look about the whole, and the back slopes away at a convenient angle. In the other child's chair, Fig. 6, the back appears too upright for comfort; the legs and arms are effective and well designed; the bits of scroll-like ornament beneath the front and sides of the seat are defective, as they are so manifestly a mere bit of effect for the eye, and add nothing to the construction; if they were more like real brackets with some strength in them, and not cut away so close up to the seat, they would have been more of an improvement; as it is, they would have been better away.

Fig. 7 is in many respects a very good example of simple treatment of a chair; as before, it would have looked more graceful if the back-rail between the legs had been on a higher level than the others, instead of continuing the same line all round. The treatment of the front legs is simple but effective; the back, though pretty, comes a little too near the imitation of column and arch, and looks constructively weak, but the manner in which the small finials are inserted between the colonnettes on the lower rail, and centrally over them on the upper rail, so as to balance each other, is a pretty little point. Fig. 8 aims at being very ornamental, but it is not in such good taste as most of the others; the treatment of the legs and arm-supports, so as to leave projecting rings, as if fitted on to them, is unsatisfactory, and takes away from the appearance of solidity. The manner in which the bottom rail in front is shaped so as to give a certain play of line, without losing its constructive value, is good, and the treatment of the side rails is well contrasted with the front and back, only again there are those objectionable projecting rings.

Students, in sketching and studying such objects in an art museum, should endeavour to consider wherein lie their merits and defects, if they have any, and not be content merely to admire them because they are old; otherwise the business of sketching them is of little value except as practice in handling the pencil.



OAK CHAIR. ENGLISH. 17TH CENT.

Fig. 7.



OAK CHAIR. ENGLISH. 1670.

Fig. 8.

the top, between the supports, which is at variance with the simplicity and structural character of the rest of the work.

Fig. 5 we have already referred to as defective in the design of the lower portion, but as a child's chair it has the great merit of a wide

RENOVATION OF NORWICH FREE LIBRARY.—Various works of renovation have just been completed at the Norwich Free Library, from the plans and under the direction of Mr. A. E. Collins, the City Engineer.

Illustrations.

SELBY ABBEY: TOWER AND SOUTH TRANSEPT AS PROPOSED TO BE REBUILT.

THE south transept of Selby Abbey was destroyed when the upper part of the tower fell in the last century. It is hoped to rebuild it when sufficient funds are forthcoming. The only parts remaining are Early Norman in style, but it was thought best not to follow these indications in designing the new transept.

The tower was reconstructed after the fall of the upper stages, but the modern portion was badly built and has become very insecure. It will be necessary to rebuild it at some time, but it is a serious question whether the ancient foundations, which have always been a source of weakness, should not first be underpinned.

The design shown for the upper part of the tower was suggested by an old drawing of the Abbey.

J. OLDRIE SCOTT.

COLCHESTER TOWN HALL.

This design was prepared with the idea that the moot hall, which is to seat 500 persons, could not be placed with safety higher than the first floor. It seemed that to place it upon the second or third floors was inviting disaster, and therefore not to be seriously considered. Upon this the whole of the plan turned.

It was also considered essential to provide a good police yard, in accordance with the conditions, and to keep the courts quite distinct from the rest of the building. A spacious entrance hall provided a dignified approach to the Council chamber and the moot hall, and the latter has a wide corridor adjoining, running the whole of its length, and affording numerous exits, with a staircase at each end.

A tower was provided solely because it was asked for in the conditions, and it was made of considerable size as being intended to commemorate the sixtieth year of her Majesty's reign.

So much was required for the money that a severely simple style of elevation seemed desirable, the more so as owing to the limited nature of the site every inch of space had to be utilised.

E. W. M.

THE EMPEROR WILLIAM MEMORIAL, BERLIN.

In August, 1895, we gave a plan of this memorial to the German Emperor William I., together with an illustration from a photograph of the sculptor's model. We give now three illustrations from photographs of the completed work: the central pedestal, with the equestrian figure of the Emperor led by a figure of Victory; one of the terminations of the architectural screen which forms the background to the central group; and an intermediate portion of the screen showing the treatment of one of the main piers and the sculptural group surmounting it.

As before stated, Herr Reinhold Begas, sculptor, was the nominal and responsible artist for the monument; but there were a good many other hands at work in it. Herr Gustav Halmhuber carried out the architectural detail; the quadriga at the extremities of the screen were modelled by Herr Karl Bernewitz and Herr Johannes Götz; and other work was done by Messrs. Karl Begas, Cauer, Breuer, Kraus, and Gaul. The bronze casting was carried out by Messrs. Gladenbeck & Co. and Messrs. Martin & Tilting.

The monument does not, we believe, by any means represent the wishes of the German people generally; the intention was originally to have erected something like a Pantheon or Temple of Fame; but the reigning Emperor practically took the matter into his own hands, employing the sculptor of his own choice (who appears to be a kind of court favourite); and the memorial is rather to be regarded as a private and personal monument than a national one.

Without displaying anything remarkably original or refined in conception or execution, it is nevertheless a spirited work with a good deal of vigour in some of the sculptural decoration.

FREE CHURCH, STRUY, INVERNESS.—This church has just been opened. Messrs. Ross & Macbeth were the architects.

THE SANITARY INSTITUTE CONGRESS AT LEEDS.

THE sixteenth Congress of the Sanitary Institute, which opened at Leeds on Tuesday, has attracted the largest number of members yet recorded. The proceedings commenced with a reception held in the Town Hall by the Lord Mayor of Leeds, Sir Jas. Kitson, M.P.

After a luncheon given in the Victoria Hall of the Yorkshire College, the inaugural address of the President of the Congress, Dr. R. Farquharson, M.P., was given in one of the class-rooms. Among the leading points of the paper was the proposal that drastic legislation should be resorted to for the purpose of giving to local authorities power to acquire land compulsorily in order to carry out effectually the provisions of the Act for the Better Housing of the Working Classes and to acquire the means of obtaining for workmen cheap and rapid railway travelling.

In the evening was opened the Health Exhibition, organised in connexion with the Congress by Mr. Knight, the curator of the Parkes Museum, on a large site in Camp-road, belonging to the Smithfield Club Show Committee. After visiting the various exhibits, the Lord Mayor formally declared the exhibition open. In doing so, he referred to the large part Leeds and Leeds inventors had taken in the advancement of sanitary science and sanitary engineering. He could quite understand why the collection of sanitary and health appliances they had just inspected formed the most extensive exhibition the Institute had yet held. It was because they had come to the centre of a great and industrious population. To such a community health was of the greatest value, because on it depended the strength of hand, the clearness of head, and the strength of body, without which no industrial community could prosper. He was glad to find that Leeds had done so much for sanitary science, because it had itself received so many benefits from that science. They would the more readily understand him when they learnt how remarkably the death rate had diminished in Leeds as compared with the time when he himself was beginning life. It was then over 30 per 1,000 annually, but at the present time only 20 per 1,000. That meant that 4,000 lives were annually saved now, as compared with the rate of mortality prevailing at the beginning of the century. Votes of thanks were subsequently accorded to the Lord Mayor and to the judges.

The discussion of the various questions to be brought before the Congress commenced on Wednesday, when the members met in conference in six different rooms of the Town Hall and of a neighbouring building. The six conferences were on River Pollution, the Work of Municipal Representatives, of Sanitary Inspectors, of Municipal and County Engineers, of Medical Officers of Health, and Domestic Hygiene.

Sanitary Inspectors.

For the first time this section had a member of its own body to preside over its deliberations. The President of the conference, Mr. Peter Pye, Chief Sanitary Inspector of Glasgow, read an introductory paper in which he addressed himself chiefly to the atmospheric conditions prevailing in factories and workshops. In the domicile, legislation had done a great deal towards securing better atmospheric conditions, but phthisis still prevailed, with but little obstruction, in factories and workshops, particularly in such as were occupied by girls. He gave, as an illustration of the shortcomings of the latest Act, that of 1895, the conditions prevailing in a large hall in Glasgow in which forty girls were usually employed. It was admitted by all authorities that, to maintain proper conditions, 120,000 cubic feet of air per hour must be admitted to such a room. But not half that amount could be admitted from outside without producing the sensation of continuous draught. With a fourth of the scientific minimum the air would contain ten volumes of the index of impurity instead of six, the scientific maximum. The Government limit of 250 cubic feet did not, in his opinion, render healthy conditions possible in workshops without accidental or induced ventilation, which, in winter time, was impossible, unless the air was previously warmed. Quoting the views of Drs. Parkes and de Chaumont, he stated that if the air could be warmed to a certain point in cold climates a smaller cubic space might suffice. The authorities named had said

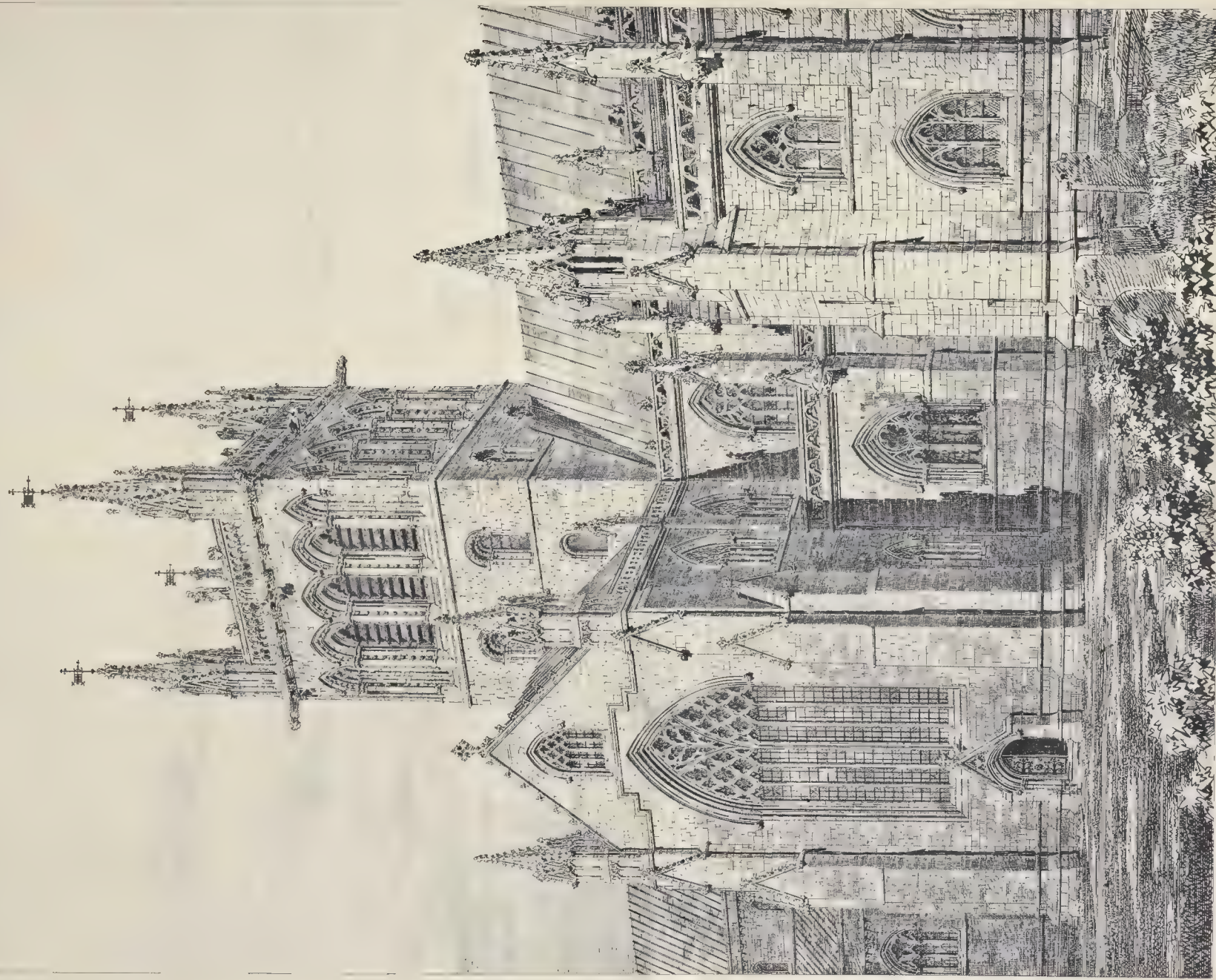
"The subject of ventilation is, in cold climates, connected inseparably with that of warmth, for it is impossible to have efficient ventilation in cold weather without warming the air." The Sanitary Inspectors, who were now the official sanitarians, were in need of three things chiefly—First, a systematic and high class course of instruction and examination; second, an equitable scheme of union between all Sanitary Inspectors' Associations; third, a legalised basis upon which every inspector might feel absolutely secure both as to the tenure of his office and the comfort of his old age.

A paper was read by Mr. W. H. Crane, Port Sanitary Inspector (Hull and Goole), on "Our Seamen's Dwellings Afloat." He said that his Port Sanitary Authority had under consideration the following matters in which improvement was absolutely necessary: (a) greater cubic space per head; (b) the covering in of all ironwork; (c) the provision of bath and lavatory accommodation for the crew. In the case of a ship, as in that of a house, there should be a thorough inspection of all structures, such as that made by urban sanitary authorities in the case of buildings on land.

The subject of "Smoke Abatement," introduced by Mr. John Sumner, Chief Sanitary Inspector of Wigan, produced an animated discussion. The following is an abstract of the paper:—

Nuisances arising from dense black smoke issuing from the chimney stacks of works are very common, and still very offensive, and ought to be more stringently legislated upon than they have been in the past, more especially as it has been so often shown that the nuisance can be easily remedied by the owners. Our local authorities are in some districts so lax in the administration of that section of the Public Health Act, 1875, relating to smoke nuisances, that the words therein contained are simply a farce, and the efforts of the Inspector a dead letter. The problem of smoke abatement was getting rather ancient, and was legislated upon as far back as 1819, and since then several select Committees have been formed and have reported to the House the result of their inquiries, with the result that the clause relating to smoke nuisances was inserted in the 1875 Act, followed by a proviso that entirely eradicated its usefulness. Many offending manufacturers asserted that the consumption of dense black smoke caused more injurious (though less visible) gases to escape in the atmosphere, but this could be at once passed over, because experts conclusively proved that such was not the case, because light and dense smoke contain the same substances, though in different degrees of mixture. The production of smoke was no economy to the manufacturers but a waste of money in the shape of unconsumed fuel. From correspondence that he had had from a number of sanitary inspectors he found that a great many were almost asked to let the smoke nuisance alone, and in at least two instances the sanitary authorities had said they wished they had a lot more smoke—it was a sign that trade was flourishing. In towns of the kind any effort an inspector might make to try and remedy such a state of things met with rebuffs, and he was of opinion that some central authority should take the matter in hand and appoint inspectors to take observations and report direct to them, the same as the inspectors under the Alkali Acts; in such a way only could this great evil be properly dealt with and effectually remedied. A great many manufacturers tried to make a set of boilers do far more work than they were able to, to the detriment of the atmosphere. Many different kinds of apparatus were on the market for the prevention of smoke, all of which we supposed had some good point to recommend them to the manufacturers, but a very great deal depended on the height of chimney, mode of firing, fuel used, and boiler space. The experience of Mr. A. E. Fletcher, Professor Ripper, and others, tended to show that the emission of dense black smoke could be avoided, or, if not wholly removed, could be so minimised as to be no nuisance, and that this had not been effected before now was a serious blot on our sanitary legislation.

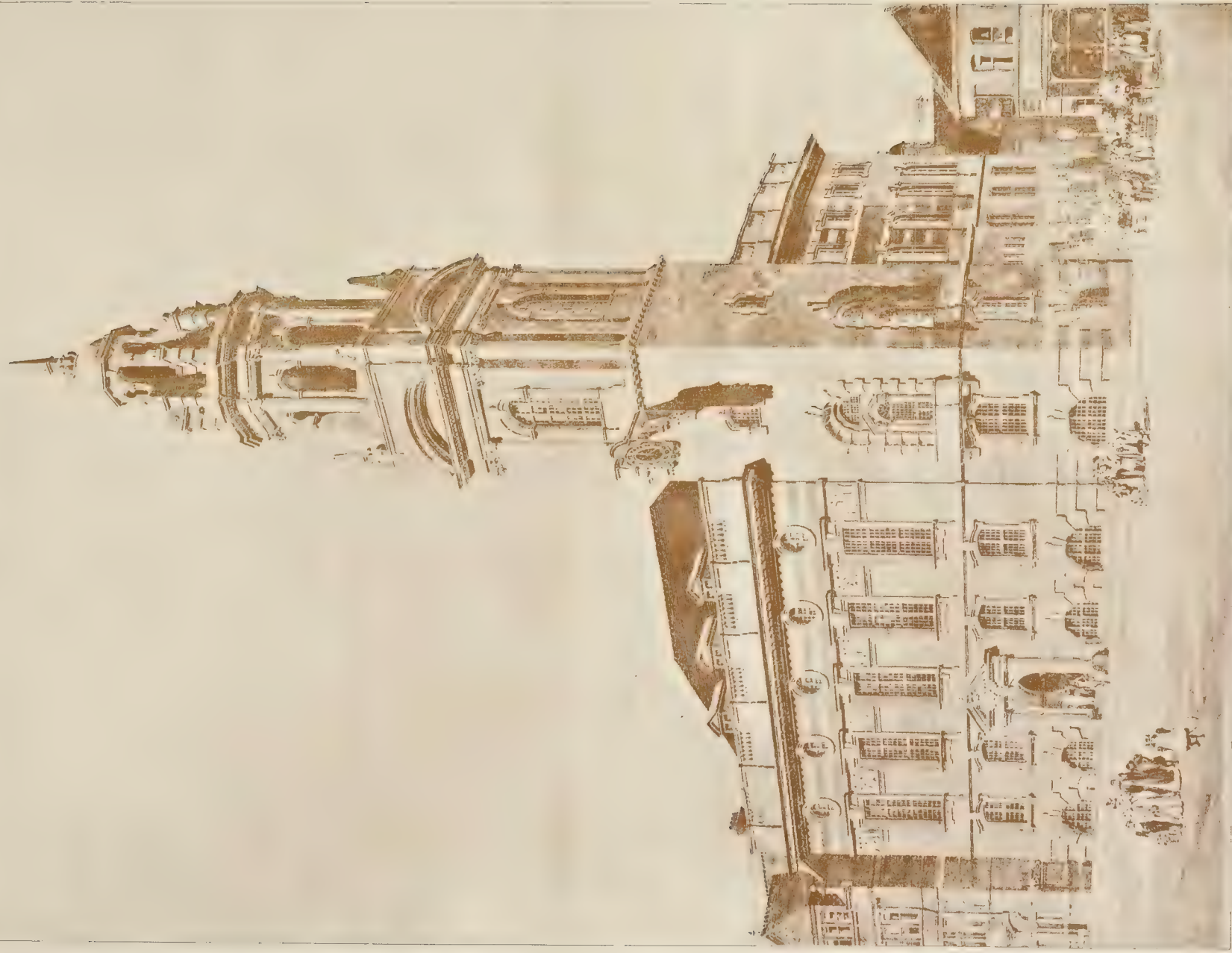
Mr. Denby (ex-Smoke Inspector, Leeds) said, after many years of nearly unfruitful effort, some improvement was observable in the prevalence of the smoke nuisance in Leeds. They had reduced from ten minutes to four the legal time when black smoke might be permitted to emerge from factory chimneys, and the Corporation was spending a thousand pounds a



SELBY ABBEY. PROPOSED RE-BUILDING OF SOUTH TRANSEPT AND TOWER. MR. J. OLDFIELD SCOTT, F.R.I.B.A. ARCHT.



COLCHESTER TOWN HALL, THIRD PREMIAED DESIGN. BY MR. F. W. MANSION, F.R.I.B.A.



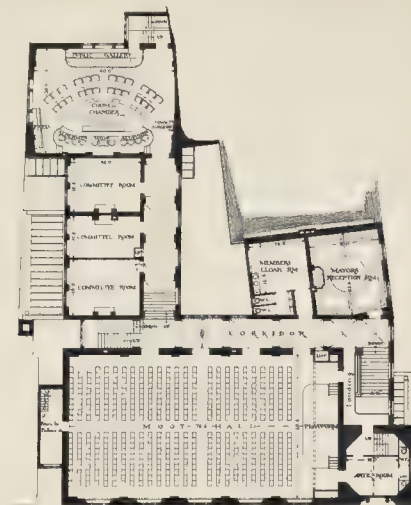
COLCHESTER TOWN HALL, THIRD PREMIAED DESIGN BY MR. J. W. MANSFIELD, R.I.B.A.



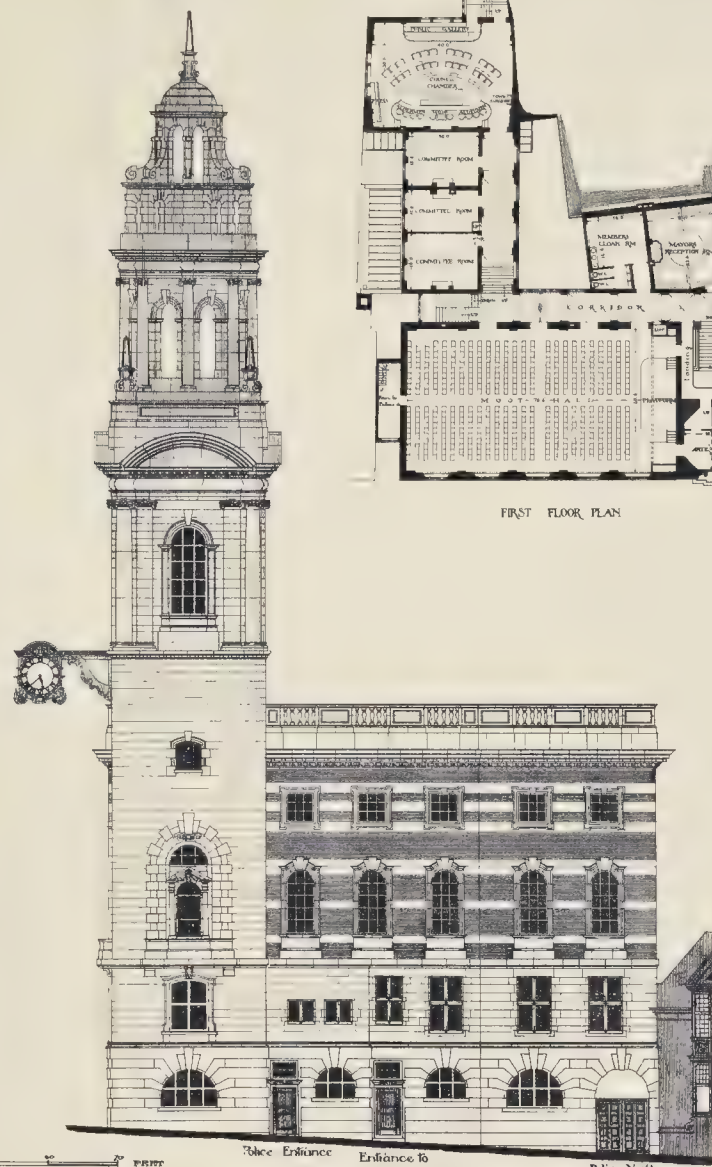
GROUND FLOOR PLAN



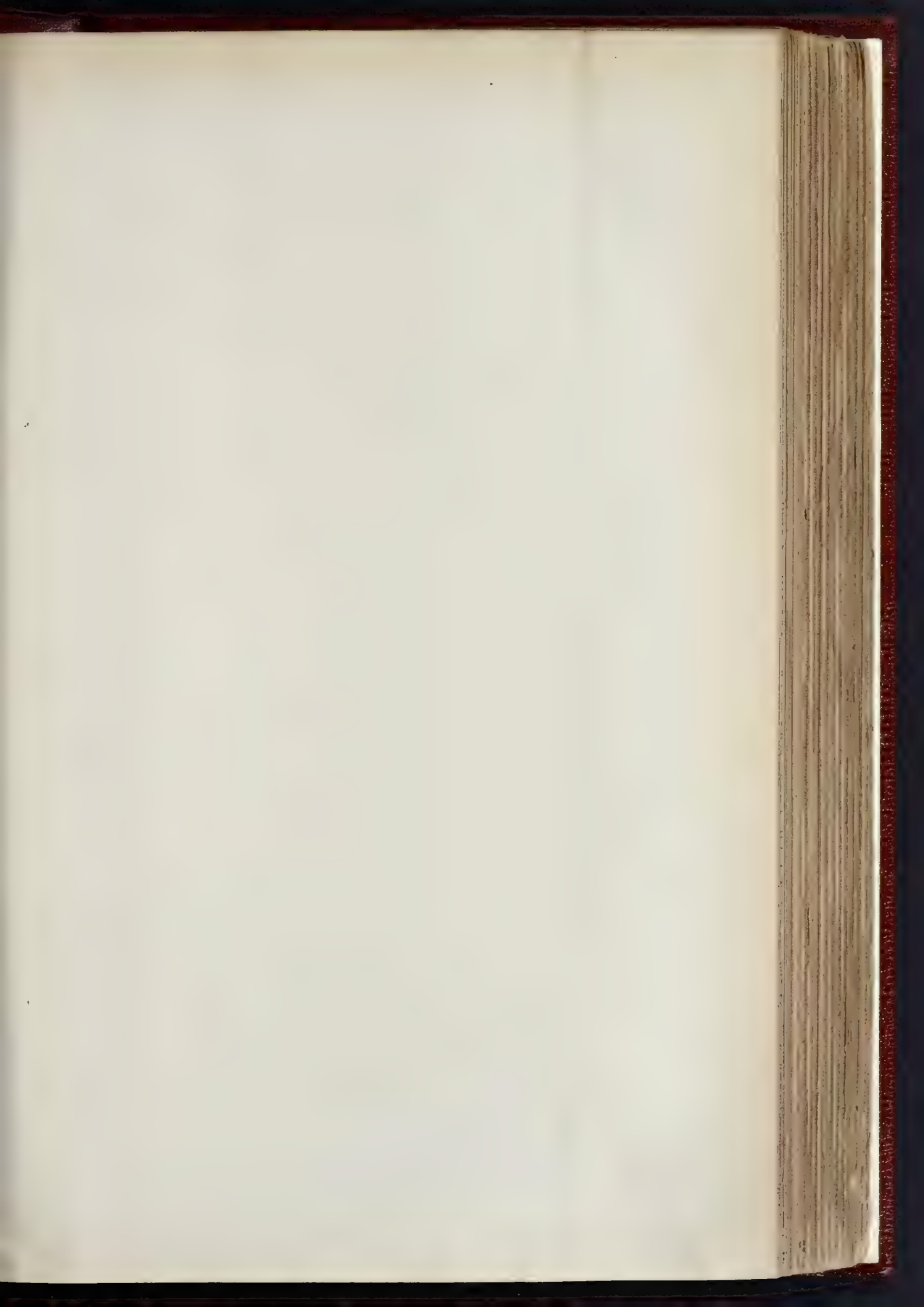
SCALE OF



FIRST FLOOR PLAN



Police Entrance Entrance to
Municipal Offices Police Yard





THE EMPEROR WILLIAM MEMORIAL, BERLIN.

CENTRAL FEATURE.



TERMINATION OF ONE SIDE OF THE ARCHITECTURAL SCREEN.

THE EMPEROR WILLIAM MEMORIAL, BERLIN.



ONE OF THE PIERS IN THE SCREEN.

year on the encouragement of smoke consumers and mechanical stokers.

Mr. Wickstead (Leeds) said more odium was cast upon manufacturers than they deserved in the matter of producing black smoke. Statistics showed that on a Sunday, when the factory chimneys were quiescent, the impurities in the air were only 25 per cent. less than on week days. This showed to what a great extent the domestic fire was accountable for the nuisance.

Our report will be concluded next week.

THE AUCTIONEERS' INSTITUTE.

ON the invitation of a local committee, the Council of this Institute held its quarterly meeting last week, in Cardiff, the Council meeting being preceded by a conference of London and provincial members representing most parts of the United Kingdom. The principal business of the conference was the consideration of a proposal made by a number of members of the profession in South Wales and Monmouthshire to become affiliated to the Institute. In accepting the proposition on behalf of the Council, Mr. J. F. Field, President of the Institute, acknowledged the welcome which had been extended to them.

In support of the application for affiliation, at the Council meeting held subsequently Mr. D. T. Alexander, who headed a deputation from the local committee, pointed out that there were in South Wales many usages connected with the profession which were purely local, and to a large extent unknown in other parts of the country. Individuals could do but little to reform such customs, and they felt that by affiliation to a corporate body their hands would be strengthened. They had the example of the Surveyors and other professional bodies possessing Institutes which had done much to raise the status of members. Another speaker pointed out that as their profession demanded all the energy and intelligence that could be brought to bear upon it, the sooner they insisted on a qualifying examination the better. After the withdrawal of the deputation the Council decided, after full discussion, to accede to the proposition, and to take the necessary steps for the formation of a branch of the Institute for South Wales and Monmouthshire.

A correspondence with the London School Board on the subject of surveyors' fees next occupied the attention of the Council. A resolution was carried approving the action of the President in regard to the fees claimed by surveyors in the acquisition of property for School Board purposes, and it was decided to leave the matter in his hands and the hands of his committee, pending a reply from the London School Board. Mr. Harris, the secretary, reported the acquisition of books, and of donations amounting to 40*l.*, for the library in Chancery-lane, and an accession to the membership of nearly 100 since May last, the total now standing at over 900, instead of 834 at which it stood at that date.

After the business meetings, excursions to the Barry Docks, to Dinas Powis, and to the Dowlais Iron Works, were organised, and entertainments were held, including a banquet, which was attended by the Mayors of Cardiff, Swansea, Newport, Neath, Oxford, and other members of Corporations.

COMPETITIONS.

POLICE STATION, HALIFAX.—The first subject considered by the Halifax Town Council at its monthly meeting on the 8th inst. was the desirability of rebuilding or adapting the old infirmary in Harrison-road for police purposes. A recommendation was made by the Watch Committee that the "Victorona" plans of Messrs. George Buckley & Son, of Halifax, which provide for an entirely new building on that site, not to cost more than 11,600*l.*, be accepted. The Mayor moved their adoption, reminding the Council in doing so, that although architects had been invited to send in plans the Council did not bind themselves to give the work to one or other of the prize-winners—which were "Diamond Jubilee," "V. R.," and "Municipal." Neither of these were acceptable, and the four left were "Victorona," "Efficiency with Economy," "Rex," and "15,265*l.*" The last-named, also "Efficiency with Economy," which was estimated to cost 14,900*l.*, were out of the question because of the expense, "Rex," which would run to 10,600*l.*, likewise would not be considered, because

the Borough Engineer said it did not conform to the specifications; and they came to the conclusion that, with slight alterations, "Victorona" might be recommended with confidence. The price in this case was 11,600*l.*, while the cost of a building reared on the lines of "Municipal" would be 12,500*l.*, "Diamond Jubilee" 12,990*l.*, and "V.R." 12,852*l.* Naturally the Committee's view was that if they could have a new building for 11,600*l.*, with slight modifications, they had better consider whether these alterations could not be made. The Engineer, after consulting with the architects who had sent in the "Victorona" plans, said the alterations could be made, and they would not entail additional cost. He had now pleasure in informing the Council that the architects were willing to enter into an agreement guaranteeing that the estimated cost should not be exceeded if their plans were accepted.—Councillor Smith having seconded the motion, Alderman Hodgson submitted an amendment in favour of adopting Mr. Escott's adaptation scheme, estimated to cost 9,000*l.* The alterations required in Messrs. Buckley's plans, instead of being slight, were very great ones, in fact, he called it adapting new plans to an elevation which Messrs. Buckley had prepared. The "Diamond Jubilee" plans, in Mr. Escott's opinion, had both the best elevation and internal arrangements, and "Victorona," he also said, came next in respect of elevation, but internally they were bad and would not suit. Since then Messrs. Buckley had prepared a plan which was different altogether, and he contended that the architects of the "Diamond Jubilee" plans ought to have been given a chance along with Messrs. Buckley in bringing further plans before them when it was felt further plans were necessary. Councillor Bottomley seconded the amendment, which was defeated, 14 voting for the adaptation scheme and 29 against.—*Halifax Evening Courier.*

Correspondence.

To the Editor of THE BUILDER.

THE TABERNACLE, MILTON ABBAS.

SIR,—My attention has been called to your notice of our church in the issue dated August 14. As I am the author of the "foolish project" referred to, may I be allowed a word in reply. The publication of the appeal for the restoration at the time of the archaeological meeting was (at great personal inconvenience) so arranged that the opinions of those qualified to give an opinion might be heard. This object, I think, has been attained, but I cannot understand why discourtesy should so largely enter into questions of archaeology. The structure at Milton Abbas has been called a tabernacle for sixty years, is so called in Hutchins' History of Dorset, and was so called by A. W. Pugin and Sir Gilbert Scott. We are very glad to hear another opinion, but not to receive vituperation in return for our efforts to get at truth. A glance at our appeal would show how impossible it is for us to do anything at present, and in the meantime we welcome all courteous criticism. There are two slight inaccuracies in your account of the church; the nave was never built, and the tabernacle is not in its original place, as a reference to Hutchins' History of Dorset will show.

E. H. BOUSFIELD,
Vicar of Milton Abbas.

TO AMBITIOUS ARCHITECTS AND OTHERS.

SIR,—As there are a number of ambitious architects and others who would like to have titles after their names to show the world that they are fully qualified and learned in their profession, I will just let them know how a pupil of mine, fifteen years of age, obtained his. He simply filled in his name, address, and whether he wished to describe himself as "Fellow" or "Associate" (he selected the most important one, "Fellow") on a post-card kindly sent by the Secretary of the "Institute of Architects and Surveyors;" almost by return of post he received his diploma and a letter to say that he had been elected a "Fellow." This entitles him to write the important letters "F.I.A.S." after his name. If a boy fifteen years of age is elected a Fellow, what are the Associates, and why should any one be without his degrees when he can obtain them without any questions being asked by simply filling up a post-card? The headquarters of this title-giving institution is in Chancery-lane, London.

DIFFERENTLY SUPPLIED.

* * * We have referred two or three times to the doings of this sham "Institute," but the story recited above is even beyond what we could have thought possible.—*Ed.*

EFFECT OF IRON ON TEAK.

SIR,—Some thirty or forty years ago my family were ship-builders and repairers, and numerous teak-built ships, both East and West Indian, came for repairs. I have seen taken out of these ships massive timbers, perfectly sound except where the iron bolts and fastenings were used.

I have seen the teak perished for a distance of 2 in. to 3 in. all round the bolt holes, and the bolt reduced in proportion to its size. Where trenails of wood were used the teak was perfectly sound. Many years after I prepared a large quantity of teak work for abroad, but the foreign architect specified that it should all be fastened with wood pins.

Lately, I have had a specification put in my hands from a hot-water engineer for teak sinks for butlers' and glass pantries, and the engineer assumed they used all copper fittings from the same cause.

Joiners working it say that so far from it being oily, it contains a sandy grit that causes their tools to lose their cutting edge quickly.

It is otherwise a splendid wood, and its almost entire immunity from shrinkage is greatly in its favour.

I may add I have had no experience of Burmese teak, and knowing the great difference between the East and West Indian varieties, I could easily believe that the Burmese would be free from the fault of the others.

ROBERT PHILLIPS.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER IX.—MODES OF MEASUREMENT.

Joiners' Work.

THE measurement of joiners' work, with perhaps the single exception of masons' work, demands a more intimate acquaintance with the methods of preparation and construction than any other portion of building work, although the methods of measurement are extremely simple. One fact should be distinctly stated, and that is whether the dimensions and thicknesses of the work are *net* when finished, or whether subject to an allowance for waste. Some architects specify that $\frac{1}{2}$ of an inch will be allowed off the thickness for each wrot surface, and this is, perhaps, the best system, as it is frequently found when measuring joiners' work that, while the work is slightly over a certain definite dimension, it is not sufficient to allow another $\frac{1}{2}$ in.—a $\frac{1}{4}$ in. being considered the smallest variation in thickness necessary to take note of. If, therefore, some such note is made, the surveyor will be able to take a distinct and unassailable position when noting the thicknesses and sizes of the work he is measuring.

The joiners' bill being generally the longest of the series, it is usual to subdivide the items under headings to a larger extent than in the other trades, in order the more easily to find individual items in the bill.

The items in deal appear first in the bill, subdivided under headings of "Floors," "Skirtings," "Doors," "Windows," &c. The items in hard wood follow under their respective headings in the same way, the rough rule being to bill the woods in the order of their respective values, commencing with the cheapest.

This sub-division will be followed in this chapter, which while following the general method is, of course, open to variation according to the individual taste of the surveyor.

Floors.

Boarded Floors, per square superficial.—Give description of boards, stating thickness, whether wrot or rough, widths of boards, description of joints, whether "folding," "straight joints," "rebated and filleted," "grooved and tongued with loose tongues" (state whether wood or iron), "grooved and tongued on solid," or other description, and whether secret nailed; also the kind of heading joints in the lengths of the boards, and if to be cleaned off at completion. Measure flooring net, deducting chimney breasts and hearths. Take raking and circular cutting and waste at *per foot run*, also mitred borders to hearths, stating width and thickness. Number cutting and fitting to small circular corners, and around columns, &c.

Block floors, per yard superficial.—There being so many different patents for this, each one having its admirers, it is frequently specified at a p.c. price. The manufacturers generally claim an addition to the net superficial measure of the girth of the room of 3 in. as an allowance for waste. It will generally be

found that the cement bed has to be provided by the builders, and also plugs or blocks in the concrete for fixing the borders.

If no p.c. price is given, state size of blocks, with the labour to edges of same, and the pattern when laid, and whether bedded in tar, &c.

Parquet floors, per foot superficial.—Generally a p.c. price laid complete. Note that a counter floor has to be taken for this in addition.

Skirlings, Chair Rails, &c.

Skirlings, per foot run, giving full description. If moulding in any way elaborate state girt; and if double-faced mention the sizes of each member. Note that a double-faced skirting, if both members moulded, is "double faced and double moulded." Include the grounds and backings with the descriptions, keeping those plugged to brickwork separate, or number fixing blocks. Number mitres (external and internal), housings, scribbings, returned ends, &c. Where a skirting is tongued to the floor, describe this with the item, and take a length of "groove in floor part cross grain (done in position)."

Chair rails, &c., per foot run.—The rules for measuring skirlings may be generally followed for dado rails, picture rails, and similar work.

Doors and Framings, &c.

Doors, per foot superficial.—State thickness and number of panels, and description whether "square," "moulded," "bolection moulded," "bead flush," "bead butt," &c., one or both sides, and if panels raised and mitred, and if moulded on raising. State also whether mouldings are stuck on solid. If any unusual arrangement of panels, give sketch. It is advisable to take separately any planted or face mouldings (except to panels) at *per foot run*, including the grooves (if any), with the items, stating if "stopped." Number returned ends, &c., to these mouldings. Note that in measuring folding doors, the width of the fold (generally an inch) is added to the width of the doors, the rebates being included with the doors, and taking at *per foot run* any mouldings, &c., at meeting. If any panels are open for glass, incorporate in the description, stating if siles diminished, and if sashed mention number of squares. Measure at *per foot run* the beads or mouldings around glass, stating if bradded or fixed with brass screws and cups.

Framings, per foot superficial.—State thickness, number of panels in height, and if panels are of exceptional size, mention this, and describe as above noted for doors. If any portion of the framing is irregular in shape measure this net and describe the shape, and also mention the fact that it is "measured net." Doors in framings are frequently numbered as "Extra over framing," giving the size, number of panels, &c. Measure the rebates, beads, stops, &c., at *per foot run*.

Windows, &c.

Sashes and Frames, per foot superficial.—Give thicknesses and full description of parts of boxings, and how put together, also sizes and descriptions of sills, the thickness of sashes, and whether square, chamfered, or moulded, and if the latter, description of moulding. How sashes are divided, i.e., whether in one square each, small squares, or otherwise; and if bars of exceptional width, state this. Describe whether single or double hung, the kind of lines, axle pulleys, and weights. Note.—If glazed with plate glass lead weights will be required.

If sashes are in more than one light—i.e., have mullions—keep these separate, stating the number of lights; give a description of the mullions, whether solid or cased, and the number of lights hung, and how. If, as is sometimes the case, the sashes and frames have a transome, measure this at *per foot run* as an extra over sashes and frames, and if fanlights above are hung number these, averaging the sizes. The angle mullions to a bay window should also be measured as an "extra."

In taking the dimensions, unless the frames show externally, allow 9 in. in the width, and 3 in. in the height, beyond the size of the external opening.

If windows have shaped heads, measure them square, and keep separate, describing the shape.

At the end of each item should be stated the number of frames contained in the dimension, to enable the contractor to judge of the average size, as "(in No. 1)."

Splayed edges to sashes and splayed meetings should be included with the item, but,

should there be any exceptionable labour here, measure separately at *per foot run*.

Casements and Frames.—Some surveyors measure these complete at *per foot superficial*, including casements, frames, and sills, and this system answers very well in the case of very ordinary windows, say, to cottages, &c., but where the work is of a better class and rather more elaborate description it is a far better plan to take the work out in detail. In fact, where there is any great variety, it will be found in the long run a saving of time, besides giving a much better idea of the work involved. The trouble of writing fresh descriptions, or, if a variation only on description, the difficulty of keeping each quite distinct is avoided by this system, and in the case of works of any extent the variety is interminable. In following the latter system, measure sills, frames, mullions, and transomes at *per foot run*, including all the labours, and the casements at *per foot superficial*, describing the thickness and if chamfered or moulded. If the latter, the description of moulding whether hung or fixed, the number of squares, and how divided, as described in "Sashes and Frames," and also noting the number of casements with each item, as "(in No. 1)."

If casements have shaped heads, measure these square and keep separate, describing the shapes.

Bull's-eye casements are frequently numbered, and this is probably the better plan, and if very small, include the frames with the item. Circular frames will require keys and wedges taken to the joints as numbers.

The heads and sills are usually measured 9 in. longer than the width of external opening, and the jambs 3 in. higher than the height of same.

If casements are hung on centres, take sets of cut beads both sides averaging the lengths and billing as numbers.

Any labours to casements, beyond a splayed bottom rail, should be measured separately at *per foot run*.

Fanlights and Borrowed Lights, per foot superficial.—These are usually billed under the heading of windows, and the rules for measuring casements will apply generally to these.

Door and Window Finishings.

By these are meant generally all the work in connexion with doors and windows, such as frames, linings, window boards, window boards, shutters, grounds, architraves, &c.

Linings, per foot superficial if over 4 in. wide; if under, at *per foot run*. State if rebated one or both edges or tongued, and include the backings. If linings are panelled, state the number of panels to each set and whether moulded or square or otherwise. If panels are shaped, it is advisable to take this as an "extra" item as a number. Where linings are tongued to frames, take a groove at *per foot run*, except in the case of a solid frame measured separately, when the groove will be included in the description.

In good work the ends of linings are tongued to the window board. Number these, giving the lengths as an average, and include the groove with the item.

Splayed jamb linings will require an item of splayed edge at *per foot run*.

Frames, &c., per foot run, giving sizes and full descriptions of the labours.

Window Boards, per foot superficial.—Give thickness, and, if panelled, description of panelling as described for "doors and framings," and include the backings. Take housing at ends at *per foot run* if linings run down to floor. Note, that skirting fixed to a window back is wrot both sides, and described as "plinth planted on."

Window Boards, per foot superficial if over 4 in. wide; if under, at *per foot run*. State thickness and finish of front edge—i.e., rounded, moulded, &c., and whether tongued to sill. For the latter, take at *per foot run* an item of "groove in oak, teak, or deal sill," as the case may be, unless the sill is measured separately, in which case include with the item; include the bearers with the window boards. Take bed moulds at *per foot run*, stating whether tongued to window boards; if so, include the groove. Number splayed ends, notched returned ends, notches, mitres, rounded corners, and any other labours on the window-boards and bed-moulds. Note.—If the bed-mould is a deep one, a ground will be required, unless on a window back. If window-boards are under 4 in. wide they are generally described as "nosings." Note.—Take window-boards long enough, and of sufficient projection

to stop the architraves, and to cover the bed-moulds.

Sliding shutters, per foot superficial, stating thickness and description of panelling. Number lines and weights, including the axle pulleys, giving full description, and take at *per foot run* the boxing, giving full description, and sizes and thicknesses of the various portions.

Folding Shutters, per foot superficial, unless in narrow widths (i.e., under 9 in.) in which case measure at *per foot run*. Give thickness and whether panelled and if so whether moulded, square, or otherwise, keeping the back flaps separate. If measured at *per foot superficial* take the rebates, &c., at *per foot run*, but if shutters, &c., are measured at *per foot run* include same with the item. Measure shutter backs at *per foot superficial*, describing whether panelled or plain and include the backings, &c. Number elbow caps, soffit linings, &c., stating size and thickness and describing the shape.

Grounds, per foot superficial, if merely splayed and over 4 in. wide; if under this width, or if moulded, or double-faced, or in any degree elaborated it is advisable to measure at *per foot run*. Describe ground to doors and windows as "framed." Keep circular grounds separate, describing whether on plan or elevation and giving the radius.

Architraves, per foot run, stating size and full description, if of special moulding to detail, give sketch if difficult to describe; if of stock pattern state this. Include mitres with the item unless exceptional, and keep circular architraves separate as described to grounds. Number plinth blocks, giving size and shape, and take architraves long enough to allow for framing to plinth blocks, and include this in description of the latter.

General Note.—Allow on length of frames, linings, grounds, architraves, &c., for crossings at angles.

In deal work if any of the plain items are over 9 in. wide, describe these as "cross-tongued" and keep separate from the remainder. This will apply to all deal joiner's work throughout.

GENERAL BUILDING NEWS.

RESIDENTIAL MANNERS, HAMPTSTEAD.—A block of residential mansions is now in course of erection on the site of "The Forge," West End-lane, N.W. There are to be three self-contained flats on each floor, with separate main entrances. The building will be fitted with electric light. Messrs. P. Palgrave & Co., of London, are the architects.

CHURCH EXTENSION, FARNWORTH, LANCASHIRE.—The corner stone of the new church, now in course of erection in the parish of All Saints, Moses Gate, was laid recently by the Mayor of Bolton. Mr. R. K. Freeman, architect, of Bolton, has prepared the plans, and the building is being erected under his supervision. The new church will stand on the north side of the present schools, and will be surrounded by streets on three other sides, the principal front being towards Devon-street. The plan consists of hall with side aisles, chancel, with chancel aisle or transept on the north side, and a side chapel on the south. The land falls considerably towards the back, and this has been turned to account by placing the vestries under the chancel. The vestries are divided by a movable screen, thus enabling them to be used as one room for parish meetings, &c., when desired. A staircase connects with the ground floor of the church, and the entrance to the vestries will be on the lower level. The side chapel has been arranged so that it may be used in connexion with the main building, or separately, for week-day services, and will have a separate entrance. The organ will be placed in the loft over the north transept, but the key-board will be placed near the choir, on the ground floor level. A feature of the design is the arrangement of the ambulatory at the east end of the main building, and also to the side chapel. The principal entrances are on the north and south sides, that on the south having a large porch, and being so arranged that a tower can be erected in connexion with it when funds are available. The materials used are red brick, with dark red Ruabon terra-cotta. The roof is to be covered with north-country green slates, and all the internal wood work will be of pitch pine unvarnished. The chancel floor will be of encaustic tiles, and the windows will be glazed with cathedral glass in geometrical patterns tinted, and in lead lights. Messrs. J. B. & J. Entwistle, of Kersley, are the contractors. Accommodation will be provided for 580 worshippers.

RESTORATION OF BOOTHBY PAGNELL CHURCH.—This church has just been reopened after restoration. The exterior of the building has been renovated where necessary, a new oak roof having been put on and covered with slates. In the tower the three bells have been rehung by Messrs. Mears & Stainbank, of Whitechapel, the belfry has been

restored, the lower story groined, and a stone staircase erected leading to the belfry and organ-chamber. A new vestry has been added on the north side of the church. The floors in the aisles and nave are laid with Staffordshire tiles and wood blocks. A carved oak pulpit on a stone base has been erected. In the chancel, the screen is carved in oak, and surmounted by a crucifix and figures of Our Lady and St. John. The floor is in marble and alabaster, and the choir stalls are of carved oak. The altar is also of oak. In the centre is a representation of the Crucifixion, on the right the Annunciation, and on the left are angels. The Lady Chapel on the south side has also a marble floor. It contains an altar, and is surmounted by figures of Our Lady and St. Andrew. The old font in the baptistry at the west end of the south aisle has been renovated, and a carved oak cover furnished. There are sixteen windows in the edifice, and all are now filled with stained glass. A feature in the improvements is the opening out of the Norman arch at the west end, and the throwing of the ground floor of the tower into the body of the church. The churchyard has been extended and enclosed with a stone wall. The entrance is through a lych gate on the south side of the church. The architect was Mr. J. L. Pearson, R.A., and the plans have been carried out under the direction of Mr. E. T. Price. The builder was Mr. J. Thompson, of Fendeborough. The marble flooring and re-table were supplied by Mr. Davison; the stained windows, &c., by Messrs. Clayton & Bell, London; the heating apparatus by Messrs. Perkins & Sons, London; the brass altar rails, gates to the chancel screen, lamps, and wrought iron work by Messrs. White & Son; altars, font cover, and bishop's chair by Messrs. Moore Bros., London; and the carving by Mr. Nicholson, of York.

RESTORATION OF PAYHEMORY CHURCH, DEVON.—This church was reopened by the Bishop of Crediton on the 9th inst., after an extensive restoration, which included rebuilding south nave wall and general repairs to all walls, and a new roof, except a few principals on the north aisle. The church is covered with Broseley tiles. The ceiling is oak boarded with longitudinal and cross ribs, and in the chancel diagonal ribs, with oak bosses at each intersection. Carved oak angels support the feet of cross ribs in chancel and over roof screen. The whole of the plastering is new, as well as the floors. The remains of a niche having been discovered in the north wall, a new one was inserted on the old line, and an alabaster statue of the Virgin and child placed in it. The roof screen has also been thoroughly restored, and also the seats. A new parclose screen, font cover, priests' stall, and lectern, have been provided, all carved in oak. The chancel ceiling and the portion of ceiling over roof screen, also screen and niche, have been decorated with gold leaf and colours. Mr. G. H. Fellowes Prynn was the architect; Mr. J. Northcote, Ashwater, the carver; Messrs. Fountaine & Sons, Plymouth, the decorators; and Mr. A. Loxton, Spaxton, Somerset, general contractor.

PRIMITIVE METHODIST CHAPEL, MORLEY.—Six memorial stones were laid recently of the New Primitive Methodist Chapel and School, in Bridge-street, Morley. The chapel is arranged on the ground floor, with sitting accommodation for 250 adults. At the entrance is a vestibule, and at the opposite end are placed the choir stalls. The school is underneath the chapel. It is 31 ft. 6 in. by 30 ft., and 12 ft. high, and will accommodate 300 scholars. Adjoining the school is an infant school and preaching room, to accommodate forty persons, and one class-room, to hold twenty. The building is to be erected with local stone; and the woodwork throughout is to be executed in pitch pine and varnished. The building will be heated on the low-pressure system, and the works will be carried out by the following contractors:—Masons, Messrs. J. & J. Sugden, Morley; joiner, Mr. George Elliott, Hanging Heaton; slaters, Messrs. Sharp & Harper, Leeds; plasterer, Mr. E. Wilson, Morley; and plumber, Mr. W. Anty. The building is to be erected from the design and under the supervision of Mr. T. A. Buttery, architect, Morley.

SCHOOLS, SEDGLEY, STAFFORDSHIRE.—On the 7th inst. the new Board schools erected in Bilston-street, Sedgley, and known as "The Queen Victoria Schools," were opened by the Chairman of the Board. The schools are divided into three departments, accommodating altogether about 770 children, besides which provision is made for a Board-school. The exterior of the schools is of bricks, with stone dressings. The lavatories are lined with glazed bricks, with dressings of Kingswinford bricks. The roofs are of Staffordshire tiles. The buildings have been erected by Mr. T. Jones, from plans of Mr. A. P. Brevitt (Architect to the Board). The building contracts was \$580.

CHURCH, GREAT YARMOUTH.—On the 9th inst. the foundation stone of a new church, at the north end of the town, was laid at Yarmouth. The new church is being constructed to accommodate about 300, the building having a brick base, above which the walls will be half-timbered, the whole being of a Gothic character. The roof will be tiled, and an oak bell-cot will be erected at the west end of the spire. The completed church will consist of a nave 60 ft. by 30 ft.; chancel, 20 ft. by 17 ft.; organ chamber, vestry, and porch. The nave and porch are the

portions that will be first completed. Messrs. Bottle & Olley are the architects, and Mr. W. Cork is the builder.

CO-OPERATIVE PREMISES, MIDDLESBROUGH.—On the 8th inst., the Mayor of Middlesbrough (Col. S. A. Sadler) laid the foundation stone of the new co-operative buildings in Linthorpe-road, Middlesbrough. The premises are at the corner of Linthorpe-road and Clifton-street. The whole building will be divided into four shops—grocery, drapery, boots and shoes, and butchery. Included in the buildings will be store rooms, &c., offices, directors' room, and a public hall. The following firms are carrying out the various contracts:—For excavating, bricklaying, masonry, &c., Messrs. W. & H. Pounder; for plastering and cement concrete work, Mr. J. R. Smiles; for carpentry and joinery Mr. W. Thompson; for slating, Mr. J. Harrison; for painting, Mr. J. H. Hill; and for plumbing, glazing, and gasfitting, Messrs. Walton & Garthwaite. The architect is Mr. Councillor Walter G. Roberts, of Middlesbrough. The total cost will be about 10,000.

WORKHOUSE INFIRMARY, SELLY OAK.—In our last issue, in the description of the Workhouse Infirmary, Selly Oak, we omitted to mention that the whole of the wards are warmed and ventilated by means of Messrs. E. H. Shorland & Brother's patent Manchester stoves with descending smoke flues.

BOARD SCHOOLS, NORTH SHIELDS.—The Chairman of the Tynemouth School Board has just placed in position a medallion of Her Majesty, in the new building at North Shields which is to be known as the Queen Victoria School. The school, which is being erected from the designs of Messrs. Marshall & Dick, architects, Newcastle, whose plans were selected in competition, will occupy a position at the corner of Coach-lane and Lovings-place, North Shields, and when completed will accommodate 1,350 children, and in addition there will be a large cookery school for fifty girls. The first section of the scheme has been entrusted to Mr. Joseph Elliot, contractor. Mr. Moore is acting as clerk of the works. The school is being built on the central hall system.

SCHOOL, RIPLEY, DERBYSHIRE.—The formal opening of St. John's new infant school at Ripley took place on the 10th inst. The architect of the new school is Mr. T. Lee, of Ripley; the contractor, Mr. W. Harris, of Marchay, Ripley.

PROPOSED FREE LIBRARY, HUDDERSFIELD.—A meeting of the Huddersfield Free Library and Art Gallery Sub-Committee was held on the 10th inst., at Somerset Buildings. Mr. W. Cooper, architect, presented plans showing provision for circulating and reference libraries, a news-room, and an art gallery. The plans were approved.

SCHOOL EXTENSION, HUDDERSFIELD.—Mr. J. Whiteley Shaw, Vice-Chairman of the Huddersfield School Board, opened the newly enlarged Board School at Spark Hall, Longwood, on the 9th inst. Mr. B. Stocks was the architect.

HALL AND SUNDAY SCHOOL, WIGAN.—The foundation stones of the new Primitive Methodist Central Hall and Sunday Schools to be erected in Station-road, opposite to the premises of the M., S., and L. Railway Company, were laid recently. The total accommodation provided will be over 600, the hall and gallery seating 400 persons; but the class-rooms have been so arranged that, by means of glazed screens, more than 500 will be able to see the rostrum. The architect is Mr. J. B. Thornley, and the builder is Mr. Jno. Johnson.

RESIDENTIAL FLATS, BRONDESBUURY.—A new building is about to be erected in Calcott-road, Brondesbury, parallel with High-road, Kilburn, to be called "Calcott Court," with a frontage of 140 ft. The block will consist of residential flats, with extended right and left wings, designed in the Georgian style. It is intended to arrange a front lawn, or court, with a gravel sweep, garden-seats, and a sun dial in centre of lawn. Messrs. P. Palgrave & Co., Westminster, are the architects for the work.

BUSINESS PREMISES, NEWCASTLE.—Messrs. John Grabham & Co., wholesale drapers and manufacturers, of Newcastle, have just entered upon new premises on the site of the old Congregational Church, Clayton-street West. The building is five stories in height, each of the six floors having a superficial area of about 670 yards. Access to each floor is gained by a large central staircase, constructed of mahogany. The works have been carried out by Messrs. Middlemiss Brothers from design, and under the superintendence of Mr. Benjamin F. Simpson, architect, of Newcastle-on-Tyne. The sub-contractors were:—R. Herron, plumber; A. Robertson & Son, painters; and George Rule, plasterer.

CHURCH, HORWICH, LANCASHIRE.—The new church, which it is proposed to dedicate to St. Catherine, has just been commenced at Horwich. Including spire, it will cost over 7,000l., and will accommodate, when finished, 780 worshippers. Owing to want of funds, the nave and aisles only are to be built at present, at a cost of about 4,000l. The plans are by Mr. F. M. Palmer, architect, and the church will be built of Runbun brick, with stone facings.

CATHOLIC SCHOOL, CRIEFF.—This new school has just been opened. It has been named "St. Dominic's School." The new building is of Dunmore sandstone. The total cost is 1,000l., and

space is allowed for 130 scholars. The plans and other arrangements are by Mr. T. Monteath, Crief and the contractors for the different branches are:—mason, A. Crerar; joiners, Monteath Brothers; plumber, A. Thomson; slaters, S. Drysdale & Sons; plasterer, J. Tainish; painter and decorator, T. Edwards.

CATHOLIC CHURCH, BOHERMEEN (CO. MEATH).—The new Catholic Church at Bohermeen, Co. Meath, was opened on the 5th inst. The architect is Mr. William Hague, Dublin, and Messrs. Smith Brothers, Kells, were the contractors. The new church is erected on the site of the old one. It is in the Gothic style, and consists of nave, transepts, and chancel, lighted by lancet windows. The roofing is open timbered with panellings. The floors are wood, with encaustic tiled passages. The church is built of native stone, with cast-stone dressings, and the walls are strengthened by buttresses.

ACADEMY, DUMFRIES.—The new Dumfries Academy was opened on the 3rd inst. by Sir R. T. Reid, M.P. The new academy was designed by Mr. Frank J. C. Carruthers, of Lockerbie and Dumfries. It has occupied two years in the building, and it will cost 16,000l. The site is the same as that of the old academy. At the principal entrance there is a portico formed of four Ionic columns, 30 ft. in height, and 3 ft. 6 in. diameter at the base, with corresponding pilasters on the face of the building. The tympanum over the portico has been filled in with plain stone, but it is proposed to enrich it with full-size figures in three-quarter relief of local celebrities. Surmounting the building is a dome, supported by four winged lions set diagonally. The front elevation is enriched with carved panels. The class-rooms are entered from a central hall having a gallery on each of the four sides, from which the upper rooms are reached; and to the rear of the main building are workshops and a gymnasium.

RESIDENTIAL FLATS, KILBURN.—The familiar landmark at the top of Shoot Up Hill, Edgware-road, and known as "The Old Mill," Kilburn, is to be demolished, and a block of residential flats is to be erected upon the site with a return frontage to Mapesbury-road. The new building is to be faced with red brick and stone, and will contain in all sixteen complete sets of residential flats. Messrs. P. Palgrave & Co., Westminster, are the architects, and the building is estimated to cost 12,000l.

BAPTIST CHURCH, GOVANHILL, LANARKSHIRE.—The memorial stone of the new Victoria-place Baptist Church, at the corner of Langside-road and Batterbiggins road, Govanhill, was laid recently. The church, which is designed by Messrs. Stark & Rowntree, is to seat 600 persons. It is built of red and white stone. The total length of the building, which extends down Langside-road on the east, is 85 ft., and the frontage to Batterbiggins-road is 70 ft. There will be two halls, a large one, and a smaller on the west side, which overlooks a large vacant space leading to Victoria-road. There is to be a platform, but no pulpit, with a baptistry at the back. The total cost is 5,000l.

MODEL LODGING-HOUSE AT MOTHERWELL, N.B.—On the 31st ult. the plans of a new model lodging-house, to be erected by the Lanarkshire Model Lodging-house Company, in Orbiston-street and Meadow-road, Motherwell, were lodged in the Dean of Guild Court. The design has a frontage showing two circular turrets at the angles, and an arched decorated doorway in the centre. Accommodation is provided for 316 lodgers, with four special rooms for warders, and a manager's house, from which there is a private entrance to the different parts of the building. The dining-room is 55 ft. by 34 ft.; recreation room, 65 ft. by 34 ft.; and the kitchen, 35 ft. by 20 ft. The estimated cost is 6,500l. The building, which is to be erected from plans prepared by Mr. Alexander Cullen, architect, Hamilton and Motherwell, is to be called the Victoria Home.

BOARD SCHOOLS, FENTON, STAFFORDSHIRE.—The formal opening of the new schools erected by the Stoke-on-Trent United District School Board, in Queen-street, Fenton, took place recently. The school is planned on the central hall system. The exterior is of red brick with stone dressings, and tile roofs, with a tower over one entrance for water supply tanks and a bell. Accommodation is provided for 1,000 in all, half boys and half girls. The central hall is 81 ft. by 38 ft. There are six class-rooms, each 25 ft. square, two class-rooms 25 ft. by 22 ft., and two class-rooms 34 ft. 6 in. by 22 ft.; two teachers' and two book and store rooms, and four cloak-rooms and entrances. The flooring is of pitch-pine blocks, and the heating is by low-pressure steam. The contractor for the general work was Mr. John Bebb, of Fenton; the block-flooring was by the Wood Block Flooring Co., of London; tile dados by Messrs. Minton, Hollins & Co., of Stoke-on-Trent; painting by Mr. E. Peake, Fenton; ventilation, Messrs. Boyle; heating by Messrs. R. Dawson & Co., Ltd., of Staleybridge, near Manchester. The whole of the work has been carried out from the plans and under the supervision of the Board's architects, Messrs. R. Scrivenor & Sons, of Hanley.

SCHOOL-CHAPEL, SHIPWAY COLLATON, DEVONSHIRE.—The school chapel erected at Shipway Collaton was opened and dedicated recently. It is built of local red stone with yellow freestone

dressings, and has a red tiled roof. The nave, or principal schoolroom, is 34 ft. long by 18 ft. wide. There is also a chancel, 20 ft. by 18 ft., a class-room or vestry on the north side, and a cloak-room on the right of the main entrance. There are porches on either side of the class-room, one connecting with the schoolroom, and the other with the chancel. The south portion of the chancel has been converted into an organ chamber. Dividing the nave from the chancel are stone arches and an oak screen, the work of Mr. Herbert Reed, of Exeter; the panels being carved by Miss Kitson, of St. Marychurch. The floor is of deal block, with a passage of encaustic tiles leading to the sanctuary. The roof is an open boarded one, with framed trusses resting on moulded corbels. The building has been erected by Mr. Mudge, of Exeter, from the designs of Mr. Harbottle, of Exeter.

SANITARY AND ENGINEERING NEWS.

PROMENADE, CASTLE HILL, SCARBOROUGH.—Mr. J. E. Everett, the resident engineer for the construction of the road round the Scarborough Castle Hill, reports that up to September 1 there had been laid a total length of 204 ft. of wall, 18 ft. high, or within 4 ft. of the finished height. One hundred and seventy-two blocks had been made, containing 395 cubic yards of concrete. As soon as the cliff was made safe to work under, more rapid progress than had hitherto been possible might be expected. Every effort was being made to push on the work of sloping the cliff the worst part of which is now finished. The Scarborough Castle keep and walls are to be included in the proposed lease of the Castle Hill to the Scarborough Corporation, the plateau, or "yard," of which it is intended to lay out in pleasure grounds.

SEWAGE DISPOSAL, BOLSOVER.—Mr. W. H. Wagstaff, engineer, Chesterfield, has been instructed to report as to the best means of sewage disposal at Bolsover, near Chesterfield.

SEWERAGE SCHEME, FRINTON.—At a meeting of the Frinton-on-Sea Parochial Committee recently, tenders were opened for the extension of the sewerage scheme at Frinton, according to the plans of Mr. Beasley, C.E. These were nine in number, and ranged downwards from 6,491l. to 5,357l., the lowest being that of Messrs. Parry & Co., of Fulham.

WATER SUPPLY, DESBOROUGH.—The Desborough Urban District Council having applied to the Local Government Board for sanction to borrow 7,083l. for the purposes of water supply for the parish, Colonel Albert J. Hepper, attended at the Board Schools, Desborough, recently to hold an inquiry into the subject matter of the application. In addition to the Inspector there were present: Messrs. J. B. Everard (Engineer), C. Gibbons (Medical Officer), T. E. Pearson (Deputy Clerk), W. T. Streaters (Surveyor), and others.

FOREIGN.

FRANCE.—The French Government has just opened a competition amongst native architects only for the erection of the palace intended to receive, in the year 1900, the exhibit of the French War Office and of the Admiralty. A committee has been formed for the purpose of erecting at Paris and at St. Petersburg two monuments intended to commemorate the alliance of France and Russia.

The Historical Society of Autheil has instructed M. Charles Dupuy, architect, to prepare designs for the monument which it is proposed to erect on the greensward at Ranelagh in remembrance of the visit to Paris of the Emperor of Russia, whilst M. Gustave Michel has been entrusted with the sculptor's work in this monument. A new Protestant church in Paris has just been erected on the Boulevard Barbès, the cost of which has amounted to 150,000 francs.

In the National Library has been placed a bust of Duc Jean de Berry, third son of Jean le Bon, executed by M. Desiré Barcet, after a portrait by Holbein belonging to the museum at Lille.

M. Mercie and Falguiere have been commissioned by the Direction des Beaux-Arts to execute two marble statues, intended for the foyer of the new Opera Comique. That of M. Mercie symbolises comic opera, that of M. Falguiere personifies the lyric drama. The Administration des Beaux-Arts have placed in the entrance hall of the Ecole des Beaux-Arts, in the Rue Bonaparte, two new busts of Pierre Puget and Nicholas Poussin.

A competition is now open for the erection of a Hôtel de Prefecture at Limoges. The Municipality of St. Quentin have announced a competition, open to French architects, for the erection of a monument to the memory of a benefactor of that town—M. Farinagau. Some farm labourers have recently discovered, in a field situated near Serres, in the Ardèche, a piece of rectangular mosaic of large size, perfectly preserved and apparently dating back to the earliest years of the Christian era. Supplementing the particulars already given in the *Builder* relating to the competition promoted by the town of Marseilles for the erection of a monument in honour of the sculptor Pierre Puget, we may add that M. Lombard has gained the first prize, M. Jualbert the second, M. Hugues the third, M. Belloc the fourth, and M. Ducuing the fifth prize. A bronze statue of the painter, Jean François

Millet, has been erected at Gréville (Manche). It is the work of M. Marcel Jacques, and was exhibited in the recent Salon of the Champ de Mars.—A monument to the memory of President Carnot, the work of the sculptor Leroux, has been erected at Chabanaux (Charente).—On September 26 will be unveiled at Aigues-Vives (Gard) a monument to the memory of M. Janais, formerly Under Secretary of State for the Colonies.—Last week there were unveiled at Haroné two monuments, executed by M. Vallu, architect, and Huel, sculptor, in honour of the Marshals Bassompierre and Beauvau.—On Sunday last at Morlaix was inaugurated the monument raised to the memory of the Breton sea-dog, Eric-Duchêne.—M. Eugene Deully, painter and artist, has been appointed curator of the museum at Lille, his native town.—We note that the following fine art exhibitions are now open: at Rocamadour, open till September 20; that at Aracchon, which will close on October 19; and that of the Amis des Arts at Versailles, open till October 3.—M. le Comte de Suzor has been appointed as architect for the erection of the new French hospital at St. Petersburg, of which M. Félix Faure laid the foundation stone during his recent visit.

The French Government has announced a competition for the construction of two iron bridges at Tonkin, one over the stream at Hué, the other, which will be 1,680 metres long, over the Red River at Hanoi.—The death is announced of M. Louis Devinant, architect, at Paris, and that of the painter, Emile Bin, at the same place. The latter, M. Bin was a Chevalier of the Legion of Honour, and several times received medals at the Salon. Amongst his most important works may be mentioned the decoration of the "Polytechnicum," at Zurich, and that of the theatre at Rheims, and his "Prometheus," which is to be seen in the museum at Marseilles.

GERMANY.—Two new journals will be started in Germany dealing with architectural subjects and the arts and crafts movement. One of these will be published at Munich, and will practically be an imitation of the *Studio*, and its title will be *Dekorative Kunst, Zeitschrift für angewandte Kunst*. The co-editors will be Messrs. Bruckmann, of Munich, and J. Mier-Graef, of Paris; the other journal will be known as *Deutsche Kunst und Decoration*. The first premium in a competition for the design of a new book at Leipzig has been given to Herr Emil Kagberg of Berlin.—The competition for a new Town Hall at Hanover has been decided in favour of Bauhrath Eggert. The competition was in the nature of a sketch, the subject of the designs which were sent in for a general competition some time back, among whom we would mention Professor Stier and Herr Heinrich Seeling. The cost of the proposed new Town Hall is limited to 225,000l.

Of the several monuments which have been recently unveiled in memory of the deceased Emperor William I., the statue which was the subject of an important ceremony on the 31st ult. is, no doubt, the most important. It stands at Coblenz, and is from the designs of Herr Bruno Schmidt. Another monument was unveiled on the 5th ult. at Magdeburg.—We regret to record the death of Director Nehls, in his 56th year. Herr Nehls had been associated with the harbour works at Hamburg, and was considered the leading authority on the inland waterways of Germany.

BELGIUM.—The International Congress, which was held at Brussels, was divided into two sections. The agenda of section A included a discussion on the rights and responsibilities of the building owner, of the architect, designer, and of the contractor. Further, it dealt with the system of tenders and their acceptance. The agenda of section B included a discussion from the contractor's point of view, and questions of accident insurance, old age pensions, and labour burdens. There was also a discussion on the formation of Arbitration Boards and another on the "Living Wage." At Antwerp the works on the new Central Railway station are progressing rapidly, and a considerable expenditure is being incurred in the architectural treatment of the principal buildings, as well as the viaduct and bridges.—The new assembly hall and restaurant in the Zoological Gardens at Antwerp has now been completed, together with a large conservatory, or palm house, which will be one of the principal features of the Gardens.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. Morrison, Ingram & Co., of Manchester and Swadincote, have converted into a private limited company their business and the business of Messrs. Staley Brothers, Midway Pottery, Staffordshire (with whom they are amalgamated), with the object of remodelling and extending Midway Pottery—building increased foundries, sanitary engineering workshops, and sanitary pottery works, upon land recently acquired amounting to upwards of eight acres in extent, in Trafford Park, situated near the Manchester Docks. The title of the company will be Morrison, Ingram & Co. Limited.

RE-DECORATION OF DURY-LANE THEATRE.—Dury-lane Theatre has been re-decorated externally and internally, according to the scheme and under the superintendence of the Architect to the Company, Mr. Philip E. Pilditch, by Messrs.

Campbell Smith & Co. The general interior has been renovated and partly re-decorated, a much lighter treatment being adopted in tones of cream and gold. The ceiling of the auditorium has been lightened in tone, the heavy blue band formerly existing round it having disappeared. The rotunda and staircases have been entirely re-decorated, the heavy treatment of both being replaced by a much lighter one, the general colours being cream, blue, gold, and salmon tints, the interior of the dome being in light blue and white brightened by golden stars. The external facade has been decorated in cream and buff, with a blue band decorated with Grecian Key.

LAND SALE, HAYLING ISLAND.—A land sale is to be held at Hayling Island on the 24th inst., when, in addition to the residence of "Westfield," with stabling and grounds of 44 acres in a lot by itself, there will be offered several half-acre plots on the sea common at South Hayling. Messrs. Lumleys are the London auctioneers.

PROPOSED RESTORATION OF THE PARISH CHURCH, DEAN PRIOR, SOUTH DEVON.—It is proposed to raise a fund for completing the restoration, at an estimated cost of 1,000l., of the parish church of St. George, which has a nave, two aisles, a chancel (restored in 1864), and an embattled tower. It contains a monument to Robert Herrick, who was vicar 1629-47, and from 1662 until his death in 1674, set up forty years ago by Mr. W. Barry-Herrick of Beaumanor Park.

SITE FOR NEW OFFICES FOR THE METROPOLITAN ASYLUMS BOARD.—It has been decided by the Local Government Board to issue an order authorising the Metropolitan Asylums Board to purchase a plot of land from the Corporation of the City of London, for the purpose of erecting new offices upon it. The land is situated on the Victoria Embankment, and the cost is not to exceed 53,000l.

PRESENTATION TO AN ABERDEEN ARCHITECT.—On the 7th inst. Mr. G. S. Walker, Assistant Architect in the Burgh Surveyor's department, was entertained at supper in the Bon Accord Hotel, Aberdeen, by a number of friends on the occasion of his leaving to take up his duties in Bury, Lancashire. In the absence of Mr. Wm. Dyack, Mr. J. Gordon, Assistant Burgh Surveyor, presided, and in the course of the evening presented Mr. Walker, in the name of the company, with a set of architectural books.

GLASGOW ARCHEOLOGICAL SOCIETY.—The annual excursion of this Society took place, on the 7th inst., to Linnithgow. The party arrived at Linnithgow at 9.45. Here they were driven to Torphichen, where the remains of the Preceptory of Knights Hospitallars were visited, and a paper on its history was read by Mr. J. Edwards, F.S.A. Scot., who acted as guide. The old building having been examined, the party returned to Linnithgow, and at once proceeded to the ancient Royal Palace, where a paper relative to its history was read by Mr. J. Dalrymple Duncan, one of the secretaries of the Society. The party having inspected the various parts of the ruin under the guidance of Mr. Duncan, a visit was next paid to the recently-restored Church of St. Michael, just across the way from the Palace. Here an account of the recent restoration was given by Mr. John Housman, F.R.S.A., the architect for the work. Luncheon was partaken of in the Star and Garter Hotel, and subsequently the party visited Abercorn and Dalmeny Churches, and also Hopetoun grounds. Dinner was served in the Hawes Inn, Queensferry.

SCHOOL OF ART WOOD-CARVING, SOUTH KENSINGTON.—The School of Art Wood-carving, Central Technical College, South Kensington, has been reopened after the usual summer vacation, and we are informed that one or two of the free studentships maintained by means of funds granted to the school by the Institute are vacant. To bring the benefits of the school within the reach of artisans a remission of half fees for the evening class is made to artisan students connected with the wood-carving trade. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the manager.

DUBLIN MASTER BUILDERS' ASSOCIATION.—At the last usual monthly meeting of the Dublin Master Builders' Association, Mr. James Beckett, of the chair, it was unanimously resolved that a copy of the following resolution be forwarded to the relatives of the late Mr. Samuel H. Bolton, J.P.:—"The Association of Master Builders desire to place on record their sincere regret at the death of Mr. Samuel H. Bolton, J.P., a much-respected and prominent member of this Association since its inception, and one so honourably connected with the building trade, who has been a member for many years; and further desire to express to the members of his family the deep sympathy they feel with them in their great bereavement caused by his death."

ESSEX ARCHEOLOGICAL SOCIETY.—A party of members of the Essex Archaeological Society, under the guidance of Mr. G. F. Beaumont, the hon. sec., visited Elsenham parish church recently. A brief account of the history of the church, the chancel of which is now being repaired, and of its chief characteristics was given by Mr. G. Pritchard. From here the party drove on to Thaxted, stopping en route at Horham Hall. It was here that Queen Elizabeth stayed for some time before she came to

CAPITAL AND LABOUR.

THE LIVERPOOL PLASTERERS' STRIKE.—The following circular has been forwarded from the Liverpool Master Builders' Association to the various Associations affiliated to the National Association of Master Builders of Great Britain:—“The strike of plasterers in Liverpool, which commenced on May 1 last, still continues, and is being prolonged through the men on strike being employed by other contractors throughout the country, and I am instructed to write and ask if you will kindly request the members of your Association to refrain from employing these men during the dispute. The master plasterers are contending against the full strength of the National Association of Operative Plasterers, and it is their constant secret that, if they are defeated, the operatives in the other branches of the building trade in Liverpool intend to make similar claims, which include:—(1) Limitation in the number of apprentices; (2) the right of their delegates to visit all works to converse with the men; (3) railway fares in and out to country jobs weekly; (4) that none other than plasterers do concrete flooring, floating for wood blocks and tiles and lathing; (5) the privilege of working overtime, when insisted upon by the men, to be paid time-and-a-quarter; and several other similar unreasonable demands. If the Trades-Union is successful in Liverpool these claims will, no doubt, be made in other towns. The officials have declined arbitration, and intimated that the operatives will not return to work until the whole of the demands are conceded. I am also instructed to ask you to call the attention of the members of your Association to the resolution which was unanimously passed at the recent meeting of the National Master Builders' Association at Bristol, enforcing the necessity of all employers increasing the number of their apprentices in order to remove the present inconvenience of scarcity of labour. Yours faithfully, J. ALFRED S. HASSALL, Secretary, P.S.—In taking on any plasterers during the present dispute my Association would suggest that full enquiries be made as to where they were last employed.”

THE STAFFORDSHIRE BUILDING TRADE.—The building trade in the Potteries is extraordinarily good. There are no bricklayers out of work in the district. Joiners report trade as good, with a few out of employment. Bricklayers' labourers are in good request. Painters and plumbers are well employed; but those on outside work have lost considerable time this week through the unsettled weather. At Leek all branches are busy with none out of work. At Crewe there are a few joiners suspended, but, generally speaking, trade is moderate. At Stafford all branches of the trade are busy, particularly stonemasons, who are working overtime. *Staffordshire Sentinel.*

THE PENRHYN STRIKE.—We are informed by Messrs. Roberts, Adlard, & Co., that resulting upon the settlement of the Penryn strike, the first steamer cargo has just been despatched.

LEGAL.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS IN SLOANE-STREET: CASE IN THE VACATION COURT.

The case of *Berry v. Akroed* came again before Mr. Justice Byrne, sitting as Vacation Judge in the Chancery Division, on the 15th inst. The case first came before his lordship on the 27th ult. on the motion of the plaintiff *ex parte* for an *interim* injunction over the 1st inst. restraining certain building operations of the defendant obstructing, as it was alleged, the plaintiff's ancient lights. It appeared that the plaintiff was the leaseholder and occupier of No. 50, Sloane-street, and the defendant was the occupier of the adjoining house, No. 51, Sloane-street. The gardens at the rear of the houses in question were divided by a party fence-wall. In the year 1888 the persons who were then in occupation of No. 51, Sloane-street, commenced building at the rear of the house a structure called the morning-room, and the plaintiff's predecessors in title applied to restrain them from proceeding with this building by *interim* injunction, but this litigation was compromised by an agreement dated March, 1888, which provided that, in consideration of £500 paid by the then owners of No. 51, Sloane-street, to the then plaintiffs, although the buildings then proposed to be erected were an obstruction of the ancient lights, the then defendants should be at liberty to erect the morning-room in accordance with the plans. The agreement also provided that the morning-room should not be raised to a greater height than mentioned on the plan, viz. 11 ft. higher than the north garden wall. The morning-room was then completed in accordance with the plans, and on June 28 the present defendant served the plaintiff with notice of his intention to erect certain buildings which would interfere with the party fence wall. The defendant then, after negotiations had taken place, abandoned his first plan, and proposed to carry up the north wall of the morning-room 3 ft. higher than was allowed by the agreement, and also to carry the north wall of the room further to the westward, and this, it was said, was a breach of the agreement and would be an interference with the plaintiff's

ancient lights. Mr. Justice Byrne, on the 27th ultimo, granted an injunction over the 8th inst. restraining the defendant from building so as to interfere with the plaintiff's lights, but directed that this was not to operate so as to prevent him in any way from building to the same height and distance as the old morning-room which had been pulled down. His Lordship, on the application of counsel and by consent, now directed that the injunction should be continued until the first motion day next sitting.

ALLEGED OBSTRUCTION OF ANCIENT LIGHTS:

CASE IN THE VACATION COURT.

THE case of *Goode v. Bridgewater* was in the list for hearing before Mr. Justice Byrne, sitting as Vacation Judge, in the Chancery Division, on the 15th inst. It being a motion by the plaintiff for an injunction to restrain the defendant from erecting a wall or building so as to obstruct his (the plaintiff's) ancient lights. On the application of counsel for the plaintiff, and by consent, it was arranged that the motion should stand over for one week, the defendant giving an undertaking, in the meantime, in the terms of the notice of motion.

MEETINGS.

SATURDAY, SEPTEMBER 18.

Architectural Association.—Summer visit to the new church at Roehampton. Mr. G. H. Fellowes Prynn, architect. Meet at East Putney Station (District Railway) at 3.15 p.m.

British Institute of Certified Carpenters.—Visit to St. Paul's Cathedral at 2.30 p.m. to inspect the timbers of dome and roof.

British Institute of Architecture, Science and Art.—Excursion to Edinburgh (McEwan Hall, Blackford Observatory, Craigmiller Castle, &c.).

SATURDAY, SEPTEMBER 25.

Architectural Association.—Summer visit to the Grove Hospital, Tooting. Mr. A. H. Tiltman, architect.

Devon and Exeter Architectural Society (Plymouth, Devonport, and Stonehouse Branch).—Visit to Truro Cathedral. Depart from Plymouth (G. W. Railway) 11.55 a.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

19,995.—**FIREPLACES:** *L. G. Bratt and Another.*—This invention consists in the particular formation of fire-bricks—viz., the side bricks made with perpendicular circular joints at edges at back of same, and the back brick or bricks made with corresponding perpendicular circular concave groove on face at either side, the tongues at bottom fitting into groove in bottom of back brick.

20,355.—**FASTENING AND SECURING APPARATUS FOR WINDOWS, &c.** *J. R. Storey.*—The specification covers various forms and modifications of the device, the simplest form of which consists in a metal fixing or carriage attached to one sash. A thread or threads in this supports a screw at a suitable angle. This screw can be so actuated that its head is forced into a recess in the other sash. In consequence the sashes are held firmly together, as the apparatus “has features of the screw-jack order about it.”

20,345.—**WINDOWS:** *J. Thorndale.*—The invention relates to improvements for opening and closing windows, both inwards and outwards. The invention may be a sliding sash, with a casement fitted to it, or the casement may be fitted within a fixed frame without sash. The casement may be centred or pivoted at the side, or in the centre, either vertical or horizontal. The four edges of it are fitted with interlocking tongues, which are actuated by cams.

20,512.—**ARTIFICIAL STONE:** *P. Kleber.*—Consists in a process in which potash is mixed dry with a mixture of gypsum and slaked lime, and worked with a saturated acidified hydrated sulphate of lime, so as to form a plastic substance, whereupon the unfinished stone is treated with a saturated solution of alum acidified with sulphuric acid.

20,521.—**JOINTS OF EARTHENWARE DRAIN PIPES:** *R. A. Lowe.*—Inventor employs a pipe joint made by two butt-ended earthenware pipes having plain or grooved circumferences, and forming between them an annular outer groove; then filling said groove with clay or an earthenware tape, casting round the ends a ring of plastic mass by means of a divided mould, and finally removing the latter.

23,559.—**CHIMNEY COWL:** *W. H. Brown and Another.*—In a cowl constructed to revolve by the action of the wind on a vane, inventors fit a conical tube at back of windward side, the largest end towards the current of air, and the smallest extending inside the above centre of cowl and towards open side.

13,334.—**DOOR CHECKS:** *G. Bortmann and Another.*—Inventors adopt, in combination with a door and its frame, an arm on the former, a lever pivoted thereon, a spring on the frame, and a stop on said arm adapted to retain lever in desired position.

15,053.—**ARTIFICIAL STONE OR BUILDING BLOCKS:** *P. Ruchert.*—Inventor claims, in artificial stones manufactured from gypsum, cement, fine slag, &c., and moulded, the formation of grooves and channels around their long and short sides.

NEW APPLICATIONS FOR LETTERS PATENT.

AUGUST 30.—19,866, H. Salmon, Joint Lock.—19,909, E. Grinnall, Window Sashes and Casements.—19,927, S. Armstrong, Preventing the Rattling of Window Sashes.—19,930, J. Leigh and J. Ripley, Manufacture of Bricks, Tiles, Blocks, String Courses, Ornamental Facings, &c., Employed in Building, &c.

AUGUST 31.—19,951, P. Jones, Automatic Discharging Cistern Chamber.—19,962, F. Garrett, Unlatching Doors by the Foot.—19,969, J. Leather, Ventilating Appliances.—19,971, M. Adams, Water-closets.—19,972, M. Adams, Flushing Valves.

the Throne, and she paid it a second visit after her accession. The members of the Society were welcomed by Mr. Cranmer Byng, who has lately taken up residence at the Hall. Mr. Goddard read a brief sketch of the history of the mansion, and Mr. Byng conducted the party over the principal apartments. From here a move was made to Thaxted, once a thriving little town, carrying on an important trade in cutlery. Its parish church is one of the finest and largest in the county. An interesting sketch of the parish and of the church was given by the Vicar (the Rev. L. S. Westall). The brakes were remounted, and the party were driven to Newport. A visit to the church was the last item on the programme. The President of the Society (Mr. G. Alan Lowndes) accompanied the party.—*East Anglian Daily Times.*

LEEDS MASTER BUILDERS' ASSOCIATION.—The annual meeting of the Leeds Master Builders' Association was held at the Royal Exchange, Leeds, on the 7th inst., Mr. W. Nicholson presiding. The following officers were appointed for the coming year:—President, Mr. W. Nicholson; vice-president, Mr. J. Walker; and secretary, Mr. E. Schofield. It was stated that the Association is in a very strong and healthy condition, notwithstanding the recent strike of bricklayers and labourers, the membership having largely increased since last year. Amongst other business, it was decided that the Association should join the Yorkshire Federation of Builders. The trade of the city was reviewed during the meeting, and it was stated that things were quieter than they had been for some time. The members were afterwards entertained to tea at the Queen's Hotel by the President.

RESTORATION OF THE CHURCHYARD CROSS AT FOLKESTONE.—For many years past the vicar of Folkestone (Canon Woodward) has been desirous of restoring the ancient cross in the parish churchyard, the old steps of which have remained in good condition to this day, though the shaft and cross have long since been destroyed. The intended restoration had from time to time to be postponed, but has now been accomplished, and on the 8th inst. the Mayor and Corporation attended in full state at the unveiling of the cross. After the blowing of the old horn by the mace bearer, which according to ancient custom was the signal for the assembling of the inhabitants at the cross, the Mayor performed the unveiling ceremony. It was at this cross that for centuries the mayor of the borough was annually elected. The restored cross is based, upon the model of English medieval crosses of the fifteenth century, and has been erected upon the ancient steps. The cross is octagonal, with spreading base and richly carved panels above which are sculptured panels; that to the west representing the Crucifixion, with the Blessed Virgin and St. John; on the opposite panel is represented the Virgin and Child, with attendant angels; whilst on the south, looking seawards, is St. Peter, the patron of fishermen, and to the north, looking towards the town, is St. Eansleth, the patron saint of Folkestone, whose image is impressed upon the Borough seal. The sculptured subjects are beneath carved canopies richly crocketed, and the whole is terminated by an octagonal spirelet surmounted by the cross. The work has been executed in Portland stone by Messrs. Earp & Hobbs, from the designs and under the directions of Mr. S. Slingby-Stallwood, architect, of Reading.

BUILDING ESTATE, CHISWICK.—The property recently known as Grosvenor House estate, including a somewhat modern Elizabethan mansion fronting the river, has now been disposed of, and is to be laid out as a building estate, involving the demolition of the house. Messrs. Palgrave & Co., London, are retained as the architects and surveyors for the work, which is to be proceeded with without delay.

A HOUSING PROBLEM AT EPSOM.—The great influx of workmen, chiefly navvies, into Epsom, owing to the erection of the new asylum for the London County Council on the Horton Manor estate, is causing some concern to the local authorities. There being insufficient lodging accommodation in the town, many of the men sought shelter at the workhouse, but, not being destitute, they could not be treated as paupers or casuals. Some tents have been erected in contravention of the by-laws, and a great number of men are reported to be sleeping in the open air, and finding shelter wherever they can. Two applications have been held by the Epsom Urban Council to consider the question with a view to taking action under the Housing of the Working Classes Act, and the Council have drawn up a scheme, which, if carried out, would involve the borrowing of £7,000 for the erection of fifty cottages (estimated to accommodate 500 men) on their own land. It is calculated that the rents derived from these cottages would yield an annual profit of £100,000, after allowing for the repayment of instalments of borrowed money with interest. The carrying out of this scheme depends upon any action which the London County Council may take to meet the difficulty, and the Epsom Council are in correspondence with that body on the subject. They have received an intimation that the Asylums Sub-committee have instructed the need of accommodation will be felt still more after Christmas, when, it is stated, 1,600 men will be engaged on the work, chiefly carpenters and bricklayers.—*Times.*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Grimmer School and Headmaster's House (to cost 1,800 <i>l</i> .)	G. Werner, Shapton Mall & Grosvenor Stn.	...	Oct. 1
*Technical School, Public Library.	Edna Corporation	5 <i>l</i> and 10 <i>l</i>	Oct. 20
*Plans for Church, Southend-on Sea	St. Alban's Church Committee	See advertisement	Nov. 20
Town Hall and Law Courts	Central Corp.	500 <i>l</i> - 200 <i>l</i>	Dec. 4
*Fronzenade Pier and Pavilion	Beulieu Port, Park & Land Co.	See advertisement	No date

CONTRACTS.

[illegible]

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, & Supplied by	Tenders to be delivered.
Paving, &c. Corporation-street	Morley Corp.	M. R. Sykes, 100 Rotten Row, Pall Mall, London.	Sept. 27
Dwellings-house, &c. Windston	Mr. R. Hurst	W. Allen, Architect, 16 Victoria-st., Hydon-at-Tyne	do.
Dwelling-house, &c. Windston	Mr. R. Mawston	D. McColl, 21, Cockburn-street, Glasgow	do.
Binding Carriage Black, Kilmahomph	St. Ann's-on-the-Sea	W. C. Gifford, 10, Park-st., St. Ann's-on-the-Sea	do.
Sewer, &c. Church-st.	1 D.C.	W. E. Court, 15, Gt. George-st., London	do.
Additions, &c. to Baths.	Liverpool Corp.	T. E. W. Miller, Esqr., 10, W. Hill, Tundridge	do.
Estler House Enlargement, Finsbury	Tundridge Walls Corp.	W. Davies, 27, Brunswick-st., Finsbury	do.
Cabinetmakers Workshop	.....	W. H. Green, 10, St. Paul's-church-yard, London	do.
Public Hall.....	Parish Council, Loughborough	Clark to Parish Council, 10, G. T. Hill, 35, Parliament-street, S.W.	Sept. 28
"Excavating and Foundations	La. ester Boro Asylum	Corporation Office, 10, Town Hall	do.
"Ayleton Foundations, &c.	West Ham Council	Corporation Office, 10, Town Hall	do.
"Quarries or Quarant Broken Granite	D. C. of Esher and the Dittans	Thames District, 10, Town Hall	do.
"Laying-out and Paving Roads, and Draining and Levelling Pipe-ways	Fulham Vestry	C. Bottrill, Town Hall, Fulham Green, S.W.	Sept. 29
"Building Walls and Laying out Earthen Ground	Hackney Union	F. R. Gosh, Clerk's Office, Hackney Union	do.
"Building a Shelter	Met. Asylum Board	T. W. Aldrich & Co., 1, Victoria-st., S.W.	do.
Memorial Fountain, Bursley	.....	Bursley	do.
"Police Station, Hargreaves	Harford C.C.	U. Smith, 21, Parliament-street, S.W.	do.
Limestone	Gallagher and Rhigos Ltd.	W. Hyatt, Highway Bury, 10, G. T. Hill	do.
Alterations, &c. Sewage Pumping Station	Swindon D.C.	M. A. Miller, Esqr., 3, Clarendon-st., London	Sept. 30
"Water Paster, &c. Richmond	Peaslip Park, County	H. J. Gibbons, Architect, 10, St. James's Place, London	do.
Police Station, &c. Reddish	.....	Worcester	do.
Buller House, &c. Brentwood Asylum	Avonham Com. Esq. Lunatic Asylum	W. H. Supt., of the Asylum	Oct. 1
Drapery Warehouse, Halifax	.....	Jackson & Fox, Architects, 10, G. T. Hill	Oct. 2
Older Bridges, Clons	G.N.R. Co. Ireland	Barrington, Chief, Administration, Dublin	do.
Stationmasters Office, Llanberis	.....	J. Manservant, 5, Victoria-st., S.W.	do.
"Lions are Fire Pumping, Iron Pipes, and Protection Pumping Station, Bude	Southend-on-Sea Local S.C.C.	W. H. Supt., 17, Pall Mall East, S.W.	Oct. 5
"Band Stand, &c. Bethnal Green	.....	G. R. W. Wheeler, Town Hall, Bethnal Green	do.
"Sewage Works	Westminster Vestry	W. Parks, 10, Spring Gardens, London	do.
"Wool Iron, Burdles	Luton C.C.	B. Mervin, Architect, Holborn, Westminster	Oct. 6
Farmhouses, &c. Luffor Hole	.....	Medley Hall, Architect, 20, North-st., Halifax	do.
Water Tower, &c. Hippisburgh	.....	C. E. Vaughan, 25, Low-st., Ipswich	do.
"Laundry Machinery (Boiler, Engine), &c. Central Police Station, &c. Chancery B.M. & Mullinger District Council	Hilbert, Union	Chancery B.M. & Mullinger District Council	do.
"Gasholder Ransgate	.....	London & Water Council	Oct. 8
"Railing for a Store and Office, North	London C.C.	London C.C.	Oct. 12
"Gate Paster, &c. do.	Met. Asylum Board	Met. Asylum Board	do.
"Power House, Buildings, &c. Stockton	Liverpool	J. Clifton, 10, St. James's Place, London	Oct. 13
Extension of Mill Premises	Roberts, Mart, & Co.	Roberts, Mart, & Co.	No date
Mortuary	Lower Bellingham D.C.	9, Park-place, Leeds	do.
Rebuilding Well	.....	.....	do.
Flag	Manchester Corporation (Highway Committee)	Manchester Corporation (Highway Committee)	do.
Public Hall, Holbeach	Holbeach Public Hall Co.	J. S. Swyer, Architect, 63, Chancery Lane, London	do.
Shop Alterations	.....	B. H. Ridgway, 10, Long Eaton	do.
Wesleyan Church and Schools, Westbourne Downemonth	.....	112, Hamilton House, Bishopsgate-st. Without, London	do.
Additions, &c. to Workhouse, Blechnieley	.....	F. Bull, Architect, 10, St. James's Place, London	do.
Square Chimney, to St. h. h. g.	.....	J. W. & Sons, 10, St. James's Place, London	do.
Additions, &c. to Brynawad	.....	W. Gilchrist, Architect, 10, St. James's Place, London	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be received by
*Surveyor	Alder-shot U.D.C.	290 <i>l</i> . per annum	Sept. 21
*Surveyor's Assistant	Bristol Corp.	1 <i>l</i> 4 <i>s</i> . rising to 29 <i>l</i> . per annum	Sept. 25
*Assistant Engineer and Surveyor ...	do.	2 <i>l</i> 4 <i>s</i> . rising to 30 <i>l</i> . per annum	Sept. 25

Those marked with an asterisk (*) are advertised in this Number.

Competitions, p. iv. *Contracts*, pp. iv. vi. & viii. *Public Appointments*, pp. xvii. & xix.

SEPTEMBER 1.—20,117, W. Cockroft, Door Locks or Latches, &c., 20,141, E. Beyer, Nuisances, Door Buffs, &c., 20,142, J. W. B. Waterhouse, Attaching Door Knobs to their Spindles, 20,162, G. Burrows, Rim Locks and Latches, —20,178, B. Pitt, Window Sash and Casement Fastener, —20,177, B. Pitt, Bolt for Doors, Casements, &c., 20,195, J. Martlaw, Chunnery, Ventilating, Cows, &c., 20,205, E. Nowell and C. Ring, Combining Tool for Joiners, Carpenters, &c., 20,219, W. Reynolds, Improved Flush Cisterns or Closet Pans with Flushing Fluid.

SEPTEMBER 3.—20,244, D. Morrison, Kitchen Sinks —20,267, C. Voigt, Roofing Tiles.—20,274, W. Oman, Door

Fastener.—20,285, T. Smith, Fasteners for Window Casements, &c.—20,314, R. Leonhardt, Door Lock.
SEPTEMBER 4.—20,328, R. Dale, Bricks.—20,332, A. Marginson, Drain Pipes.—20,348, A. Veon, Combined Door Fastener and Alarm.

PROVISIONAL SPECIFICATIONS ACCEPTED.

14,299. A. Elbers, Process of Treating Blast Furnace Slag for use in Cement Mortar, &c.—17,334. J. Déri, Wood Paving.—17,553. G. Marsden and J. Newton, Dies for use in the Manufacture of Slabs or Tiles.—17,821. W. Benson, Casements and Window Frames.—18,010. S. Hill and R. Hodges, Door Closing Appliances.—18,151.

NEWTON-IN-CARTMEL.—For work in connexion with the erection of a house for Mr. Henry Bigham. Messrs. Grundy & Son, architects, Liverpool. £100

Thomas Wren..... £113 0 0 William Till, Grange.
Anthony Leak..... 103 17 0 over Sands* £79 17 6

Plumbing and Glazing.
T. Brishwaite, Grange-over-Sands* £15 5 0 Benjamin Ward £15 5 0
* Accepted.

RADLETT.—Accepted for the erection of a residential cottage. Cobden's Hill, Radlett, Herts. Mr. C. Collas Robin, architect, 39, Great James-street, Bedford-row, W.C. £590
Winchcombe & Co. order.

RAMSGATE.—For erecting four cottages, St. Luke's-avenue. Mr. W. A. Mackintosh Valon, C.E. Ramsgate:—
S. R. Fort £681 0 0 Woodhall £684 10 0
Mitans 565 0 0 J. & H. White* 598 0 0
Hayward & Paramore 641 0 0
[All of Ramsgate.] * Accepted.

ST. LEONARD'S-ON-SEA.—For alterations at No. 5, Grand Parade, St. Leonard's-on-Sea, for Mrs. Boverman. Mr. W. Cooper, architect, 31, Haydock-road, Hastings:—
P. H. Day £243 15 0 W. Coussens* £340 0 0
Fiddham & Hutchinson 593 0 0
* Accepted.

SALISBURY.—For additions to school. Messrs. John Harding & Son, architects, 51, The Canal, Salisbury. Quantities by architects:—
Fenkins & Sons £247 0 0 E. Hale £2090 0 0
Vincent & Folland 2,283 0 0 Webb & Co. 2,000 0 0
F. Day 5 20 0 Wort & Wray, Park
P. Chalkers 2,193 0 0 Works 1,959 1 1
E. Witt 2,175 0 0
* Accepted.

SEAFORD (Sussex).—Accepted for alterations to No. 2, Claremont-villa, Claremont-road, for Mr. W. Lambie. Mr. W. Cooper, architect, 31, Haydock-road, Hastings:—
Herr £350

SILVERHILL (Sussex).—For additions to St. Matthew's Schools, Silverhill. Mr. W. Cooper, architect, Hastings:—
H. Crutenden £258 10 0 H. Ashdown (accepted) £250

SOUTH CROXTON (Leicestershire).—Accepted for the erection of additional stabling. Messrs. Miles & Beasley, architects, Farnlane, Leicester. Quantities by architects:—
M. Hickling, Syston £200

TRETORD.—For New Cottage Hospital, Tretford, Norfolk. Mr. H. J. Green, architect, 31, Castle Meadow, Norwich:—
Adcock & Son £715 1 8 J. F. Houghton & Son, Tretford 774 0 0
S. Holden 774 0 0
* Accepted.

TIVERTON.—For erecting school's Tiverton, Bath, for the School Board. Messrs. Sulcock & Reay, architects, Georgian Chambers Bath:—
Gowlin & Son £8,191 J. Long & Sons, Railway,
Hayward & Wooster 7,899 road, Bath* £7,655
* Accepted.

TOWNHEAD, HOPE.—Accepted for taking down existing bridge over the River Nise at Townhead and erecting a new bridge, for the Chapel-en-le-Frith R.D.C. Messrs. Sealing & Savin, engineers, Town Hall, Chapel-en-le-Frith:—
T. A. Matthews, Euxton £395

WALSALL.—For additions to North Bank, Highgate, Walsall. Mr. Fred. W. Cross, architect, 2, The Bridge, Walsall:
A. Lynex £257 George Insley, Mount,
Wm. Wiseman 519 street, Walsall £459
W. Hughes 481
[Architect's estimate £450.]

WALTHAMSTOW.—For pulling down and rebuilding Nos. 41 and 43, St. James-street, in connexion with Everett's Stores, for Mr. R. Thos. Jolly, Mr. J. Williams, Dundard, architect and surveyor, 100, Queen Victoria-street, E.C. £2,048
C. Knight & Sons £2,484 Richardson Bros. £2,048
D. Gibo & Co. 2,100 Geo. Burgess 1,807
E. Fuller & Son 2,100 F. J. Colliard, Laytons
W. Lawrence 2,093 stone (accepted) 1,773
[Architect's estimate £1,790.]

WALTHAMSTOW.—For erecting a terrace of cottage residences, for the Freehold and Leasehold Investment Company, Ltd. Mr. E. C. Beaumont, architect, 78, Fleet-street, E.C. £3,570
Taylor & Sons, Portway, Waltham, Essex, £3,570

WESTGATE-ON-SEA.—For the erection of two dwelling-houses in the Minster-road, for Mr. B. Watson. Mr. T. W. Moore, architect, 76, Chancery-lane, London, W.C. £1,669 0 0
F. Fuller & Son £1,669 0 0 F. Pearce £775 0 0
J. Griffiths 1,145 11 8 A. Miles (accepted) 775 0 0
J. V. Kiddle & Sons 175 0 0
* Accepted.

WOODFORD.—For building a cottage at Woodford, Essex, for Mr. John Appleby. Messrs. Edward Brown & Son, architects, Commercial-street, Bishopsgate:—
Tasperiell & Davis £1,195 15 11 H. Wells & Sons* £140 0 0
J. V. Kiddle & Sons 175 0 0
* Accepted.

TO CORRESPONDENTS.

C. H. L. (amount should have been stated).
NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out names and giving addresses.
Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 25s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46, Cannon-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS (by prepaying at the Publishing Office, 19s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
SLATER and TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,
To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
Oakeley - Portmadoc,
And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.
BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Doulting Stone Co.).
Chief Office:—Norton, Stoke-under-Ham,
Somerset.
London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand,

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPEAGUE & CO.,
LITHOGRAPHERS,
Employ a large and efficient Staff especially for
Bills of Quantities, &c.
4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]
QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.
METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"
For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

SZERELMEY STONE LIQUID.
THE TEST OF TIME.
OVER FORTY YEARS' GENERAL EXPERIENCE
HAS PROVED THAT
SZERELMEY STONE LIQUID
ABSOLUTELY WATERPROOFS AND PRESERVES
BRICKS, STONE, CEMENT, PLASTER, STUCCO, &c.
Adopted by Governments and Public Bodies
throughout the world.
SZERELMEY & CO., Rotherhithe New-road, S.E.

THE
French Asphalte
COMPANY.

Suffolk House, Cannon-street, E.C.
SUPPLY THE BEST MATERIAL AND
WORKMANSHIP FOR BUILDINGS,
DAMP COURSES, AREAS, ROOFS,
WASHHOUSE AND DAIRY FLOORS,
&c., &c.

This Asphalte was chosen to be
laid at Sandringham, on the new
General Post Office, and other
important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

COPPER AND ZINC ROOFING.

F. BRABY & CO.

LONDON. LIVERPOOL. GLASGOW. BRISTOL.
352 to 364, Euston-rd., N.W. 6 & 8, Hatton Garden. 47 & 49, St. Enoch-square. Ashton Gate Works, Coronation-rd.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.
NO SOLDER. NO EXTERNAL FASTENINGS.
Particulars on Application. Chief Offices: Fittaroy Works, EUSTON ROAD, LONDON, N.W.

ILLUSTRATIONS.

The Pont Mirabeau, Autenil, Paris.—M. Rabel, Engineer, and M. Injalbert, Sculptor	Double-Page Ink-Photo.
The Grant Mausoleum, Riverside Park, New York.—Mr. Duncan, Architect	Single-Page Ink-Photo.
Directors' Private Room, Messrs. Macmillan's New Premises.—Mr. John Cash, Architect	Single-Page Ink-Photo.
The Grant Memorial, Riverside Park, New York.—Mr. Duncan, Architect	Single-Page Photo-Litho.
Memorial Chapel, All Saints', Grays.—Mr. C. M. Shiner, A.R.I.B.A., Architect	Single-Page Photo-Litho.
House, near Banstead.—Mr. Sydney Perks, A.R.I.B.A., Architect	Single-Page Ink-Photo.
"Holnwood," near Wimborne, Dorset.—Messrs. Crickmay & Sons, Architects	Single-Page Ink-Photo.

Blocks in Text.

Dun Angus on the Greater Island of Aran	Page 233	Oratory of Gallerus, co. Kerry	Page 233
Doorway of Beehive Cell from Interior, Fahan, co. Kerry. Pagan	Page 233	Interior of the Oratory of Gallerus, co. Kerry	Page 233
Period. Height 5 ft.	Page 233	Ground Plans. A. Killiney, B. "Trinity" Church, Glendalough	Page 234
Oratory on Skellig Michael	Page 233	Memorial Chapel, All Saints', Grays	Page 242
Measurement of Slates	Page 242		

CONTENTS.

The Grant Mausoleum, New York	231	Memorial Chapel, All Saints', Grays	242	General Building News	243
The Ancient Architecture of Ireland	232	House near Banstead	242	Miscellaneous	245
Notes	234	"Holnwood Park," Wimborne	242	Sanitary and Engineering News	245
Architectural Association Summer Visit	236	The Health Exhibition, Leeds	242	Stained Glass and Decoration	245
The Sanitary Institute Congress at Leeds	237	The Tabernacle, Milton Abbas	242	Foreign	245
Architectural Societies	239	Student's Column	242	Capital and Labour	247
Competitions	239	Form of Tender	242	Legal	247
The Pont Mirabeau, Paris	242	Use of Slates in London	242	Meetings	249
The Grant Mausoleum, New York	243	Student's Column	242	Recent Patents	249
Directors' Room—Messrs. Macmillan's New Premises, St. Martin's-street	249	Obituary	243	Some Recent Sales	249
				Tenders	249

The Grant Mausoleum, New York.



THE conditions under which public monuments are erected in the United States are not favourable to the creation of great works of art. The Congress, as well as the State and municipal authorities throughout the Union, are notably susceptible to the blandishments of the "promoter," and vast sums of money have been lavished upon memorials, architectural and sculptural, which had they been wisely expended, would have produced many notable memorials. It is only within recent years, since the Centennial Exhibition in Philadelphia in 1876, in fact, that the Americans appear to have awakened to the value of civic art; and architecture, alone, or in conjunction with sculpture, has assumed an importance that has given these sister arts a real artistic value and meaning with the people. The Exhibition at Chicago was an object lesson in monumental art, notwithstanding the perishable material of which the buildings and their adornments were composed, which must long have its influence on the American people. Artists and experts may, indeed, differ as to the real value of that display, but its educational value to the people at large was unquestionably very great.

Meanwhile, the work of erecting monuments to the great dead of the States proceeded apace—with the unfortunate result that very many important monuments have been erected, important from their subject, from their size, from their cost, from their manifest intention of being worthy of the object or the person they commemorated, but of which the artistic value is very slight. The public auspices under which many of these memorials were erected were frequently inadequate from the artistic standpoint, those having them in charge being too often content with spending so many thousands of dollars, and being satisfied with the expenditure without scrutinising too closely the artistic value of the result. It is more unfortunate, perhaps, that there should have been a general indifference on the part of the public to real artistic values, too much satisfaction with the mere expenditure.

General Grant died on July 23, 1885, and within five days a movement was inaugu-

rated in New York City for the erection of a suitable tomb and memorial within the city limits, Grant having expressed a wish to be buried there. The metropolis of America is notoriously backward in undertaking great public enterprises; rival cities claimed that an amount necessary to defray the cost of the most sumptuous modern monument could have been raised in any of them in as many days as it required years for the city of New York to obtain the relatively small amount finally fixed upon. A committee appointed by the Mayor of New York secured 150,000 dols. after much exertion, and then the movement languished until it bid fair to become a public scandal and disgrace. Several years passed; then renewed efforts were made, and finally, by dint of great efforts, about 600,000 dols. were obtained, in which sum the accrued interest formed a not inconsiderable item. The story of the securing of these funds is not a creditable one to America or to the great city in which the tomb has been built. It was deemed inadvisable to ask for contributions from the State or the national governments, and it is doubtful if such aid could have been had, so general was the feeling that New York City should meet the cost. So from 1885 until the spring of the present year, the body of America's greatest general, one of the world's greatest commanders, lay in a temporary vault of brick, until a more suitable monument should be built beside it.

A public competition was instituted for a design, in which many of the leading architects of America took part, and for which many sumptuous and splendid proposals were made. This was held before the great difficulty in securing funds had become generally recognised, and it was hoped that money would be obtained to produce a memorial at once fitting to the hero and expressive of the best in American art. The design by Mr. Duncan, which was finally selected for erection, was by no means one of the most elaborate; but the later history of the Grant Memorial Association, as the body that made itself responsible for the tomb was known, has proved that, on grounds of expediency at least, the choice was a wise one. Unquestionably, a more elaborate monument could have been erected; but without that liberal State aid which no country in the world save France knows how to advance, it is difficult to see how a more imposing one could have been built.

The site chosen for the tomb is an ideal one, situated on the heights of Riverside Park, which runs along the Hudson River in the upper part of New York, and commands a superb view of the great river and the city. More, indeed, can be seen; for on one side the view is bounded by the Palisades on the New Jersey shore of the river, and on the other it is possible, from the upper part of the Tomb, to see far across the city, clear to the East River on the other side, and out across Brooklyn into Long Island. Perhaps no other great Tomb in the world enjoys a situation that so closely approaches the sublime as this, and had not the architect been limited by the inevitable and unavoidable question of cost, a truly splendid memorial might have been erected here. It is not, however, what might have been done that calls for comment, but what has been done.

A building that is a tomb and nothing else, that is connected with no other structure or group of structures, that does not contain even so much as a chapel or a memorial chamber, that is nothing, in fact, save a housing for a sarcophagus, at once challenges comparison with the other great tombs of the world. What the Mausoleum of Halicarnassus was like we can only conjecture, but in the Mausoleum of Hadrian, which still survives *en bloc* in the Castle of St. Angelo, we have a type of a great Roman tomb that is, perhaps, the most expressive form of this sort of structure we know. The Taj Mahal is a building quite apart from western ideas, and could offer no suggestions to the western architect. The tomb of Napoleon in the Invalides in Paris is a more useful guide to modern tomb builders, and possesses, in a very high degree, the elements of sublimity and majesty in building and of suitableness as a military memorial. No modern architect, designing in the Classic or Renaissance styles, could well free himself from the influence of the tomb of the great French Emperor; and, as a matter of fact, Mr. Duncan has drawn upon both the Tomb of Hadrian and the Tomb of Napoleon for his inspiration.

Externally the building* is simple and severe, a form of treatment not inappropriate to the simple and unaffected character of the General it commemorates. It is built of white granite, and consists of three parts—a lower rectangular portion, almost cubical in form, with a frontage on each face of 90 ft., on which rests a cylinder that, in turn, is

* See lithograph illustrations.

surmounted by a cone. The entrance is emphasised by a projecting portico of six Doric columns, carrying an entablature which is continued around the four sides of the building, though the three remaining sides have simply four Doric columns set within the line of the building, marking off the space occupied by square windows in the upper part of the wall. The entrance portico is a stately composition, flanked by solid masses of the main wall that admirably support it on either end; but the pediment, which is an integral part of the Doric portico, is absent. Instead, there is a deep, plain attic-like stretch of wall carried above the cornice, and surmounted by a cornice of its own. It is not a happy division, for the portico cornice, when continued on the main wall, becomes a mere ornament, carried around the building apparently to get rid of it, and that at a point not quite high enough to properly proportion the square attic, which, indeed, is not an attic at all, but the main wall of the building, carried up behind the lower cornice to its own crowning at the top. Above is a very flat pediment, a bit of wall with a decorated niche in the centre, slightly lower at each end than in the middle. On the other sides, this wall or attic is straight, but on the main front the slight rise in the centre forms the only device whereby the lower part of the building leads to the upper members.

Had the tomb of Grant been built by the Romans, we may readily imagine it might, in its bare outlines, have taken some such form as this. That is to say, its architectural members might have been a cube surmounted by a cylinder and capped by a cone. But the Romans would never have erected a monument so bare of sculpture as the tomb of Grant, though it is indeed just to its architect to point out that his original design called for the employment of a not inconsiderable quantity of sculpture, which it has been impossible to put in place with the funds in hand. But as the building now stands, it is not only bare, but the different parts are not sufficiently correlated with each other. The cylinder is simply placed on the top of the cube, and the cone, again, placed on the top of the cylinder. No one portion leads to another, and the differences in shape are too baldly expressed. In time, doubtless, some of this bareness of effect will be removed by an elaborate decoration of sculpture, a decoration perhaps more elaborate than that now thought of; but, meanwhile, the building suffers from being just what it is—three forms placed one above the other. The cylinder is surrounded with a colonnade of twenty-four attenuated Ionic columns, unfluted, resting on a rather high stylobate, and carrying a cornice, which, like the other cornices of the building, is plain and undecorated. It does not reach to the top of the cylinder, which reappears above its cornice as a base for the cone, built in steps, and surmounted with a small circular platform, unquestionably destined for a statue or a group of sculpture.

The difficulties that attended the architect are, therefore, very obvious. As a building the tomb is large enough and important enough to serve its purpose satisfactorily; but it fails of complete success as a work of art because its designer was unable to avail himself of the lavish decoration the Romans, on whose tombs he has modelled his monument, would have em-

ployed as a matter of course, and which would have formed an integral part of the work. Further, the proportions are not altogether happy; the masterly spirit of the Romans, their skill, their resource, are absent. It was perhaps not wise to have followed Roman models so closely in the architecture without being absolutely able to follow them in the enrichment. But the original design provided for a good deal that is not here. Four equestrian statues were to stand on low pedestals that have been built above the four central columns of the portico; an equestrian statue of Grant was to stand on the open space before the building; the cone was to be surmounted with a statue, and doubtless the upper corners of the cube or base would have been decorated in a similar fashion. All this may yet be done, and when it is, the tomb of Grant will be more worthy to rank among the great monuments of modern times than it is to-day.

Rome furnished the model for the exterior of the monument; Paris supplied the *motif* for the interior. Few tombs are so impressive as that of Napoleon, with the great opening into the crypt below and the high dome above. It is a splendid conception, and in the Invalides it has been splendidly carried out. Difficult as it must be for a modern designer to forget that sumptuous design, it is also difficult to follow it, for comparisons are inevitable. The interior of the tomb of Grant cannot compare with the interior of the tomb of the Invalides. At the Invalides there is an abundance of space, an abundance of material, and direct connexion with a great church that is in itself of value to the interior of the dome. In the tomb of Grant we have the dome alone; we have the form, the idea, but not the size, nor even the splendour of material. The interior is not, indeed, wanting in lavishness. The walls are encased in marble to the main cornice, which, with the vaults of the four recesses that make the Greek cross of the interior, and the upper walls of the dome and the dome itself, are of plaster. Time will do much to better this interior; at present the differences in material are too obviously apparent for a complete artistic success.

As at Paris, there is a great circular opening in the centre of the floor directly beneath the dome, and there, bending over the solid plain balustrade, the pilgrim and the curiosity-seeker can see the tomb of the hero. The tomb chamber itself is plain, a series of solid unornamented marble piers forming a passage around it. In the middle is the sarcophagus; not, indeed, in the centre, for when the body of Grant was given to the city of New York for interment, his wife stipulated that she should have burial beside him. At her death there will, therefore, be two sarcophagi, side by side, resting on a common base; an arrangement with which the architect has had nothing to do, of course, but which destroys somewhat the individuality of the memorial, and robs it of some of the sublimity that surrounds the solitary tomb of Napoleon. The sarcophagus is of a dark brownish red porphyry, obtained in the State of Wisconsin, resting on a pedestal of polished bluish-grey Quincy (Mass.) granite. It bears the simple inscription, "Ulysses S. Grant." The lower chamber is reached by a flight of steps, filling one of the arms of the Greek cross,

though it is not generally accessible to the public.

The interior of the building, as has been stated, is planned as a Greek cross, that form being determined by the employment of a dome as the central feature. The spaces within the piers form four small chambers, each roofed with a dome, which, in time, may be put to memorial uses; at present they are empty. The arms of the cross are covered with coffered vaults in plaster, and the drum of the dome is treated with pilasters, with rectangular windows between them, each containing a pair of Ionic columns. A passage carried round the cylinder without the windows is lighted by plain windows cut in the stylobate of the exterior colonnade, and which, while visible from without, are devoid of architectural features. The dome is coffered and is hemispherical in form, and is closed at the top by a plain flat circular surface, somewhat too large for the position it fills. The dome, like the vaults of the arms of the cross, is of plaster, carried on steel supports.

The upper parts of the interior are sufficiently satisfactory from a decorative standpoint, though the constructional purist could wish the whole covering had been built of the solid material that forms the base and the side walls; could wish, indeed, that it were really a solid tomb, such as the Romans would have made had they had the building of it. But modern methods do not always permit the architect to carry out his designs in the actual material he would wish for; nor, in fact, as the design necessitates. Material apart, however, the upper parts are sufficiently in keeping with the stately architecture of the whole.

The tomb of Grant, whatever its form, wherever its location, must always be a spot of the utmost interest. That it is not wholly an architectural success is a misfortune that should not be completely visited upon its designer. The difficulties he had to contend with in the matter of cost were too great, for a monument planned on the large scale the tomb has been planned on, to be entirely successful. But it is a genuine effort to produce a work worthy of the hero it commemorates and the great city in which it is built. Certainly it is entitled to rank among the most notable monuments in America, and it is a building that is not likely to suffer in comparison with any other similar monument raised by American patriotism and admiration.

THE ANCIENT ARCHITECTURE OF IRELAND:

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

By PROFESSOR BALDWIN BROWN.

II.

THE series of successive types which illustrate the development of Irish architecture begins with structures which are certainly of pagan origin, but differ through their historical character from the dolmens and other rude stone monuments of wholly uncertain date. Literary references enable us to recognise the tumuli of Dowth and Newgrange, by the Boyne, as burial places of ancient Irish kings, while the incised markings on the stones of which they are composed have led students of comparative ornament to suggest dates for them in the

first millennium B.C.* Access to the interiors of these immense mounds is gained by passages lined and roofed with huge upright and horizontal slabs of unhewn stone, and these end in chambers, circular in plan, and in section resembling a bee-hive, wholly constructed of unworked stones, forming a vault by the system known as encorbelment. Chambers or cells of precisely similar character occur as independent buildings in the open in many districts of Ireland, and indeed of the western seaboard of Britain generally. The doorways of these are often constructed like the passages in the tumuli, with jambs of huge upright stones; at other times there is no special treatment for the jambs, and the doorways are just breaks in the walling; but in all cases the lintel is formed of a horizontal stone, with perhaps another above it to relieve it from pressure, while for the purpose of reducing the obligatory length for these stones, the sides of the doorway converge, so that the aperture is smaller above than below. Structures of this kind are found sometimes in formally planned groups, and these may once have been covered over by tumuli (such as those by the Boyne already referred to), and have had a sepulchral character. Others are found scattered over the areas within the great stone forts that are such remarkable features of the west of Ireland and of Wales. These forts, of which Dun Aengus, on Aranmore, in Galway Bay, is the most imposing, are certainly pagan in origin. They are defended by successive enceintes of dry stone walls of great height and thickness; their doors are of the kind just described, and bee-hive cells are found within the mass of the walls, as well as in the open areas, where they seem certainly to have been used as habitations. Fig. 7 is a distant view of Dun

ings of an early type. Among these are some bee-hive cells exactly like those already referred to, but these might con-



Fig. 8.—Doorway of Bee-hive Cell from interior, Fahan, co. Kerry. Pagan period. Height 5 ft.

ceivably be survivals from a pre-Christian time when the place was a secular fort. In Skellig Michael, on the other hand, the structures are, one and all, certainly Christian. The massive wall of enclosure forms a Christian "cashel" and is constructed just like the pagan stone forts (see fig. 5, p. 216 ante), while some of the bee-hive cells are stamped as Christian by a cross formed by white quartz stones over the doorway. These, however, show a divergence from the simpler form hitherto discussed in that, though circular externally, they are rectangular, with sharp or rounded corners, in the interior. At Skellig Michael, also, we get another type of building, of which the plan is distinctively Christian, though the technique is the same as that of the bee-hive cells. This is the rectangular oratory, used for prayer and service, and not for residence, represented here by two examples, of one of which measured drawings appeared in the *Builder* of February 20, 1892. It stands just above a projecting corner of the cashel wall, and its general form can be seen in fig. 9. It measures only about 8 ft. in in-



Fig. 9.—Oratory on Skellig Michael.

ternal length, and is entirely constructed of slab-like pieces of slate, untouched by the tool. These are placed from the ground upwards in the system of encorbelment, so that the sides converge from the first, and the whole looks like a truncated pyramid with convex sides on a rectangular base. The door has a flat lintel and sloping jambs built like the rest of the walling.

Oratories of this type are generally held to give us the earliest existing form of the Christian church in its Celtic shape. They are commonly more or less oriented and have the door on the west, with a small

window to the east. The most perfect example, though it is not one of the earliest of its class, is the famous oratory of Gallerus on the Dingle promontory of County Kerry (fig. 10),



Fig. 10.—Oratory of Gallerus, co. Kerry.

one of the most interesting little buildings in Europe. Gallerus—the meaning of the name is not known—is constructed with extreme care and skill, and has preserved its walls and stone roof intact for, perhaps, 1,200 years. The form is the same as that of the oratory on the Skellig (fig. 9); but the stones in the interior have been, to some extent, smoothed by the hammer, and they lie so closely together that the surfaces of contact have probably been treated in the same way. Fig. 11



Fig. 11.—Interior of the Oratory of Gallerus co. Kerry.

gives the aspect of this interior masonry in the south-east corner. No cement of any sort has been used, and it is easy to see daylight through the crevices between the stones of the walling. These crevices do not, however, let in moisture, for the stones are bedded with a slight downward slope towards the exterior, so as to throw off the rain. This slope has also a constructional value as counteracting the tendency of the stones as they overlap on the interior to topple inwards. The exact statics of this method of construction might be worth investigating.

It is commonly spoken of in architectural books as a "false" or "faultry" method, but it is employed in these small oratories with perfect frankness and with perfect success, and it is difficult to see where the faultiness comes in. There is hardly a trace of deformation in the curves of the sides of the oratory of Gallerus, and it has never needed restoration. The utmost that seems to have been done in this way is the replacing of the triangular stones forming the external ridge of the roof. Clearly, if proper conditions are observed, the stone vault in encorbelment is a perfectly legitimate constructive device,

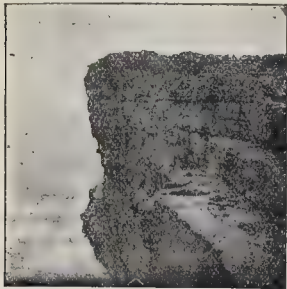


Fig. 7.—Dun Aengus on the greater island of Aran.

Aengus, on the edge of a wall of rock, descending some 300 ft. sheer into the Atlantic. Fig. 8 shows the interior, with doorway, of one of the half-ruined bee-hive cells within an enclosure at Fahan, county Kerry. The stones are field-stones put together without mortar, and the roof was originally completed by the process of overlapping in horizontal layers.

It happened more than once that the interior of a stone fort or "cashel" of this kind was taken possession of by a Christian community. Of this we have literary as well as monumental evidence. A well-known example is Innismurray, off the coast of Sligo, where an enceinte, certainly of a non-Christian origin, encloses Christian buildings.

* An illustration of this ornament was given in fig. 6 of the preceding paper of this series, p. 217.

and it has, moreover, the advantage that it supports itself without the need of external buttresses or excessive thickness of lateral walls. These proper conditions are present when the outward and downward slope of the stones is not so great as to endanger their slipping on their beds, and when the section of the vault is sufficiently pointed to preclude a dangerous overhanging of one course over the one below. This last requisite would militate against the construction of vaults of this kind above a certain moderate span; but further discussion of the process may be left till we come to the modifications of it seen in later Irish architecture.

In these early forms of the Celtic oratory we have to notice, first, the rectangular plan in which they differ from the "bee-hive" form characteristic of the interiors of the pagan period, and, next, their interesting methods of construction.

For clearness' sake it will be well to treat these two points separately. The class of rectangular oratories is a numerous one, and embraces examples from many periods and in more than one system of construction. These constructive differences will be considered later on, and, confining our attention for the moment to plans, we may pass from the simple one-celled oratory to the next type, the church with nave and chancel. Here again we have to deal with a large class of buildings represented in most parts of Ireland, that show a distinct architectural advance, though it does not follow that in individual cases single-celled oratories may not be later than churches with chancels. There are instances in which a single-celled oratory has been enlarged by the subsequent addition of a chancel, but in the majority of cases nave and chancel are contemporaneous, and we may take this to be normal. The buildings in question are plain structures, with a nave generally entered through a west door, and lighted by primitive windows with a square or triangular head, or a round one cut out of one or perhaps two stones. An archway leads into the small, square-headed chancel, that has usually an east window and one other of the same kind as those in the nave. The old stone altar very commonly remains, and this is a feature in which Irish country churches have an advantage over our own. Ground plans of two characteristic examples are given in fig. 12,

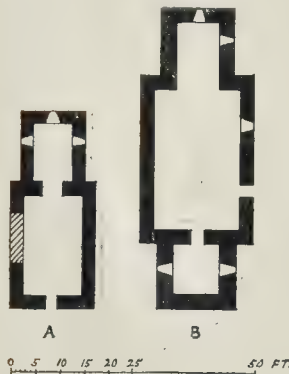


Fig. 12.—Ground Plans. A, Killiney.
B, "Trinity" Church, Glendalough

Killiney old church, near Dublin, and the so-called "Trinity" church at Glendalough,

county Wicklow. Both are roofless and in ruins. One of the chief features of interest in these buildings, for the purpose of these papers, is their remarkable likeness to typical early Saxon churches in our own country, of which the most perfect is Escomb in Durham. Leaving this point for future treatment, we may ask the question here: Were these plans of purely native growth, or to what extent can continental influence be traced in them?

This question cannot be discussed without some reference to literary sources of information. In the case of Irish antiquities, these flow pretty freely. For St. Patrick and his times we have contemporary documents, supplemented by the matter contained in the Book of Armagh of the eighth century; and if we employ nothing of later date than the latter, or than the "Ecclesiastical History" of Bede, we find ourselves in possession of a goodly number of literary notices with which the monuments may be compared and illustrated. Christianity, it must be borne in mind, was itself a foreign importation, and with Christianity we should expect to find introduced the arrangements and apparatus of service. The Eucharistic table was one of these, and this had a simple form. The complications which arose on the Continent from the accidental association of the altar with the tomb of a saint do not appear to have troubled the Irish. Hence the *confessio* and the crypt play no part in the development of their church plans, and they seem to have kept the altar in early times to its original significance of the table of the *agapé*. The proper placing of the table was, however, from the first a matter of importance. This is clear from the attention paid to orientation, and it was this that in all probability determined the general plan of the oratory. We have seen that the bee-hive cell is the earliest known type of covered interior in Ireland. An interior round in plan cannot be oriented, and does not offer any distinct position for such a feature as the altar, and the difficulty arising from this occurred on a much larger scale in the case of the round or polygonal domed churches of the Continent, such as S. Vitale at Ravenna, S. Lorenzo at Milan, or S. Stefano at Rome. In these no place could be made for the altar without some modification of the architectural plan, and it was the great merit of the design of Sta. Sophia at Constantinople that it gave the altar its place of distinction without any sacrifice of consistency in the general architectural treatment essentially dependent on the dome. The substitution of the rectangular for the traditional round form of interior among the early Irish Christians may have been due to the cause here indicated, and it is interesting to find this change hinted at in the records of St. Patrick's life and work. In one often-quoted passage we have given the dimensions of certain ecclesiastical structures which this indefatigable missionary used to have built, and as only one measurement is in each case given, it has been suggested that the buildings were round, so that the diameter gave the size. If this does not seem quite convincing, we have the further significant fact that we are told several times,* of *ecclesia quadrata*, and

this adjective would hardly have been used had not the round form been at the time familiar. No existing oratories are likely to go back to the time of St. Patrick, but we may see some sign of this transition in the shape of the cells on Skellig Michael, which, as is seen on the plan given in the *Builder* of February 20, 1892, show a sort of compromise between the round and the rectangular form. That they are generally to be regarded not as oratories but as dwellings, seems clear from the openings in the roof for the exit of smoke. (In one the outlet was a round hole about 5 in. in diameter in a flat slab about 2 ft. square and 2 in. thick). They exhibit, however, through the rectangular form of their interiors, an intermediate stage in the development of the oratory, between the bee-hive cell used as a church and the regular four-sided structure. It is quite possible that the largest of these cells, which is oblong in plan and has a window as well as a door, may really have been a church, in which case the cross marked with white quartz stones over its portal would have special significance. This would give us an existing example of a type earlier than the *ecclesia quadrata*.

From the rectangular oratory, where the altar finds its natural place at the small end opposite the door, a logical process of development, conditioned by the growing mysticism of the times, might easily lead to the construction of a special house for the sacred table and its ministers. In this way we might arrive at the nave-and-chancel plan without there being any question of external influence. The relation, however, between the forms of Irish churches and those prevailing on the Continent, opens up an interesting problem, the discussion of which must be reserved for the next paper.

NOTES.

At a special meeting held after the conclusion of the Brussels Architectural Congress, it was decided that a Congress of Architects should be held at Paris in 1900 in connexion with the great Exhibition of that year, and the *membres d'honneur* of the recent gathering were requested to assist the Paris committee in arranging for a representative participation of their respective countries. The proposed Congress was, we might almost say, expected as a matter of course, for no city has ever indulged in so many gatherings of this description on the occasion of its exhibitions as Paris. But we may add that at Brussels, at the Berlin national gathering of last year, at Budapest, and at Chicago, where architects have met in any considerable numbers, the wish has been very strongly expressed that one of the next professional meetings of the kind might take place in London. It might be worth considering if our own capital should not be the centre of an international congress prior to the Paris conference, for it would mean waiting five years at least if such a gathering were postponed until after 1900. Many foreign architects would greatly appreciate seeing English work and attending a conference dealing primarily with our recent developments in design, construction, and professional practice. Continental architects of all nationalities are well in touch with one another, but there has not been the same

* The passages bearing on architecture in the documents relating to St. Patrick are referred to on p. clv. f. of the introduction to Mr. Whitley Stokes' "Tripartite Life of St. Patrick," in the Rolls Series.

exchange of ideas and experience between England and the Continent. There is a very strong feeling among the architects of the Continent that London would be the right place for an Architectural Congress. Such a conference, however, should be managed on broad lines by a joint committee representing the Royal Institute of British Architects, the Architectural Association, the allied Societies, and the "unattached" members of the profession. To be successful, the English profession as a whole would have to do the honours of the country, and personal or society differences would have to be disregarded. If that could be brought about, it would in itself be one of the best results of the conference.

St. Alban's Abbey.

WHATEVER may be the opinion as to the artistic merits and demerits of the work which Lord Grimthorpe has carried out at St. Alban's Abbey, the world has generally, we believe, been inclined to admit his skill as a builder and constructor at his own valuation, high, indeed, as this has been. Time, and, in the history of a cathedral church, a very short time, has found out the incompetence of the amateur, though wealthy, builder and restorer of St. Alban's Abbey. The roof tiling has been so ineffective in keeping out the weather that it is now in course of being completely stripped and replaced with new, laid in a more sensible manner. The mischief seems to have been caused by the bedding of the tiling completely in mortar, a method which has afforded opportunities for the frost to play havoc with the weather-tight qualities of the roofing. Nor is it only the roof tiling which requires and which is receiving reparation. Much of the parapet coping has from faulty selection of the stone, and improper amateur construction, come to grief, and has had to be extensively repaired. These works are now being carried out on the north transept and north aisle. The roof of the south aisle has been put in order, but on looking round the building, after our inspection of the works actually in progress, we cannot help coming to the conclusion that even these, extensive as they are, will not be the end of the rebuilding that will be necessary before very long to the restoration work of the great amateur builder, "Edmundus Recens Aedificator." We notice that many of the bases to the shafts of the west portal are fractured from improper construction, and that window-sills, even in some of the latest work of Lord Grimthorpe, have been cracked through. These, and other indications, force us to the conclusion that Lord Grimthorpe has left undone one most important duty, viz., the endowment of a very substantial sustentation fund for the repair of his own work.

Mont St. Michel.

THE works which the Commission des Monuments Historiques have authorised on Mont St. Michel under the superintendence of the architect, M. Petitgrand, are being pushed forward with all rapidity compatible with the very restricted resources of the Fine Art Treasury. These extremely important works are already well advanced, and some months ago there was completed the elegant flèche which rises above the church, and which supports at a height of

40 mètres, the gilded statue of St. Michel, the work of the sculptor, Fremiet, which itself measures 4 mètres in height. In our opinion, this addition is somewhat startling, as on arriving by way of the embankment from Pontorson, the eye has become accustomed to the classic silhouette of this graceful monument. But it appears that it is no more than a simple restoration, and that formerly a similar flèche crowned the Mont St. Michel. Let us hope that a too literal restoration may not hereafter be found to have resulted in altering the harmonious character of the ensemble, and that the landmark may be preserved as it exists, without any modification that savours of vandalism.

Excavations on the Acropolis, Athens.

THE long looked for report on the north side of the Acropolis has just appeared in the Athenian *Ephemeris Archaeologike* (1897, 1 and 2). We have frequently drawn attention to the progress of the work, and are now able to refer our readers to the full official account by the Ephor of Antiquities, Mr. Kabbadias. The report is unfortunately in modern Greek, but the plans, sections, &c., show the main facts apart from the text; they are accompanied by four photographic views. For those who read German there is a *résumé* of the report in the *Berliner Philologische Wochenschrift*, September 11. The Annual of the British School at Athens, which under the new directorship has shown such marked development, would do good service if it would promptly publish an English version of these important reports of the work of foreign schools. We must be content here to note that the excavations have thrown some light on the vexed topography of two classical plays, the *Ion* of Euripides and the *Lysistrata* of Aristophanes. M. Kabbadias thinks that before the Persian War the west of the two grottoes laid bare was dedicated exclusively to Apollo, and that Euripides committed an anachronism in calling it "the seats of Pan." He declines, however, to say whether Dr. Dörpfeld's view that the cave was actually called the Pythian is correct.

Pediment Sculptures of "Old Athene Temple."

IN spite of these complications, the work of setting in order the great mass of sculptured fragments discovered in the Acropolis goes on apace. In the "Mittheilungen" (xxii., 1, 2) an important paper has just appeared, publishing the fragments that have been identified as belonging to the pediment of the "Old Athene Temple." The work has been one of extreme difficulty, owing to the shattered condition of the fragments. As long ago as 1886, Dr. Studniczka initiated it by detecting a torso of Athene which he conjectured formed part of a Gigantomachia decorating the pediment of the old temple. Since then the work of restoration has gone on continuously, with results that can be judged by reference to plates iii., iv., and v. of the *Mittheilungen*. Anything like a restoration of the composition as a whole is, unfortunately, out of the question; but the investigators have restored to us a figure of Athene, complete, save the arms, and three torsos of fallen giants. Considering that the date of these figures is certain—so far, at least, as the terminus *ante quem*, it would be hard to over-estimate their value as historical documents. Dr. Schrader's

paper is to be followed shortly by a paper by Herr Wiegand on the architectural remains of the old temple, and its probable restoration.

The Old Deer Park, Richmond.

WE read that the Town Council have nearly completed negotiations with the Chief Commissioner of Works for purchasing about ninety acres of the Old Deer Park as a public recreation ground. The Old Park, first cited in a survey of the manor, 21st Edward I., includes the grounds of the Sheen Palace, reinstated by Henry V. and rebuilt by Henry VII., whose successor bestowed it in dower upon Anne of Cleves, after her divorce. In a survey of 1649, its extent is given as 349 acres—these, with the manor, were settled on Queen Henrietta Maria in 1627. In 1707 Queen Anne demised the lodge for a term of ninety-nine years to James, Duke of Ormonde, who rebuilt the house which on his attainder was bought, under an Act of 1721 in that behalf, by his brother the Earl of Arran, who sold it to the Prince of Wales (George II). The lodge was then assigned to Queen Caroline, who had a dairy and menagerie in the Park, and employed Rysbrack to make busts of English kings and queens for the Merlin's Cave, and Stephen Duck as her librarian. The gardens were first planted by Bridgman, and then altered by "Capability" Brown. The lodge, whose site is marked in Rocque's plan of 1748 and his survey of 1762, was pulled down *circa* 1770; close by was erected, 1768-9, after Sir William Chambers's designs, the Observatory, latterly used by the British Association for the Advancement of Science. Chambers laid out the old Kew Palace Gardens, and designed various buildings—including the Pagoda, Mosque, Temple of Æolus, Temple of Victory (Minden), and the "Ruins"—which he has described and illustrated.* In 1785 an Act passed enabling the King to close Love-lane and so unite Kew Gardens and the Old Deer Park into one. Sir Jeffry Wyatville built the Doric Temple, or "Pantheon," for William IV. The Queen presented the collection of mechanical models and philosophical instruments formed by George III. at the Observatory to King's College, London.

Sanitary State of Horsforth.

DR. R. BRUCE LOW's report to the Local Government Board on the sanitary circumstances of the Horsforth Urban District, has special reference to the public water supply there, and its connexion with a recent outbreak of enteric fever. The outbreak appears to have been due to contaminated drinking water, supplied by the Horsforth Waterworks Company. The water is filtered before it is delivered to the district. There are at present four filter-beds, each measuring 31 ft. 9 in. by 36 ft. 6 in. The filtering material consist of 2 ft. of sand; below this is a layer of 8 in. of small river pebbles, and below this again is a layer of 1 ft. of coarser pebbles. Three filters are worked at a time; the fourth meanwhile being scraped and rested. The water, after filtration, is conveyed to an adjoining "clean-water tank," which measures 90 ft. 6 in. by 53 ft. by 8 ft. 10 in., and has a capacity of 300,000 gals. Besides the high level and low level reservoirs, the company possess a third reservoir

* See his designs of Chinese buildings, &c., fo. 1757, and plans, elevations, sections, and perspective views of the buildings at Kew, fo. 1763.

to supply compensation water to mill-owners lower down the valley. This reservoir receives storm water, the overflows from the two storage reservoirs, and as well the land drainage of an area below the gathering ground of the company. At the waterworks there is a valve by which the unfiltered water from the compensation reservoir can be turned into the mains, and so delivered to the town instead of, or in addition to, the filtered water. A caretaker resides at the waterworks. His duties are to attend to the valves, to keep the filter-beds in working order, to wash the sand, and to attend to the fences. He is little better than an unskilled labourer. When the occurrence of fever cases drew attention to the water supply, it was found the valve in question was open, with the result that the district was being supplied in large part with the unfiltered water from the compensation reservoir. It has also been alleged that the caretaker, to save himself the trouble of scraping the filter-beds and washing the sand, had kept this valve open for indefinite periods, extending over several weeks at a time; but this the man denied. Dr. Low's account of the gathering ground affords evidence that excremental pollution of the water passing into the reservoirs has been highly probable, and the fact that unfiltered water has been from time to time supplied to the town, and more especially that it was supplied for some weeks preceding the enteric fever outbreak, is altogether consistent with the fever poison having been water-borne. Among some of the points which required immediate attention, Dr. Low indicated the following:—

The necessity for dealing with the sewage of the farmhouses so as to prevent its passage into the streamlets.

The need for additional filter-beds, so as to ensure the proper cleansing and resting of the beds at appropriate intervals, with renewal of filtering material when necessary.

The necessity for the provision of a duplicate "clean water tank," so that one such tank might be kept in use when the other was being cleaned out.

The necessity for taking steps to prevent, on all occasions and under all circumstances, the passage of unfiltered water into the town mains.

Since then some improvements have been effected, and it is stated in the report that, should the company carry out their projects in full, much will have been effected to prevent a recurrence of the serious dangers to the water supply.

The Engineering Strike.

THERE appears to be no doubt that the engineering strike is likely to be one of the most momentous conflicts between capital and labour of the present time. The attempts of the Board of Trade to bring the opposing parties to a conference appear from the first to have been wholly unacceptable. It is not surprising; so far as regards the question of an eight hours day, the issue is so simple and clear that a third party cannot be of the least use, for it is difficult to see what middle course there can be to which an impartial person could reconcile the combatants. On each side, too, there are combination and ample funds, and the victory or defeat which one or other must gain or suffer must have consequences beyond the immediate parties. It will probably affect the length of the hours of labour all over England. Taking, then, all these circumstances into consideration, it is

difficult, as we have said, to see how a long period of conflict can be avoided.

Liquid Air.

A SUGGESTION which originated in America that it would be economical to use liquid air as an insulator for electric transformers has been gravely discussed by some of the daily papers. Professor Fleming, writing recently to the *Electrician*, shows the absurdity of the proposal. The energy wasted in a thirty horse-power transformer costs generally from 1s. to 1s. 6d. a day to the producer. To get rid of this waste at least thirty-six gallons of liquid air daily would have to be employed, and, considering the present price of liquid air, the whole proposal is seen to be chimerical. If we could get liquid air at one-tenth of a penny per gallon, then possibly it might be worth considering. Professor Fleming points out that along all conductors immersed in liquid air heat travels very rapidly, and to prevent all the air boiling away the greatest precautions are necessary. Ordinary commercial vacua are very different from those Professor Dewar produces in his vacuum vessels by means of his mercury process. Whilst the use of liquid air in the manner suggested is quite impractical, yet the Linde and Hampson process has so reduced the cost of its production that it will probably soon come into general laboratory use. In the papers which Professors Fleming and Dewar communicated to the Royal Society last June, a number of interesting researches on the electric properties of certain liquid solutions at very low temperatures are described. The results are most puzzling and extraordinary. For example, the resistance of a solution of copper sulphate at -330° Fahr. was a hundred thousand times greater than its resistance at -112° Fahr.

Dover Pier and Victoria Station.

A CORRESPONDENT in the *Times* has called attention to the various inconveniences suffered by travellers from the Continent who cross from Calais to Dover, and so on to London, in connexion with the examination of the baggage. No doubt the arrangements are faulty, but very largely they arise from the inadequacy of Dover Pier and Victoria Station for the increased traffic. At Dover narrow gangways land passengers on narrow steps, whereas wide gangways should place them on an easy and broad flight of steps. The platform is far too narrow, and the refreshment-room, where wearied passengers seek to obtain their cup of tea, is a little structure barely sufficient to hold two attendants. This statement is sufficient to condemn the present state of Dover Pier as the chief landing-place from the Continent, and passengers must continue to suffer inconvenience till Dover pier itself is improved. Again, all Londoners are familiar with the wretched shed at Victoria Station, which does duty for a Customs house, into which passengers are crowded, mixed up with porters and luggage. But here again the true remedy is to erect a proper Customs house. But Victoria Station is itself, as a whole, in many respects quite inadequate for its purpose as an important Continental terminus. It illustrates a fact to which we are constantly calling attention, namely, that several of the London terminal stations are now quite too small for the traffic.

According to the *Deutsch* A Contractor's Responsibility.

ACCORDING to the *Deutsch Bauzeitung*, an interesting legal case has been decided under the German Compensation Act of 1887, by which a contractor was held responsible for an injury sustained by a "blackleg" who was working for him during a strike in the building trades, and had been attacked by the strikers whilst within the boundaries of the building operations. It was held under the Compensation Act that it was a business of the contractor to protect "blacklegs" from the well-known dangers of an attack by exasperated strikers, and if the contractor failed to take the necessary precautions, he must do so at his own risk, as strikes have practically become one of the "ordinary dangers" of the building trade. No doubt this opinion is quite correct in law, and the reasoning may be logical, but surely such a state of affairs ought to be remedied.

The Paris Exposition of 1900.

The engineer, M. Sauterau, has laid before Mr. Picard, Commissioner General of the Exposition of 1900, a scheme for the representation at Paris of the church at Vassili-Blagennoi, erected at Moscow in 1554, and which, with its eleven towers of varied forms and colours, is one of the most curious buildings in Russia. If the idea is adopted this monument could serve during the Exposition as a museum or a hall for fêtes and musical performances.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

NEW CHURCH OF THE HOLY TRINITY, ROEHAMPTON.

A SOMEWHAT small party of members of the Architectural Association went on Saturday afternoon last to see the new Church of the Holy Trinity, Roehampton, which is now rapidly approaching completion from the designs of Mr. G. H. Fellowes-Prynn. After a pleasant walk from Putney Station, the party were met on the site by Mr. Prynn, and conducted over the building. The working and detail drawings were laid out for the inspection of the visitors, and the architect explained some of the peculiarities of the site, and the influence these had upon the design. The greatest drawback is the limited dimension in length, the church being closely hemmed in on the east and west by hard and fast lines. This difficulty of the site, however, is by no means apparent internally, owing to the skilful proportioning of the nave arcade, and the extreme care which has been taken in the design of the detail to give scale to the building.

As one has learned to expect from Mr. Prynn's previous examples of church building, the plan is remarkable for its picturesqueness of disposition, and the interest thereby given to both exterior and interior, without prejudice to the practicability of the church; indeed, one ought rather to say with considerable advantage to the actual use of the building.

The church consists of nave, chancel, north and south aisles, north transept, morning chapel on north side of the chancel, organ chamber and vestry on the south side; whilst breadth is given to the western façade by a tower and porch on the north, and projecting semi-circular baptistry on the south. Mr. Prynn is to be congratulated upon the fact that his clients are enabling him to practically complete the church before the consecration. The tower and spire are going on, and the stained glass in the east window is in position—a beautiful piece of work by Kemp, who is also responsible for the small windows in the baptistry.

We earnestly hope that those who have charge of this church hereafter will take care that no other artist or tradesman is allowed to insert any other stained glass in the church as long as it is possible to obtain any from Mr. Kemp's hands. Nothing is more disastrous to the general effect of a church than to have the windows filled with stained glass by different workmen.

It is far better that even a second-rate artist should be entrusted with the whole of the work, than that work from a number of first-rate men should be placed cheek by jowl. The chancel screen, which is of the type with which Mr. Prynne has made us familiar, is in position, the reredos designed in all its detail by the architect is being built up in its place, the work being in the hands of Martin, of Cheltenham. There still remains a certain amount of work to be done in completion, but sufficient has been finished to enable the visitors to form a very fair idea of what promises to be a most successful and beautiful example of Mr. Prynne's work. The walls are built of Kentish rag, external casing, brick internally and concrete core. The stone work is in Bath with beautiful marble shafts and alabaster in the chancel arch and reredos. The charm of colour will not be wanting, as in addition to the architect's careful selection of tints in material, he has provided opportunities for picture painting on the walls which will give a band of colour decoration throughout.

THE SANITARY INSTITUTE CONGRESS AT LEEDS.*

DURING the discussion at the Sanitary Inspectors' Conference, on "Smoke Abatement," it was suggested that a recommendation from the Conference should be made to the Council of the Institute to bring under the notice of the Local Government Board the desirability of forming joint committees representing administrative counties and county boroughs for the purpose of the better enforcement of the provisions of the Public Health Act in regard to black smoke. The suggestion was adopted and embodied in a resolution which the Conference passed, and then adjourned till Thursday.

Other subjects brought before the Conference before it finally concluded on Thursday were "Sanitary Jurisprudence," in a paper by Mr. J. Lindsay (Glasgow), proposing amendments in the form and administration of the Public Health Act, the Food and Drugs Act, and the Margarine Act; on a case of typhoid fever in a house with faulty drainage, by Mr. Roehling, A.M.Inst.C.E.; and "Practical Sanitation in Relation to Food Supply," by Mr. Louis Hanks.

The subject of superannuation of sanitary officers was introduced in a paper by Mr. R. Lindsay (Sanitary Inspector for Midlothian). The chief contention of the paper was that the Local Authorities' Officers Superannuation Bill, 1897, should be extended in its scope so as to include Scotland and Ireland, instead of being limited to England and Wales. The Conference adopted a recommendation to the Council of the Institute to support the Superannuation Bill promoted by the Sanitary Inspectors' Association.

Dr. Farquharson seconded this recommendation, which, he said, he would take care to forward to the proper quarter. He undertook, also, when the Bill came before the House of Commons to be sponsor for it.

CONFERENCE OF MEDICAL OFFICERS OF HEALTH.

Among the papers considered in this conference, over which Dr. E. C. Seaton (Surrey County Council) presided, was one on "Small Isolation Hospitals," read by Dr. Meredith Young (Crewe).

In the course of his paper Dr. Young gave as the average cost of keeping up isolation hospitals of the nature described, 25l. per bed per annum, inclusive of salaries and wages, but exclusive of interest on cost of construction. The annual cost per annum was set down at 16l. or 12l. for each patient.

Dr. J. F. J. Sykes (St. Pancras) read a paper on "Tenement Buildings and Duties on Inhabited Houses," in the course of which he submitted a form certifying that 400 cubic ft. of air space per person is provided, and that certain sanitary requirements as to height of rooms, water supply, and drainage are fulfilled. He considered that in future new houses additional requirements may be expected, for providing at least one sufficient space or lobby open to the air for the use of all the occupants on each floor; securing that perfilation is not obstructed, and that sufficient accommodation for bathing is provided for all the occupants of the house. In conclusion, he said that constructors of this class of buildings will have in future to consider whether they shall build them with balconies or staircases open to the air, and so escape both

inhabited house duty and the certificate of the Medical Officer of Health; or whether they shall build them with inside staircases and become liable to inhabited house duty, and to the requirements of the Medical Officer of Health in order to obtain his certificate.

CONFERENCE OF MUNICIPAL REPRESENTATIVES.

Councillor Womersley (Chairman of Leeds City Sanitary Committee), who presided over this Conference, outlined in an inaugural address a scheme to which the City Council is committed for disestablishing a great insanitary area, which still exists in Leeds, and for carrying out at the same time the provisions of the Housing of the Working Classes Act. The scheme referred to, which was explained more in detail in a subsequent paper, would deal with a densely populated area of seventy-five acres, in which a death rate prevailed of 392, while that of the whole city was only 206.

In reviewing the sanitary progress of Leeds during the Queen's reign, some remarkable statistics were adduced. The population had increased in the century from 53,000 to 400,000, and the inhabited houses from 11,600 to 86,730, a population equal to that of Windsor or Durham being added every two years. The improvements in water supply, in the provision of open spaces, the cleansing of the streets, disposal of sewage, and the provision of hospitals and infirmaries were sketched. The sewage treatment adopted is that of lime precipitation with large settling tanks through which sewage flows slowly, depositing as it goes. When this system was adopted the population of Leeds was but 250,000, and, said the President, "we feel that we have outgrown the capacity of these works. The minds of our City Fathers are sorely troubled just now as to the best system to adopt to meet the growing demands of our ever-increasing population, and the difficulty of dealing with certain trade effluents."

An interesting paper brought before the Conference was on "Workmen's Dwellings in Belfast," by Mr. James Munce. Under the Improvement Act of 1845 the Corporation cleared away many old lanes and courts and constructed miles of streets 70 ft. and 80 ft. wide. The course of improvement was continued under later Acts obtained in 1865 and 1878. The privy gave place almost universally to the water-closet, and great improvements took place in the condition of ashpits. The houses of the workers, where the rent is collected weekly, are fitted with blinds, gas-fittings, and in many cases baths, and recently a plan has been approved for supplying hot water to the sculleries of even small houses. Every family has its own separate dwelling. Out of a total of 46,376 houses 42,240 contain one family each, and 3,745 two families, the remainder, including a workhouse and two barracks, numbering only 391. The houses are built of good bricks and mortar. The exterior is faced with red perforated bricks as a rule, but in a few cases cement is used on common bricks. Party walls are carried up to slates, but not through except in cases of shops adjoining dwellings.

Workmen's houses in Belfast are either kitchen or parlour houses, the rents varying from 2s. 6d. to 3s. 9d. per week for the former, and from 3s. 6d. to 6s. for the latter class. For 3s. 9d. per week the Belfast workman could get a house of three rooms supplied with water, gas-fittings, and blinds, with 100 square feet of open space, and nothing to pay for rates or taxes. The parlour houses had tiled hearths, marble or enamelled slate mantelpieces, and, in most cases, baths and fittings, and, except in heights of ceilings and size of rooms, were fitted much on the same plan as houses letting up to 50l. a year. The water supply of Belfast being constant, it is brought from the mains direct to the scullery, with branch to supply the cistern of the water-closet—the only cistern in the house. Each room is provided with at least one gaslight, and for the smaller houses the penny-in-the-slot meters are largely used.

In the discussion which followed, the prevalence in so many streets in Leeds of back-to-back houses was condemned by several speakers. Mr. Munce denounced back-to-back houses as relics of the last century. There was not a single roomed house in Belfast, and nearly all the attempts to provide improved dwellings had proved lucrative. Leeds ought surely to be ashamed of its back-to-back houses.

Councillor Womersley, in bringing the discussion to an end, said allowance should be made for the fact that the building of back-to-back houses was an old practice in Leeds, of

which it was not easy to get rid. The modern back-to-back dwelling in Leeds was a great improvement on the old type of such houses, and was fairly healthy.

A vote of thanks having been accorded to Mr. Munce,

Dr. Childs read a brief paper on the "Munich Slaughter-House and Cattle Market." The slaughter-house, which is separated by a wide road from the cattle-market, consists of three double halls for the slaughter of large cattle, two smaller halls for small cattle, and one for swine, the six buildings being separated from one another by roadways 50 ft. wide. Smaller buildings are provided for the slaughter and examination of diseased animals, and for the slaughter of horses, and others for the collection of blood, treatment of offal, for quarantine stalls, stalling for animals about to be slaughtered, and for the offices and dwelling-rooms of certain officials. The cattle market also consists of six large halls, with smaller buildings for restaurant, weigh-house, and stables.

CONFERENCE ON RIVER POLLUTION.

The President of this Conference, Major Lamorock Flower (Sanitary Engineer to the Lee Conservancy Board) in an opening address, referred to his Board as the senior body of conservators in the realm. It was charged by King Henry VI. in 1424 with the duty of preserving the river Lea and its tributaries from pollution, which gave the Lea Conservators control over the whole catchment basin. In his (the President's) opinion, every pollution was preventable, and that, in fact, the remedy when found would in many cases confer real benefit on the offending manufacturers. He did not expect much to be done by legislation until it was improved by abolishing all special clauses and exemptions and making the fouling of streams a penal offence. He advocated the appointment of an officer such as the Water Examiner of the Local Government Board, who would be the inspector of Sources of Water Supply. He had always set his face against prosecutions. He would ask, rather than try to compel. Why not combine in a guild and endeavour to bring co-operative principles to our aid? The members of such a league might be incorporated advantageously with the Fisheries Preservation Association, and might act upon the same principles which governed it.

Several other papers were then read and discussed.

CONFERENCE OF MUNICIPAL AND COUNTY ENGINEERS.

Mr. T. Hewson (Engineer to the Leeds City Council), who presided over this Conference, opened the proceedings with a brief address, and then called upon Mr. C. Mason to read a paper on "The Sanitary Aspects of Wood Pavement." Admitting at the outset that asphalt was the most sanitary of all materials for a pavement, Mr. Mason said that except for comparatively level roads its use would be practically prohibited so long as we depended on horses for haulage. No complaints would be made against wood pavements on sanitary grounds if suitable kinds of wood were employed, or if the work was properly done, and there was an efficient system of scavenging. Wood pavements were either of "hard" wood of the Eucalyptus kind, known as "Karri" or "Jarrah," imported from Western Australia, or of "soft" wood, generally the red or yellow pine of Northern Europe. The essential qualifications for a good pavement were, in the first place, a properly constructed roadway. It should be of cement concrete floated over and formed to a proper contour to receive the wood blocks, which should be regarded as a mere wooden covering for the purpose of protecting the roadway. The blocks should be laid directly upon the roadway with the necessary falls in the channels towards the gullies for surface drainage. Other essentials were careful maintenance and renewals at sufficiently frequent intervals, and good scavenging. The life of a wood pavement was from five to twelve years, according to the amount of traffic, quality of wood, and method of laying. The author had used satisfactorily "soft" wood impregnated with creosote (10lb. to the cubic foot). He considered wood suitable for town pavements on account of its being less noisy and less slippery than any other kind of pavement suitable for heavy traffic, and in order to overcome the objection, all soft woods should be properly creosoted (in vacuum and not simply dipped), the blocks laid "close

* Concluded from last week, p. 223.

jointed" to a proper contour both transversely and longitudinally, and grouted with bituminous composition. When thus laid he did not find that the blocks expanded more than necessary to bind the whole pavement together. The author referred all interested in the subject to that portion of the Strand, between Trafalgar Square and Charing Cross Station, which had now been in use for four years and washed daily without any material defects, although subject to an enormous daily traffic.

A discussion followed, in which Mr. Price (Birmingham), Mr. Rounthwaite (Sunderland), Mr. Cox (Bradford), and Mr. White (Folkestone) took part, the latter stating that they would lay no more soft wood pavements at Folkestone. They had one street laid with soft wood and one with hard wood. Both were washed every morning, but they found the soft wood took a long time to dry, and gave off a foul smell.

Mr. Mason, in reply, said the soft wood at Folkestone could not have been creosoted, or they would not have had any difficulty.

A paper was then read by Mr. F. T. Baggallay on the new "Royal Baths at Harrogate." After touching upon the history of Harrogate as a bathing town during 300 years, the author stated that in 1841 the Improvement Commissioners built the "Royal Pump Room," and when Harrogate became a municipal borough the Corporation purchased all the principal springs and devoted great attention to preserving the purity of the waters. Recently they built the "Royal Baths," at the cost of £20,000, and it was opened a few weeks ago by the President of the Sanitary Institute, H.R.H. the Duke of Cambridge. For the convenience of invalids, all the rooms are on one floor, there being no steps except at the entrances. In the two main departments there are 172 bath and dressing-rooms, and in the whole establishment 10,000 gallons per hour of hot water alone will be used. The grand central hall is fitted as a pump-room.

A discussion followed, in which Mr. E. T. Hall, the Mayor of Harrogate, and Alderman Ward took part. Mr. Hall declaring that the building had been very carefully planned. A vote of thanks was accorded to Mr. Baggallay, who briefly responded.

Dr. Bushell Anningson read a short paper on "Some Dangers and Difficulties of a Combined System of Drainage." Dr. Anningson gave instances of the communication of the poison of typhoid fever from one household to others adjacent, where there was a common conduit into which several houses drained. Under existing legal difficulties, the best remedy appeared to be to treat a common conduit as a real branch sewer, and disconnect each contributory house by an air interceptor and ventilating shaft of its own; and, further, in newly-developed building estates, to insist upon a back alley between two parallel rows of houses, as is required under some Local Acts. They should be acquired, the only objection to such a scheme being that the distance between the back of the premises and the back alley involved, in order to obtain adequate fall, a depth of sewer which might not readily conform to the level of the public sewer already existing.

A long discussion followed, the President, Mr. Lewis Angell, Mr. Price (Birmingham), Mr. Silcock (King's Lynn), Mr. Munce (Belfast), Mr. Mason (London), Mr. Mawbey (Leicester), Mr. Gloyne (Eastbourne), Mr. Dawson (Banbury), taking part. Mr. Angell said the practice had been recognised for forty years, and sanctioned by two Acts of Parliament until, about four years back, clever lawyers had found a way to drive a coach-and-four through the Acts by giving new interpretations to the terms "drain" and "sewer." The opposition of property had so far defeated all attempts to get a definite settlement of the matter.

Mr. Price said that in Birmingham the Corporation had declared the drains to be public sewers, and they called upon the property owners to provide a back alley where requisite.

Dr. Anningson replied to the criticisms, and was accorded a vote of thanks before the Conference closed.

THE LADIES' CONFERENCE.

The Congress on "Domestic Hygiene" was presided over by Mrs. Fawkes, who delivered a brief address, and this was followed by papers on "The Preservation of Sight in Children," "Women as Teachers of Hygiene," "Education of the Speaking Voice," "Health

in Infant Schools," and other subjects. The business not being concluded on Wednesday was resumed on Thursday. Before rising, the Conference adopted two recommendations to the Council of the Institute, the first in favour of appointing one or more women as additional sanitary inspectors in Leeds, and the other in favour of instituting an examination in hygiene for girls and young women, a syllabus of work to be done being drawn up on the same lines as those of sanitary inspectors.

SECTION OF ENGINEERING AND ARCHITECTURE.

This section was presided over by Mr. Lewis Angell. On Thursday the principal paper read was that by Mr. Edwin T. Hall on "Fever Hospital Construction," and on Friday seven different papers on methods of "Sewage Purification" and "Sewage Treatment" were read.

The President, in his opening address, pointed out that it was not until the reign of Victoria, and almost identically with her accession, that the profession of civil engineer came into existence, a profession which had its origin in England. Engineering and architecture represented the constructive side of sanitary science, but, unfortunately, other departments of the profession were directed to the destruction of human life. Although England originated sanitary work, democratic America had gone ahead of us, for there that great offender, the plumber, had been put under official inspection, and State Boards of Health, especially that of Massachusetts, had done conspicuously good sanitary work. After a comprehensive review of the progress of sanitation, the President said, "the cardinal conditions of health are pure air, pure water, and unpolluted earth which, with the accessories of wholesome food, proper clothing, and suitable houses—the necessities of life—comprise the whole gospel of sanitation, the exponents of which are the conscientious builder and the intelligent housewife. . . . The defects enumerated were once general in all houses, and still remain in many. Architects did not trouble about such unesthetic matters; they were left to 'rule of thumb' men. The architect left it to the builder, the builder to the foreman, the foreman to the bricklayer or plumber, and the bricklayer to the labourer, until, sanitarily, we had a veritable house that 'Jerry' built, perhaps artistically decorated and pleasing to the eye, but rotten at the core."

The conclusion of the President's address was largely devoted to the advocacy of increased efforts towards perfecting the education of members of professions, and also of public opinion, for it was a political axiom that legislation should not be in advance of public opinion. The signs of this desirable education of public opinion were multiplying. The working classes, once so apathetic, were now eager in promoting sanitary inspection, perfect drainage, improved dwellings, public baths, recreation grounds, &c. These were among the most valuable features of sanitary progress, and a further indication was the enormous amount of the outstanding loans for public purposes, amounting to £24,158,376*l.*, an increase in the last 22 years of £13,138,270*l.*

"We shall enter the twentieth century," said the President in his peroration, "late although it be, with full hygienic knowledge of the sound principles of sanitary work and the practical experience of the engineer and the architect. Every vital question has been discussed and, for the most part, legislated upon. We have the knowledge and we have the power, and require only the will. The will lies with the people and can only be called into action by their education; it is necessary, as was said by Robert Lowe, that we should 'educate our masters.' Amid all the agitations and unrest of this *fin de siècle* there are no conditions which would contribute more to the comfort and welfare of the community than sanitation, education, and thrift."

A vote of thanks was given to the President, on the motion of Alderman Lemon (Southampton), seconded by Mr. Richardson (Leeds).

Mr. Edwin T. Hall was then called upon to read his paper on "Fever Hospital Construction." All the essential principles of hospital planning were laid down in the memorandum of the Local Government Board, issued in 1888, "On the Provision of Isolation Hospital Accommodation by Local Authorities." They were (1) thorough isolation of infected buildings, (2) cross currents for thorough ventilation, (3) avoidance of dark corners anywhere, (4) necessity of keeping from direct contact with

wards as far as possible receptacles for excrement. No matter what was the size of the hospital, these principles should govern. The happiest results had followed the decision of the Metropolitan Asylums Board, taken in 1885, to separate small-pox patients, from which the danger was greatest, from other infectious cases, and to establish for small-pox cases floating hospitals on the Thames, at Darent. With regard to size no general rule could be set up. It would depend upon the site, and particularly on the planning. If the wards were on a straggling plan, 500 beds might be too many, but with wards compactly grouped 500 might be none too many. In the opinion of Dr. (now Sir R.) Thorne-Thorne one bed per 1,000 inhabitants was generally sufficient. With regard to sites, an open area, surrounded if possible by roads which induced wind currents, on a gentle slope, with good trees near the boundaries, and as compact in shape as possible, would be found the best. Assuming that the pavilion system was decided upon, they would have to decide whether to make them of one or of two stories. Medically, the one-storied hospital was the ideal, but the practical suggested and permitted a two-storied pavilions. [The paper was illustrated by a large number of plans and drawings, and to four of these the lecturer now pointed, representing (1) the plan of Brook Hospital, for about 480 patients, of which Mr. Aldwinckle was the architect; (2) Park Hospital (designed by the lecturer), the largest of its kind in the United Kingdom, providing for 548 patients; (3) a design of his own for 170 patients, at Plaistow; and (4) a design by Mr. Angell of a small hospital in Essex.] The Park Hospital contained forty-two buildings, had six miles of drains within the curtilage, twenty-nine miles of water and steam pipes, forty-two miles of electric wires, three miles of eaves gutters, and it had required a considerably larger number of bricks than the Blackwall Tunnel. A point to be noted was the position of the administrative buildings, dispensary, stores, water tower, &c., which were about equi-distant from the extreme points to be served throughout the hospital. He was decidedly in favour of covered ways in a large hospital, where the best arrangement would be to have subways carrying steam pipes for all services, electric wires for lighting, telephones and fire alarms, and water pipes to supply cisterns, baths, sinks, fire mains, &c., which would provide platforms for the covered ways, the roofs of the covered ways being invaluable as balconies for the first-floor wards. Upon these balconies patients' beds could be wheeled for sun baths, the curative value of which was admitted by all doctors. The construction, in respect of floors, height and size of rooms, position of accessories, staff quarters, &c., was treated in considerable detail, and then the subjects of heating and ventilation, water-supply and drainage were considered. Horizontal pipes around the walls of a ward were to be deprecated and those in trenches not to be tolerated at all. It was far better to put all horizontal pipes in the open basement beneath the pavilion, protecting them by non-conducting material such as asbestos cement. They should be accessible at every part, and from them vertical pipes should supply the radiators. He was in favour of open fire-places, one for every 30 ft. of length of ward. Open fires gave cheerfulness to rooms, and were most valuable extractors of foul gases. A central stack was much better than a stove with horizontal flues carried to the external walls, such flues being harbours for germs, and difficult to clean. In a warmed central stack an upward current was naturally induced. The surface of the walls of a ward should be of impervious material faced with Parian, Keene's, or Robinson's cement, painted in various artistic colours to rest and please the eye, and varnished. All angles of walls, ceilings, floors, door and window joints should be concave, square angles being dust and germ harbours. With regard to drainage, the author said the drainage of all non-infected buildings should be kept distinct from that of infected buildings, and that of scarlet-fever pavilions should be separate from that of diphtheria buildings. All drains should be laid in straight lines with manholes at all angles, and the ventilation scheme should be most carefully studied. Pipes could be of stoneware or cast iron. All pipes, if of stoneware, should be laid on cement concrete, great care being taken to see that the gradients of trenches are regular

and the bottom solid. All soil drains, at least, should be covered with concrete after the pipes have been tested. No test was so good as filling with water from manhole to manhole, and there should be a head of about 5 ft. of water at the upper end. For manholes he had used Borden's patent of solid glazed fire-clay. The motto for the inside of an infectious hospital should be, "Let nothing be hidden." All water and gas pipes should be not only visible, but kept away from walls and ceilings, so that all may be kept clean; all electric casings should be on the surface. Harbours for dirt and vermin should be avoided. All coal bunkers should be of galvanised iron, capable of ready removal. They should have rounded angles at the sides and next the bottom. One at least should be provided to every building, and none should be very large. In concluding, Mr. Hall made an appeal for an architectural treatment in all hospitals. He believed in the artistic treatment of wards as being of a refining as well as a curative value to patients. No greater or better evidence of the advance of civilisation and culture among peoples is observed, he said, throughout the world than in the character of their public buildings. Giant strides in domestic architecture have been made in England during the latter half of this century. Foreign critics have noted and praised this great advance, and surely when the people are building for themselves large public institutions they will desire that these should be worthy of the nation. Edinburgh has a world-wide reputation for her public buildings, but too many of our towns and cities are sadly lacking in architectural monuments. Public bodies demand, and rightly demand, that everything shall be provided in our hospitals that science can suggest for ameliorating suffering and curing the body. It is but a step upward and onward to demand that the exterior of the buildings should be graced with artistic treatment to educate and refine the mind.

In the discussion which followed, Mr. Udale (Lincoln) said he would like to know the kind of hospital Mr. Hall would recommend for a town of 50,000 inhabitants.

Major Scott Moncrieff, R.E. (War Office), confirmed the unfavourable opinion expressed in the paper with regard to stoves with horizontal flues. At the Curragh and also at Aldershot, where at one time they used stoves with horizontal flues, they had found the same defects which had been pointed out, and a change to open fireplaces had added materially to the comfort of the wards.

Dr. Pattin (Norwich) said he found the stoves with horizontal flues a serious nuisance. They invariably smoked when the wind was in certain directions, and then existence was intolerable. He was surprised to learn that no special provision was made for treating typhoid excreta at Park. There was only one remedy, and that was to burn it. He complained of the regulations of the Local Government Board with regard to the position of beds near to walls and windows. He preferred to admit fresh air under the bed.

Mr. Mason (London) wished to know what was the cost per bed of Park Hospital and of the smaller hospital at Plaistow; and Mr. Nield (Middlesex County Council) wanted to know what the cost was contrasted with the North Eastern Hospital, and such a hospital as that in Leeds.

Captain Andrews (Chairman of the Metropolitan Asylums Board) said that he could not answer the question as to cost because the hospital was not yet quite ready to receive patients.

Mr. Hall (Cowbridge), Dr. Wilson (Doncaster), Mr. Ridings (London), and the President, continued the discussion, and Mr. Hall was called upon to reply. As to costly buildings, the value to the public of really fine buildings was immense, and he thought it would be a sin if for a million of money we were to get something like Queen Anne's Mansions in London. The idea that a hospital must at some time be burnt down was exploded. With floors such as he had described, it was practically impossible. As to the cost of small hospitals, the same principles governed the cost of a small hospital as a large one. It was a mere matter of arithmetic. He could not, of course, tell them the cost of maintenance. He was glad to have the support of Major Scott Moncrieff on the question of central stoves.

With regard to the hollow space left under the floor, which formed a kind of viaduct, he had fixed a minimum of 5 ft., but it might go to

6 ft. or even 7 ft. With regard to nurses, they had separate recreation rooms and reading rooms. With regard to burning excreta, the Local Government Board had found danger arising from the excreta in small-pox, but none whatever from that in scarlet fever. They must have crematoria and receptacles for collection and apparatus to be handled, so that the remedy would be worse than the disease. The cost of Park Hospital was under 400*l.* per bed. St. Thomas's cost 500*l.*, the Glasgow Hospital more than 500*l.*, but 400*l.* per bed in London was a very different thing from 400*l.* per bed in the country. A question had been asked in the House of Commons why the cost of building in London was so much more than in the country, and it was found that 300*l.* in the country meant more than 400*l.* in London. In the country wages were 33 per cent. lower and the cost of materials 45 per cent. lower than in London. He did not know the cost per bed of the North Eastern Hospital. In stating 400*l.* as the cost per bed he had not taken into account the cost of the land. To find that they must add about 13,000*l.* more.

The readers of other papers set down for the day not being present, the Recording Secretary, Major Lamorock Flower, read a short one on "The Disposal of Refuse in a Mining Village," prepared by Mr. A. Lupton, and, after a rather long discussion, in which the majority of the speakers expressed adverse views, the section adjourned.

On resuming on Friday, the first paper was read by Dr. Poore on the "Treatment of Domestic Slop-Water in Isolated Houses."

Professor Poore, having convinced himself that slop-water is as foul as sewage composed of excrement and slops, and that in certain cases it gives off gases more deadly than sewer gas, proposed to himself the question some years ago, "How can it best be treated?" A long and close series of observations led him to the conclusion that domestic slop-water, when fresh, is not offensive, but it frequently becomes very foul, and sometimes, when containing vegetable matter, very dangerous if allowed to stagnate. The method he adopted to cure the evil after it had been put to a three years' test was described in the paper, and illustrated by a series of twenty-eight plans and diagrams. The first necessity is to be able to carry off the slop-water, while fresh, to a distance from the house, and therefore all waste pipes should terminate well above the ground. The second necessity is that there must be no stagnation anywhere, and the third that, abolishing all traps, the slop-water should run in open gutters, and at a certain distance from the house should be allowed to soak away and take the natural line of drainage. Dr. Poore strongly condemned the practice followed by some architects of imitating in the country, where no necessity compelled, the cave-dwelling basement of the London house.

On the motion of Mr. W. J. Dibdin, a vote of thanks to Dr. Poore was agreed to.

The question of sewage treatment by filtration and biological and non-chemical methods was then discussed, the following six papers being read in succession, before the discussion was taken:—"The True Principles of Sewage Purification," by Mr. W. K. Parry, which called attention to the research work of Mr. Walter E. Adeney; "The Scientific Basis of Sewage Treatment," by Mr. W. J. Dibdin and Mr. G. Thudicum; "Purification of Sewage," by Dr. Barwise, giving data from his practice in Derbyshire; "Filtration of Sewage through Coal," by Professor Bostock Hill, giving results of experiments at Wolverhampton and Lichfield; "A Year's Experience of the Septic Tank System," by Mr. Donald Cameron (Exeter), describing the recent experiments in sewage disposal at Exeter, the authorities of which have applied for a Government loan of 48,000*l.* to set up works on a large scale, on the Septic Tank system, for the whole city of Exeter; and, finally, on "Storm Water in Relation to Sewage Purification," by Mr. E. J. Silcock, Borough Engineer, King's Lynn.

An animated discussion followed, in which Messrs. Roechling, Councillor Baker, Alderman Compston, Dr. Rideal, Dr. Sims Woodhead, Colonel Jones, V.C. (Aldershot), Wolf DeRIES, W. J. Dibdin, the readers of the papers, and the President took part. The general impression seemed to be that the *coup de grace* had now been given to the chemical treatment systems, and that the natural—that is the biological—treatment would in future suffice, the destruction of organisms in waste matters being performed by the germs them-

selves. There was a disposition on the part of some to regard recent developments as something new, but Colonel Jones reminded the audience that the septic process had been going on for hundreds of years in our cesspools, and Mr. Dibdin pointed out that in 1883 and 1887 he had brought the subject before sanitarians and was laughed at. Dr. Sims Woodhead said we were not yet quite at the stage where we could say that one of these filters would take the place of a flowing river or a sewage farm, but there would certainly be an advantage in using first a biological filter for a preliminary breaking down of the organism.

In another section a paper was read by Mr. G. F. Carter (Assistant Engineer of Leeds) on the operation in Leeds of the "Housing of the Working Classes Act," which excited considerable local interest, and in a popular lecture given at the Albert Hall, Mr. Percy Boulnois (City Engineer, Liverpool) gave many facts respecting sanitary improvements in Liverpool.

The closing general meeting was held on Friday, when Mr. White Wallis (Secretary of the Sanitary Institute) said that the total attendance at the Congress had been 1,360 members.

The usual votes of thanks were accorded to the Lord Mayor, Lady Mayoress, Corporation, and to Dr. Farquharson, M.P., the President.

ARCHITECTURAL SOCIETIES.

GLASGOW ARCHITECTURAL ASSOCIATION.—On the 14th inst. a meeting of this Association was held, Mr. George S. Hill in the chair, when the Hon. President, Mr. James A. Morris, delivered an opening address, entitled "Attainable Ideals." The lecturer exhibited on the walls a collection of working drawings which he had specially obtained from some well-known English architects, including the late John D. Sedding, and Messrs. John Belcher, Ernest George and Peto, Ernest Newton, C. F. A. Voysey, R. Schultz, Balfour and Turner, and Dunn and Watson. With these as his text, the lecturer showed how lofty ideals and noble sentiments were bound to raise and enoble the work of an architect, notwithstanding the apparently insuperable checks which beset him. He referred reverently to the late John Sedding, who though dead yet spoke powerfully to us. "His drawings show abundantly his vivid imagination, his keen desire for perfection and the infinite labour he gave in seeking it, his nervous directness of touch, his refinement, breadth, simplicity, and power." He spoke of Mr. Norman Shaw as, of those living, the first to build again on English soil on English lines, and asked that Scottish architects might turn more towards the simple dignity of their own country's ancient work. Mr. Shaw had written him that drawings were only a sort of alphabet with which to instruct the builder, and when the builder was done with them they should be burned, as apt to mislead people. The lecturer maintained that high ideals and noble thoughts would elevate and ennoble an architect's work, however great the influences restraining him were. He advised his hearers to study from Nature; to learn the subtle beauty and strength of the human figure, which was a mine of purest gold, inexchangeable in its richness; to seek dignity among the mountains and by the sea. From these they would learn that the greatest dignity was ever simplest, and he said, "If you once receive that truth and become imbued with it, your buildings, be they great or little, must ever partake also of the same power." He called attention to the care bestowed on the gardens, and said that the simple beauty of a fountain, a sun-dial, or a dovecot often appealed to one more than buildings of massive grandeur.—Mr. Alexander McGibbon proposed a vote of thanks to the lecturer. The Chairman expressed the sincere obligation of the Association to those architects who had so kindly lent their drawings. He then seconded the vote of thanks, which was heartily accorded.

COMPETITIONS.

MUNICIPAL BUILDINGS, RUGBY.—At a recent meeting of the Rugby Urban District Council plans were accepted for the municipal buildings to be erected in High-street, on the site of the old "Shoulder of Mutton" Inn. The designs accepted were prepared by Messrs. North & Hawk, architects, Battersea. The plans to which the second premium was awarded were prepared by Mr. D. Bird, of Manchester.—*Birmingham Post.*

Illustrations.

THE PONT MIRABEAU, PARIS.

THE new bridge over the Seine, under this title, which was officially opened by the President of the Republic on July 13, puts the quarter of Javel in communication with the quarter of Auteuil, and connects the Rue de la Convention, on the left bank of the Seine, with the Rue Mirabeau and Rue de Rémusat, on the right bank. This bridge makes the thirtieth over the Seine within the district of Paris.

The bridge is constructed of seven girders of laminated steel each in two symmetrical halves, articulated in the centre of the span, and anchored on the piers, in such a manner as to permit of free movement. The centre span is 98 metres. The roadway is 12 metres wide between the footways, which are 4 metres or about 13 ft. each, so that the proportions of width of roadway are very liberal.

The first studies for the bridge were made as long ago as 1884, but the official order for it was not passed till 1893, and it was commenced in June of that year.

The work has been executed under the superintendence of M. Rabel, "Ingénieur-en-chef" in the department of Ponts et Chaussées, assisted by M. Réal of the same department, and by M. Alby.

The decorative portion, which consists of four allegorical figures, one on each face of the two piers, and representing respectively "The City of Paris," "Navigation," "Progress," and "The Genius of Commerce," are by one of the most gifted French sculptors of the day, M. Injalbert, and give to the bridge an artistic interest which it could not have otherwise, though as a structure its general lines are agreeable and effective. The good sense and artistic perception of the French Government, in thus going to an artist of the highest class to furnish the sculptural decorations for an engineering work, forms an example which cannot be too prominently held up to English Government officials, though we fear there is little chance of it being followed in this country; the sum which it would be necessary to pay for the highest class of sculpture would probably be regarded in this country as a culpable waste of public money.

In his conception of the "Genius of Commerce," who is represented as mainly occupied in blowing a trumpet, it almost seems as if the sculptor intended a satirical reflection on the part which advertisement plays in modern trade.

The bridge has been carried out at a cost below the first estimate, which was 2,500,000 francs, while the actual expenditure has only amounted to 2,089,000 francs, including the cost of the sculpture, which amounted to 141,468 francs, or about 5,660l.; not a large sum for four high-class figures on a colossal scale.

THE GRANT MAUSOLEUM, NEW YORK.

WE give views to a small scale of the exterior and interior of the Mausoleum recently erected in Riverside Park, New York, to the memory of General Grant; also a plan, and a half-section to a larger scale, showing the treatment of the interior detail.

For the exterior view we are indebted to Mr. Moses King, of New York, who had the photograph made for himself, and has kindly lent it to us for our illustration. For the interior view and the plan and section we are indebted to the courtesy of the architect, Mr. Duncan.

The whole work, which is one of considerable architectural importance, is the subject of a special article in another column.

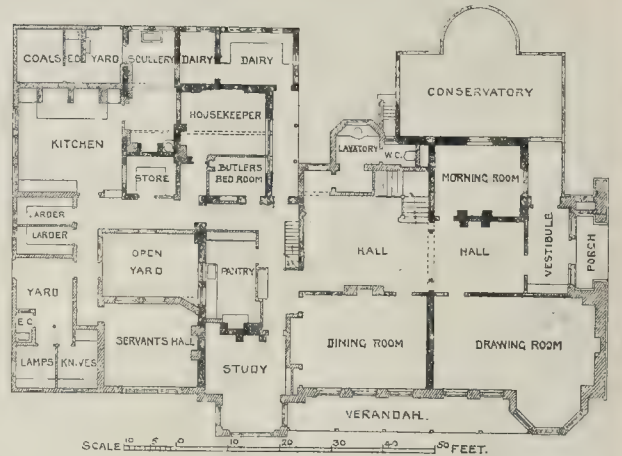
DIRECTORS' ROOM — MESSRS. MACMILLAN'S NEW PREMISES, ST. MARTIN'S STREET.

THIS room—which will be used as a private meeting room by the Directors—is situated in the caretaker's house, at some distance from the Board-room and suite of private offices.

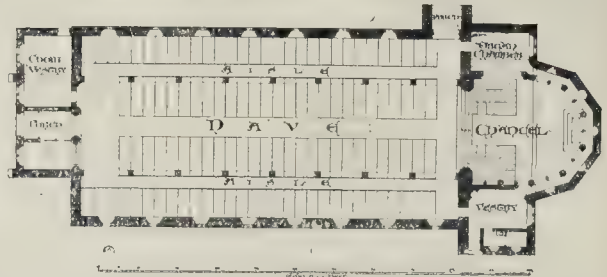
The walls are lined partly with wainscot and partly with painted plaster; the ceiling beams being of wainscot with plaster panels between. The lower portion of the fireplace is of Ham Hill stone.

The joinery is being made by Messrs. Patman & Fotheringham, who are the contractors for the whole of the building. Mr. John Cash is the architect. The drawing was exhibited at the Royal Academy of this year.

HOLMWOOD, HAMPRESTON, DORSET. FOR COL. C.M. CHURCHILL



"Holmwood Park," Wimborne. Plan.



Memorial Chancel, All Saints, Grays. Plan.

MEMORIAL CHANCEL, ALL SAINTS, GRAYS.

THE parish of All Saints, Grays, owes much to the late Lord of the Manor, Mr. James Theobald, who gave the church site and the present building; and it is proposed that the new chancel shall be dedicated to his memory.

The building will be of flint, in which the locality abounds, with stone dressings. Mr. Christopher M. Shiner is the architect.

The drawing was exhibited at the last Royal Academy.

HOUSE NEAR BANSTEAD.

THIS picturesque though simple little house formed one of the exhibits at the last Royal Academy, and was mentioned in our review of the drawings in the architectural room. Mr. Sydney Perks is the architect.

"HOLMWOOD PARK," WIMBORNE.

THE small portion of the house shown black on plan is old, but the greater part is new.

The walls are of brick, built with an air space between, with Farnham brick facings and roofs covered with hand-made Broseley tiles, battens, boarding, and felt. The external timber framing is of oak and the panels in white rough cast. The joiners' work to the best part of the house is in wainscot; also the floors. The modelled plaster work was done by Mr. Gilbert Scale from the architects' designs.

The ceilings to the dining-room, hall, and staircase are panelled with oak beams, and the drawing-room with plaster moulded ribs.

The builder is Mr. A. H. Green, of Blandford, Dorset, and the architects Messrs. Crickmay & Sons, of London and Weymouth.

The drawing was exhibited at the last Royal Academy.

THE HEALTH EXHIBITION, LEEDS.

THIS exhibition, held in connexion with the Sanitary Congress, was formally opened by Sir James Kitson, Bart., M.P., Lord Mayor of Leeds, on the 14th inst., and is without doubt one of the most interesting and successful that has hitherto been held. It occupies temporary buildings erected on the Leeds Engineers' drill ground in Camp-road, and covers an area of about 1½ acres, and contains 144 stalls. Sanitation is, of course, the predominant idea of the exhibition, but there are also shown objects of general interest and utility, which, undoubtedly, attract their fair share of attention.

Messrs. J. Duckett & Sons, of Burnley, have a very interesting stand, and among their exhibits which call for special mention are the "Clincher" wash-down closet, which obtained a bronze medal. The firm show how thoroughly it can be flushed by two gallons of water, this quantity being used by the judges when testing it; the flushing run is somewhat of a novelty and materially adds to the flushing force. A novel application of the flushing apparatus on the Tipping system is shown in a combined grease collector and flusher, constructed also to flush the yard drains and out-door water-closets as well. Another exhibit which appears new is a set of isolated syphonic latrines flushed with an automatic syphon cistern. Other features of the stall are a variety of access pipes, bends, and junctions, patent jointed pipes, and several forms of slop-water closets.

Messrs. Doulton & Company, Lambeth, have a very good exhibition of their sanitary and tile wares. Special mention should be made of Ellison's Patent O.B. Closet, fitted with a special flushing arrangement, by which the cistern and pipes remain empty when not in use.

A stall devoted to similar exhibits is that of Messrs. Shanks & Company, of Barnhead, N.B., who show a large number of lavatories and baths. With one of the latter, the "Fin-de-Siècle,"



THE PONT MIRABEAU, AUTEUIL, PARIS -M. RABEL, ENGINEER



THE CITY OF PARIS.



NAVIGATION.

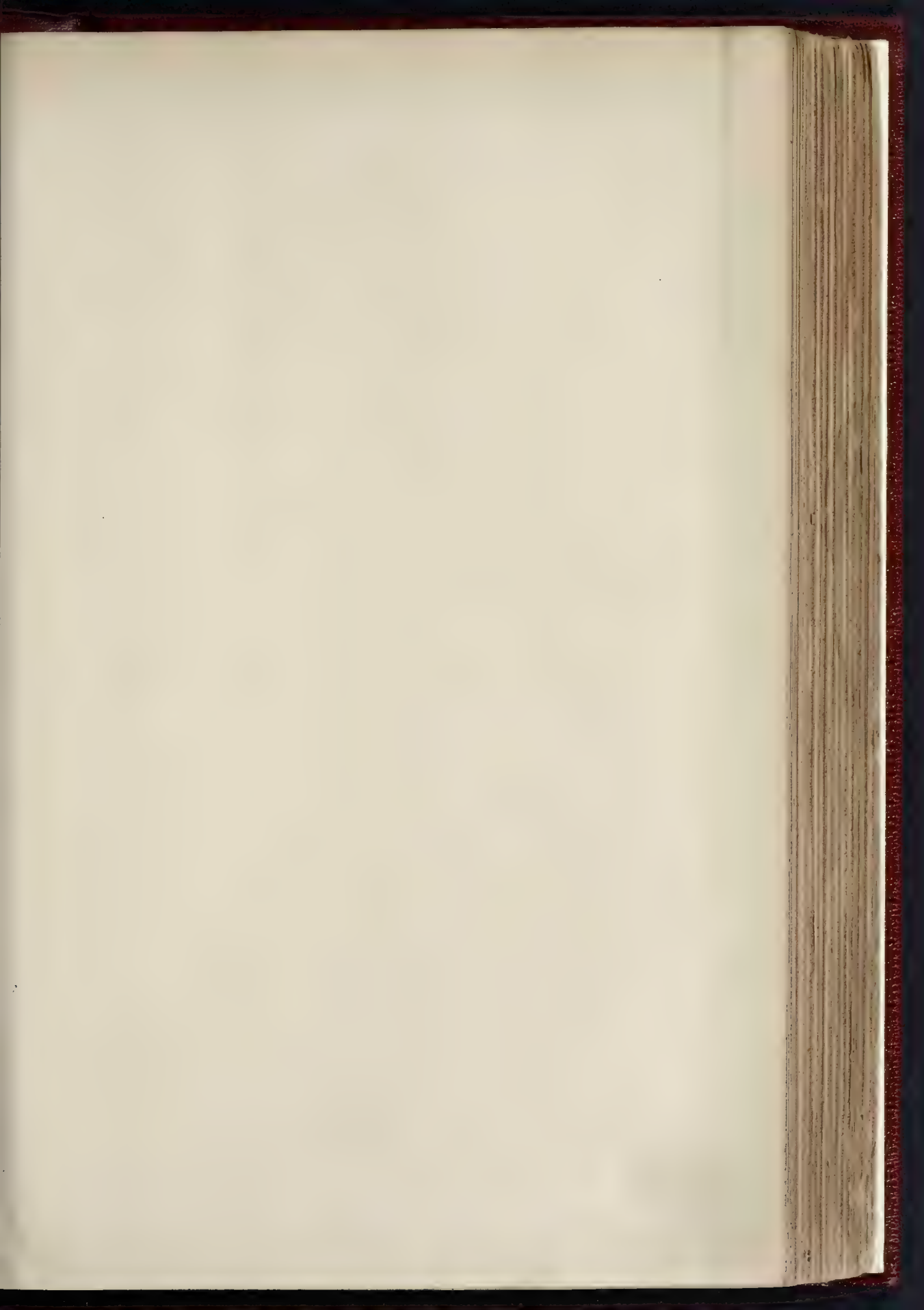


THE GENIUS OF COMMERCE.

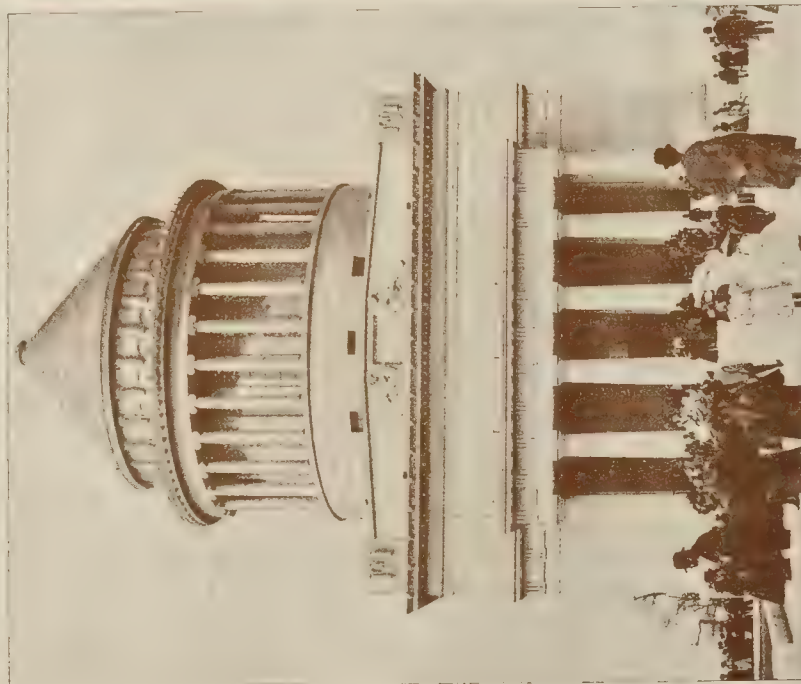


PROGRESS.

SCULPTURE ON THE PIERS OF THE PONT MIRABEAU M. ISIDORE SCUTTER



THE BUILDER, SEPTEMBER 25, 1897.



EXTERIOR VIEW.

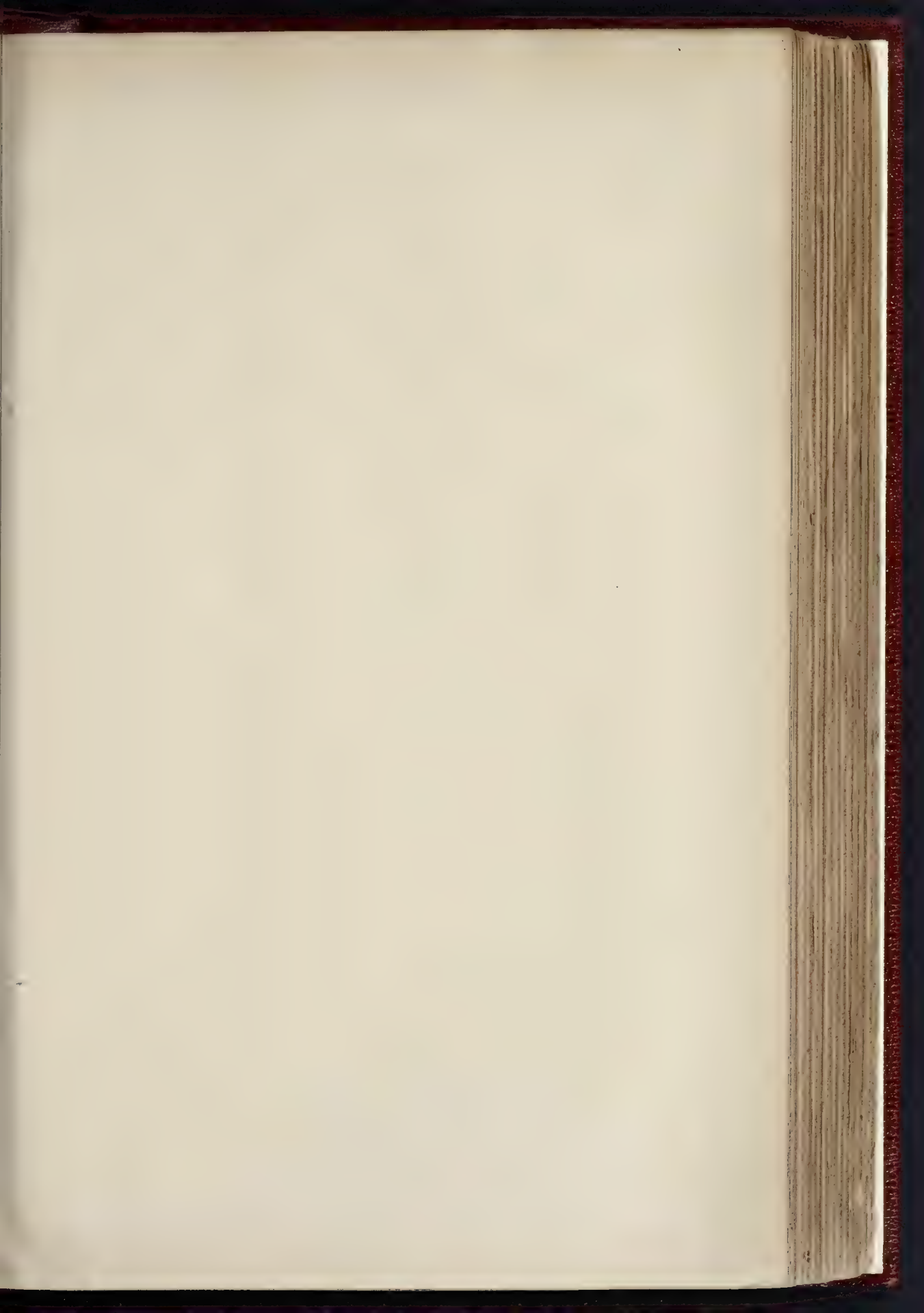


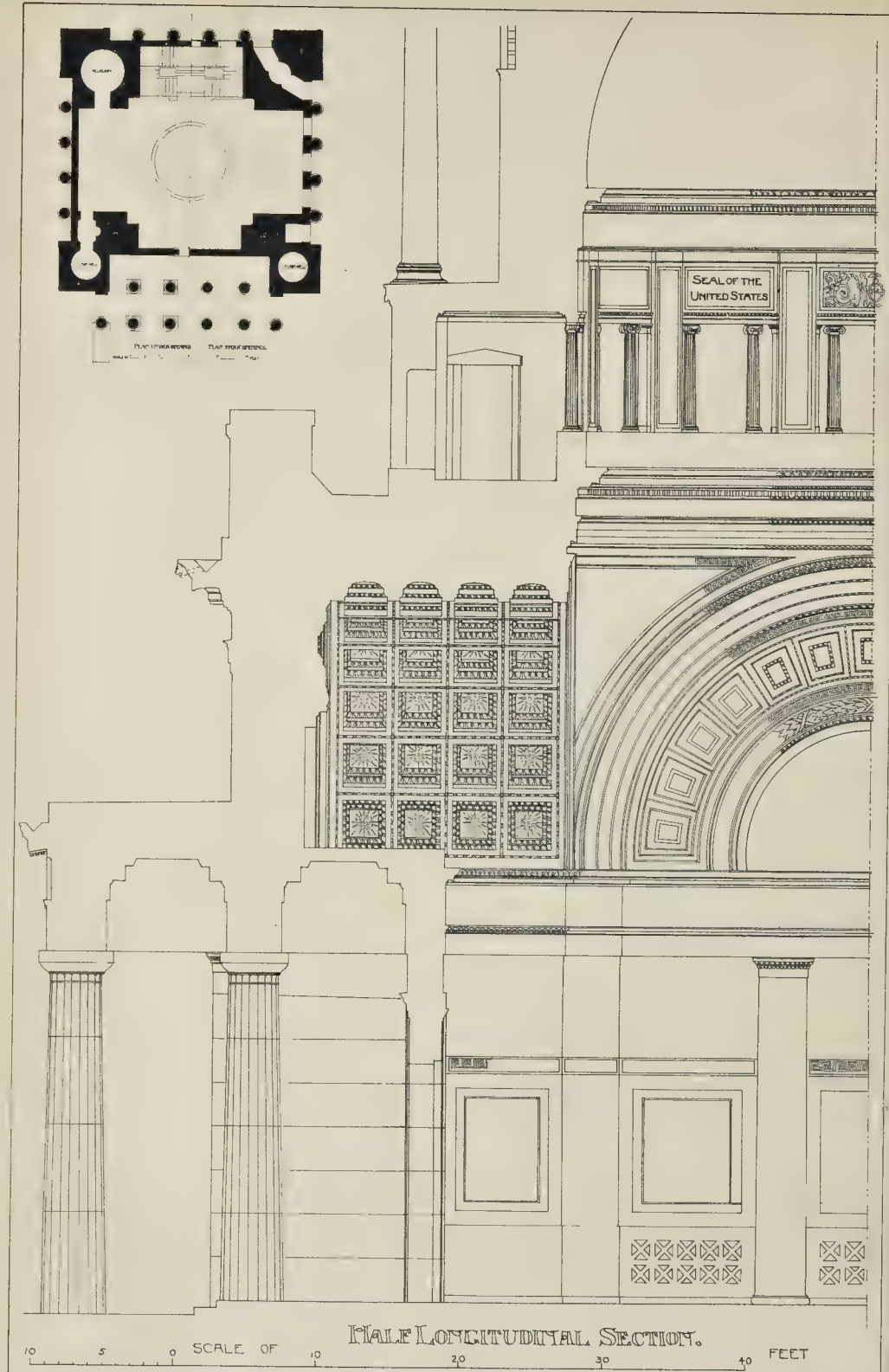
INTERIOR VIEW.

THE GRANT MAUSOLEUM, RIVERSIDE PARK, NEW YORK.—MR. DUNCAN, ARCHITECT



MESSES MACMILLAN'S NEW PREMISES. DIRECTORS' PRIVATE ROOM. MR. JOHN CUSHY, ARCHT.





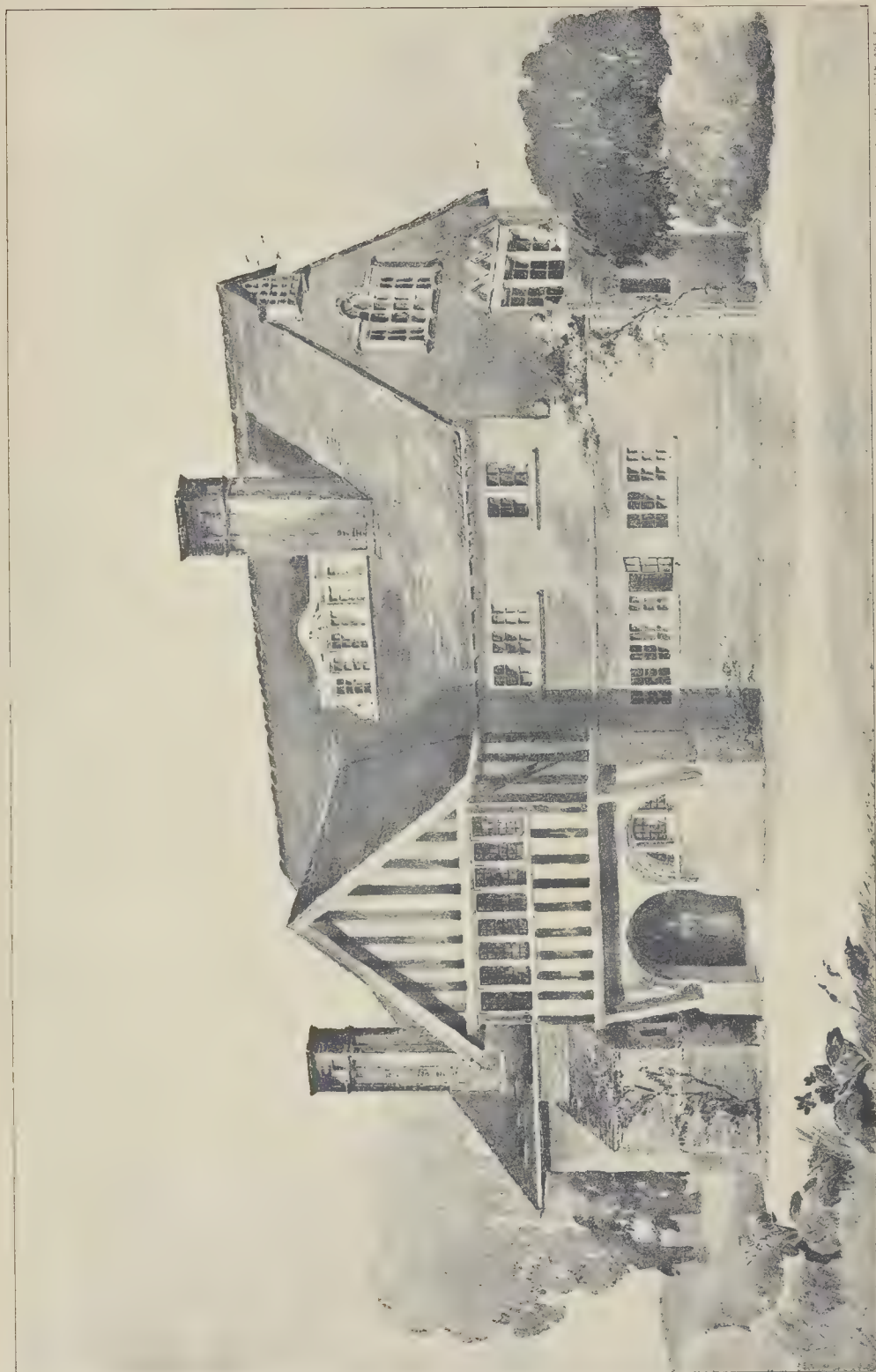
THE GRANT MAUSOLEUM, RIVERSIDE PARK, NEW YORK.—MR DUNCAN, ARCHITECT.
PLAN AND HALF SECTION.



PHOTO-LITHO SPRAGUE & CO. 445 EAST HANCOCK STREET FETTER LANE E.C.

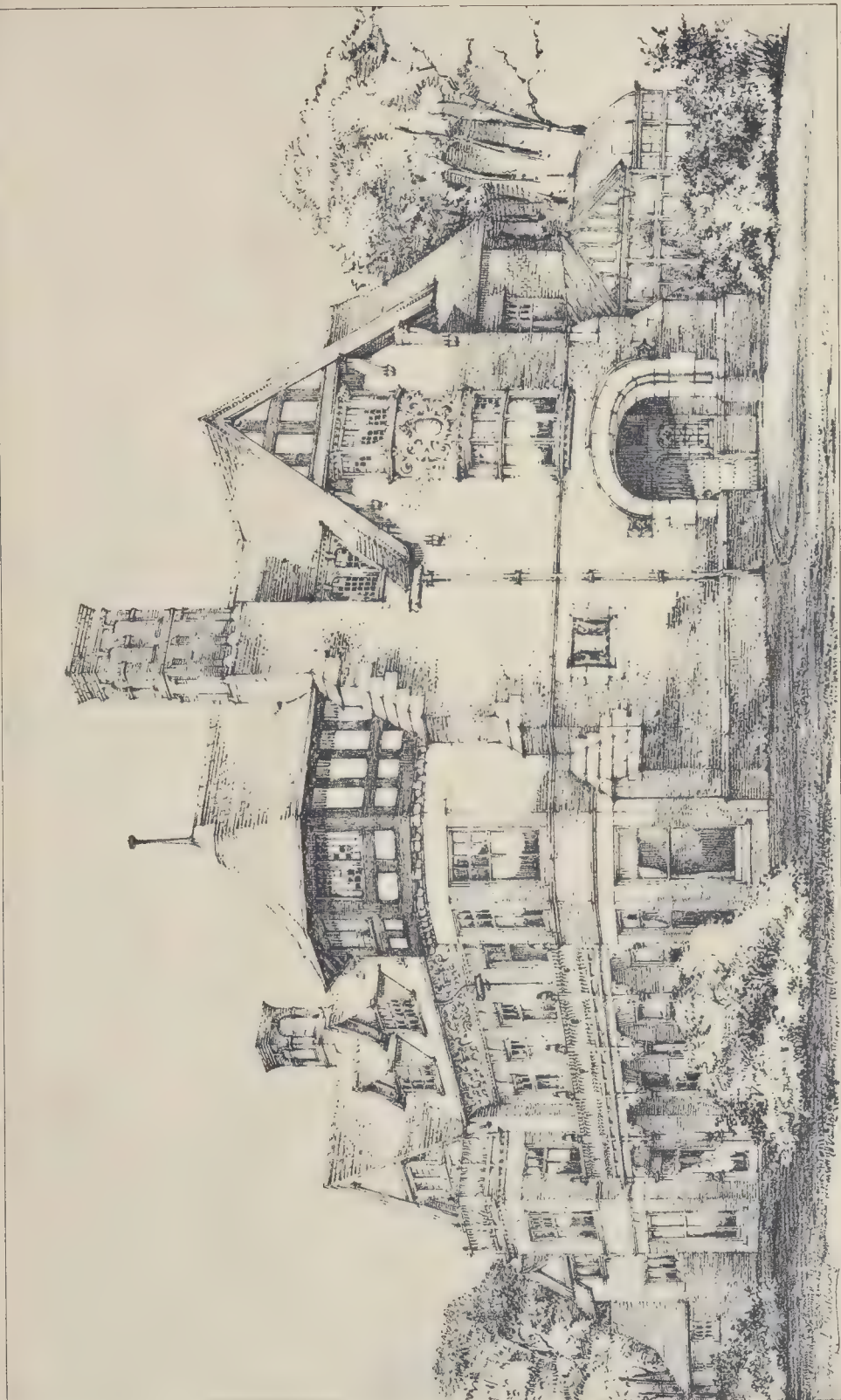
MEMORIAL CHANCEL TO THE LATE JAMES THEOBALD, M.P., ALL SAINTS', GRAYS.
MR. CHRISTOPHER M. SHINER, A.R.I.B.A., ARCHITECT

THE BUILDER, SEPTEMBER 25, 1897.



THE BUILDER, 1897.

THE BUILDER, 1897.



HOLMWOOD, NEAR WIMBORNE DORSET. MESSRS. CULSWAY & SONS, ARCHITECTS.

they have obtained the premier award of a silver medal. Another stall devoted to sanitary ware is that of Messrs. Bowes, Scott, & Western, Limited, London, who show lavatory basins, closets, latrines, and syphon flushing tanks in great variety.

The Farnley Iron Company, Leeds, have obtained bronze medals for a white enamelled fireclay bath and a sink of similar material and finish. They show besides a large variety of sanitary fireclay goods, made from the Farnley fireclay, and with the Farnley glaze.

The Leeds Fireclay Company have on their stall fireclay exhibits of every description. They have taken a silver medal for wall decorations in Burmantofts faience, and six bronze medals for sinks, baths, terra-cotta, and glazed bricks, &c. The Company besides make and exhibit the following patent pipes, &c.: Hellyer's Patent Bracket Bed-pan Slop Sink, Winsor's Channels and Bends, Hassall's Patent Safety Joints on Pipes, Leeming's Patent Duplex Pipes, Turley's Patent Pipe Joint, Stanford Jointed Pipes, Simpson's Patent Collars, Green's Sanitary Specialities, Le Rossignol's Trap, Mountain's Patent Connecting Collar, &c.

The Leeds Art Pottery and Tile Company, of Hunslet, Leeds, exhibit faience and tile work for which they have been awarded the bronze medal. They also exhibit specimens of their imperishable Ceramic Mosaic, together with several examples of art pottery, &c.

Messrs. James Stott & Co., Oldham, on their stall exhibit electric ventilators, or air propellers. Their apparatus for humidifying, warming, and disinfecting air attracts special attention. It consists of a metal frame, fitted to that part of a building where the air is first admitted, carrying top and bottom parallel rollers round which an endless fibrous filter continuously revolves. At the foot of the frame, extending from side to side, is the water trough in which the lower roller works. The air is drawn through the screen by one of the electric air propellers, and can be heated at will by a stack of hot water pipes placed between the filter and the air propeller.

The Blackman Ventilating Company, London, have obtained a silver medal for their Coke Filtering Screen, which is composed of prepared coke between wire screens, with an arrangement for moistening and fitted with a Blackman fan to force the air through. The coke may be moistened for disinfecting, deodorising, or perfuming the air.

The Torpedo Ventilator Company, Sheffield, have a stall devoted to ventilators of various sizes for schools, infirmaries, and public buildings and institutions of all kinds.

Mr. H. C. Webb, Birmingham, exhibits his Patent Reversible Window; the sashes are pivoted and placed one immediately over the other, not, as usual, one behind the other; this arrangement enables the employment of hinged and locking flies by which the sashes are made dust, draught, and burglar proof. By a bolt near their centres each sash can be fastened at any required angle for ventilation.

A source of danger has been removed by the introduction of Kendall's Patent Reversible Window Sash, as both the inside and outside of the window can be cleaned with ease by one standing inside the room to which the window belongs.

The Eagle Range and Foundry Company of Birmingham, London and Bristol, have on view several of their kitchen ranges, and are also exhibiting a novelty which has not previously been put before the public, in the shape of the Eagle Patent Safety Man-lid to be used instead of the safety valve for the prevention of explosions in kitchen ranges.

The Ferrybridge Foundry Company have taken medals with both their exhibits. A silver medal has been gained with the Fryston Duplex Fire Kitchener, and a bronze medal with the Fryston Lifting Fire Kitchener. The duplex kitchener is so constructed that the temperature of any part of it can be regulated. The lifting fire range enables the fuel to be maintained in a line, both vertical and horizontal, to do the work it has to do with no possibility of accident from the falling of the fire-bars.

The Manchester Gas Cooker Company, Limited, Huddersfield, exhibit various gas-cooking ranges. The Davis Gas Stove Company, Limited, London, have a similar exhibit on their stall, and have obtained a silver medal for their "Metropolitan" Gas Cooker. The Morton-Pringle Gas Heating Company,

London, The Cannon Hollowware Company, London, Messrs. Richmond & Co., Warrington, and Messrs. Charles Wilson & Sons all exhibit gas stoves, ranges, &c.

Mr. H. Jackson, Leeds, exhibits a useful and novel invention, which must prove invaluable in hotels, restaurants, &c. By means of his Patent Self-Feeding Circulating Instantaneous Water Boiler a supply of water at a temperature of 205 deg. may be obtained at the rate of one gallon per minute, with a consumption of 2 ft. of gas and under per gallon, in three minutes after heat is first applied, without any danger of explosion.

Mr. J. W. Kirk exhibits two forms of the 1897 Fire Feeder at work. This is a simple and cheap appliance, which can be adapted to stoves and fireplaces, and by means of which a considerable economy of fuel and consumption of smoke is effected and more heat generated from a given amount of fuel.

Messrs. William Woollams & Company, London, show various samples of wall-papers, both of early Victorian and modern design and manufacture. Arsenic enters largely into the composition of the former, but the exhibitors guarantee its absence in wall-papers of their manufacture.

The Cordelova Company, Limited, Edinburgh, exhibit Cordelova for wall and ceiling decoration, consisting of dados, friezes, fittings, and ceilings in relief, for which they have gained a bronze medal.

Messrs. Wilson & Stockall's Accident Ambulance Carriage has gained a bronze medal. It is of an improved pattern, and is fitted with a special apparatus for keeping the patient in a horizontal position when descending a steep hill. The same firm exhibited an ambulance for the conveyance of infectious cases, and a two-wheeled van for the removal of infected clothing.

A permanent and portable iron isolation infectious hospital, suitable for all purposes, has been erected by Messrs. Humphreys, Limited, London, in the grounds. The whole of the interior is of stained and varnished woodwork, and has been fitted by Messrs. Geo. Gale & Sons, Birmingham, with hospital and invalid beds, having recent improvements, in the way of castors which do not mark or scratch polished floors, and enable the beds to be moved with ease. These hospitals can be erected, and left fit for immediate occupation in from five to ten days. Messrs. Sissons, Hull, show a sample of new sanitary water paint, which disinfects, does not scale, and is washable in three weeks from the time of putting it on. Messrs. W. Summerscales & Sons, Keighley, exhibit a number of machines for the equipment of laundries, to work both by hand and steam power. The Pendleton Sanitary Engineering Co., of Manchester, had on exhibition a patent sanitary ashbin.

The Expanded Metal Company, whose Leeds representatives are Messrs. Motley & Green, have obtained a silver medal for their exhibit. By means of a recent invention, the process of manufacturing expanded metal has been completely revolutionised, and the material now produced is better, and can be made in greater varieties of weight and mesh than formerly. It is used for lathing, giving increased strength to concrete walls, floors, &c., and for fencing and enclosures of all kinds.

Mr. William Gooding, London, exhibits his patent interchangeable rubber stair tread, and also a patent combined safety valve and fusible plug, for which he has obtained a bronze medal. A list of awards is given below:—

Silver Medals.

The Blackman Ventilating Co., Ltd., London, Coke Screen for Ventilating Purposes.

Davis Gas Stove Co., Ltd., London, "Metropolitan" Gas Cooker.

J. Deifies & Sons, Ltd., London, (1) Pasteur Chamberland Domestic Filter, (2) Portable Hot Spray Disinfectant.

The Ferrybridge Foundry Co., Ferrybridge, Fryston Duplex Fire Kitchener.

Hughes & Lancaster, London, Shone's Hydro-pneumatic Ejector.

Jas. Milne & Son, Ltd., Leeds, "Instant" Grip Fire Hose Connection.

Leeds Fireclay Co., Ltd., Leeds, Wall Decorations in Burmantoft's Faience.

Shanks & Co., Barnhead, N.B., "Fin de Siècle" Bath.

Expanded Metal Co., Ltd., London, Expanded Metal.

Bronze Medals.

Cannon Hollow Ware Co., Deepfields, near Bilston, (1) Enamelled Cast Iron, (2) "Hercules" Gas Cooker.

The Cordelova Co., Ltd., Edinburgh, Cordelova Wall Coverings.

Claughton Bros., Bramley, Leeds, The "Niagara" Water Waste Preventer.

S. Dixon & Son, Leeds, Incandescent Arc Outside Lamp.

Alfred Dougill & Co., Ltd., Leeds, Gas Engine convertible into Oil Engine.

Jas. Duckett & Sons, Ltd., Burnley, "Clencher" Washdown Closet.

Farnley Iron Co., Leeds, (1) White and Coloured Glazed Bricks, (2) White Enamelled Fireclay Bath without Fittings, (3) White Enamelled Fireclay Sinks without Fittings.

William Gooding, London, (1) Combined Safety Valve and Fusible Plug, (2) Interchangeable Rubber Stair Treads.

Henry Jackson, Leeds, Self-Feeding Circulating Boiler.

John Jones, London, Releasable Stopper for Cleaning Arm of Disconnecting Trap.

Leeds Art Pottery and Tile Co., Hunslet, Leeds, Faience Tile Dados.

Leeds Fireclay Co., (1) Glazed Bricks, (2) Shoppee's Dovetail Bricks, (3) Tiltman's Division Bricks, (4) Vitreous Glazed Terra-cotta, (5) White Enamelled Fireclay Bath without Fittings, (6) White Enamelled Fireclay Sink without Fittings.

Richard Mason, Hemsworth, Reversible Window and Fanlight.

Jas. Milne & Son, Ltd., Leeds, (1) Sink Waste Fittings, (2) Upright Combination Bath Fittings with large Outlets.

Noble Brown & Co., Leeds, Nobro Portable Fire Pump.

Patent Gully Co., Ltd., Nottingham, Crosta's Iron Road Gullies.

R. H. Quine, Pendleton, Manchester, Sanitary Ashbin.

John Russell & Co., Ltd., Leeds, (1) Wrought Iron and Steel Tubes, (2) Cup Fittings for Incandescent Gas Lamps.

Teale & Somers, Leeds, Raised Hearth and Sunk Fire.

E. Walker & Co., Heckmondwike, Walker's Block Tin Lined Iron Pipe.

Exhibits Deferred for Practical Trial.

Cameron, Commin, & Martin, Exeter, Septic Tank System of Sewage Treatment.

R. Clark & Co., Heckmondwike, "Eureka" Lead Incased Block Tin Water Pipe.

Abraham Thomas Cooper, London, Cooper's Suction and Vacuum Pump.

Davis Gas Stove Co., Ltd., London, Open Ventilating Gas Fire.

Alfred Dougill & Co., Ltd., Leeds, Tornado Air Propeller.

Doulton & Co., London, "Ellison's" O.B. Closet.

Geo. Jennings, London, (1) Duplex Supply and Sanitary Waste Valves for Lavatories, (2) Duplex Supply and Sanitary Waste Valves for Baths.

Jeyes' Sanitary Compounds Co., Ltd., London, Formogenic Auto-clave.

John Jones, London, (1) Automatic Flushing Cistern for Urinals, (2) Ball Valves.

Manchester Gas Cooker, Ltd., Huddersfield, Gas Governor.

Richmond & Co., Ltd., Warrington, Gulf Stream Geyser.

Sissons Bros. & Co., Ltd., Sculcoats, Hull, Sanitary Washable Distemper.

J. Stott & Co., Oldham, Electric Motor Dynamo.

Torpedo Ventilator Co., Sheffield, Torpedo Ventilators.

Valveless Siphon Co., Kirkstall, Leeds, Water-witch Ball Valves.

E. Walker & Co., Heckmondwike, (1) Walker's Aluminium Lined Pipes, (2) Frost-Resisting Pipes.

Washington Lyon, London, Steam Disinfectant.

Letters of Thanks or Recognition.

Adams & Co., Leeds, Gentlemen's Lavatory Claughton Bros., Bramley, Leeds, Ornamental Lead Work.

Doulton & Co., London, Ladies' Lavatory. Shanks & Co., Barnhead, N.B., Specimens of Old Defective Work.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The Ruabon Coal & Coke Co., Limited, have removed to their Paddington office, 17 Wharf, South Wharf-road, W.

Correspondence.

To the Editor of THE BUILDER.

THE TABERNACLE, MILTON ABBAS.

SIR.—It was very far from my intention to be discourteous or to give any pain to the Vicar of Milton Abbas in my speedily written and brief account of the visit of the Archaeological Institute to Milton last August. I wish to withdraw anything that he thinks offensive.

I paid two visits to this grand old church in 1872, but did not specially inspect the tabernacle on the west wall of the south transept, not having a ladder or other means of reaching it. I then had "Murray" with me, which I parted with many years ago, but I am confident from my recollection and from notes that the edification then in use described it as a bell-cot, or some equivalent term. That it is in its original position, being so massively welded into the masonry, I have not the least doubt, nor do I think any practical person would doubt this after careful examination. It was in the same position more than 200 years ago, when two models of steeples, as they were then described, are mentioned as being against the walls of the church, one in the south transept, and one against the north wall of the chancel. It was then mentioned that the one in the chancel (the iron stay for which can still be seen) was much broken, and it has since disappeared. This in itself precludes the tabernacle in the south transept from having been for Reservation. There could only be Reservation before the high altar, and not in two places in the same church.

If Mr. Boussfield, or any one, would supply you with measured drawings of the opening into the tower or square story of the tabernacle, together with the interior arrangements or fittings of that part, it would at once be seen that it was for a bell, or a ring of bells on a barrel, and not for a pix. Moreover, the side next the wall being left unpainted forbids the idea of its suspension in front of or over the altar where all parts would be visible. The whole affair is far too big and cumbersome to have been possible for use as a Sacrament House worked by a pulley. At all events, nothing in any way approximating it can be shown to have been used for such a purpose.

Sacring bells were certainly sometimes hung against walls or attached to screens. The will of John Baret, of Bury (1463), directs the "herere of the paxbede" to "wynde up the plomme of led as oft as nedith," and "do the chymes goo at ye sacring of the Messe." Probably there was a musical chime within this Milton Tabernacle. I am now analysing the pre-Reformation wills of Northamptonshire, and have found two or three references to sacring bells that corroborate this view; though they do not definitely describe the bell-case, they clearly imply that there was one.

THE WRITER OF THE ARTICLE.

THE STUDENT'S COLUMN.

SIR.—The author of "Quantities and Quantity-taking" surely has made a mistake in stating that the measurement of slating can be taken as given on pages 188 and 189 in two dimensions.

Surely the two dormer gables at back and the portion of porch roof into main one at front cannot be represented or be sufficiently taken by a straight dimension through?

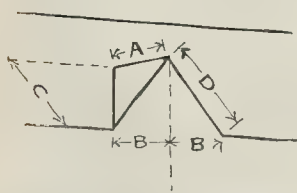
A good deal depends, of course, upon the height of the dormer gables as to the proper amount of measurement; but reason will show that the two triangles of a dormer must be more than the space it covers at its base.

I fear contractors would not take this measurement, and it is misleading to students to represent it so.

J. N. CROFTS.

SIR.—In reply to your correspondent, Mr. J. N. Crofts, I think he will find that he is in error with regard to his objection to the method of measuring slating as set forth on pages 188 and 189 of the Builder.

The accompanying sketch and explanation will, I think, make the matter clear to him.



The pitch of the roof to dormer gable being similar to that of main roof, it follows that the length of ridge (a) is equal to half the width of the

gable (b). It is therefore evident that the bases of the triangle are equal.

As the ridge to dormer strikes the main roof at the same height as the gable, the slope of main roof (c) from this height is equal to that of the gable (d). The result is that we have two triangles for each side (one a deduction and the other an addition) which neutralise each other.

The height of the gables does not affect the question in the slightest degree provided that the pitch of dormer gable is similar to that of main roof.

I do not quite follow your correspondent's remark as to "the space covered by a dormer at its base," unless he has fallen into the error of imagining that the triangle on plan forming the plan of the dormer gable represents the true size of the deduction.

As to the last paragraph in his letter, I may say that I have followed the method given in measuring slating for a good many years and have never had it questioned, which, I think, would hardly have been the case were I so grievously in error as Mr. Crofts imagines.

THE WRITER OF THE "STUDENT'S COLUMN" ARTICLES.

FORM OF TENDER.

SIR.—The words "I hereby agree" which are so very objectionable to builders are still adhered to by a number of architects, although in a great many cases the words are altered before sending in, much to the annoyance of the architect.

The other day an architect informed me he had removed my name from his list owing to my alteration of his form.

Now, I could state several serious objections to the above words, but one is sufficient, and it does not admit of any contention, viz., it is reasonable or not that I should satisfy myself as to the responsible position of building owner before signing myself away?

It is not likely I could take this trouble beforehand on the remote chance of my getting the job. What would be the thought of a dozen competitors applying to a banker or some one else as to the position of Mr. So-and-So?

I trust this will lead to some further consideration of this somewhat troublesome question.

The tender generally states that the owner does not bind himself to accept any tender, although he binds me to be accepted if he chooses.

T. H.

USE OF SLATES IN LONDON.

SIR.—I observe in the first volume of Aubrey's "History of Surrey," page 12:—"At Vaux Hall, Sir Samuel Moreland built a fine Room, anno 1667; the inside all of Looking Glass, and Fountains very pleasant to behold, which is much visited by strangers; it stands in the middle of the Garden . . . covered with Cornish Slate; on the front whereof he placed a Punchello, very well carved, which held a Dial, but the winds have demolished it."

The above is repeated in Peter Cunningham's "Handbook of London," and perhaps may be of assistance to "F. F. G." who wrote to the Builder on July 31 last, if he should be studying up the subject.

W. F. POTTER.

OFFICE ROUTINE.

SIR.—I am anxious to ascertain the best means of planning out the office routine work of an architect's business—such as the necessary books and accounts, handling and filing of correspondence, and other papers. I am not aware of the existence of any literature dealing with the subject, and shall therefore feel much obliged if you, or any of your readers, can refer me to any books, pamphlets, or articles treating of the subject.

"CASHIER."

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER X.—MODES OF MEASUREMENT.

Joiners' Work (continued).

Wall and Ceiling Linings.

WALL BOARDING, per square superficial.—State thickness, widths of boards, description of joint, as "matched and beaded," "matched and V-jointed," or otherwise. If the joint is moulded give a sketch. Include with the description the backings, keeping that plugged to wall separate from that on partitions, or take fixing blocks as numbers. Measure the boarding *net*, taking "raking, cutting, and waste," and "circular cutting and waste" at per foot run.

If the boarding is in short lengths to a dado keep this separate, describing as "in dado."

Ceiling Boarding, per square superficial.—Describe as noted for wall boarding, but if on wood joists no backings will be required, but if on concrete ceiling backings plugged to the

concrete will be required. Keep boarding to soffits of stairs separate; again separating that to soffit of winders from the remainder. As boarding to soffits of stairs is generally in somewhat short lengths and small quantities, it is sometimes billed at *per foot superficial*. Keep boarding in casing to beams separate, describing as such, and billing at *per foot superficial*.

Angles, &c., in Boarding, per foot run.—State if tongued and to the external angles whether moulded or staff-beaded. Measure also at per foot run any scribbing to irregular face, housing, &c. Number small notchings, also scribbings over skirtings, &c., stating whether scribbings are over moulded work, and giving the size of the skirting.

Cornices, per foot run.—Give extreme size, girth of moulding, and any other description, and if built up, describe as noted in Chapter VIII. **Note.**—That for each external angle must be added *twice* the projection in addition to the net girth of the room. Number mitres, ends, &c., as before described.

Panelled Wall Linings and Dadoes, per foot superficial.—State thickness and description of panelling as described for doors, mentioning the number of panels in height. Include backings, with the description, keeping that plugged to wall separate, or take fixing blocks as numbers. Keep work circular on plan separate, stating the radius. It is sometimes advisable in the case of narrow dadoes, where the panelling is somewhat exceptional in arrangement, to bill these at *per foot run*, giving the height and full description.

Angles, &c., per foot run as described to similar items in boarding.

Plinths, per foot run. Where a skirting is fixed on the face of boarding it is wrot both sides, and is then described as a "plinth." Measure this as described for skirting, except, of course, in this case grounds and backings will not be necessary.

Wall panelling and panelled dadoes do not always run down to the floor; in this case the lower edge of panelling is either tongued to the top of the skirting or the skirting is rebated for same. In the former case describe the skirting as grooved and take an item of rebate at *per foot run* to lower edge of panelling. In the latter case describe skirting as rebated. The skirtings here will require grounds and backings as described previously. Number mitres, ends, &c., as previously described.

Cappings, &c., of Dadoes, per foot run.—State size, and how moulded, and girth of moulding. Include grounds, with description, or measure separately, and state if plugged, or take fixing blocks as numbers. State whether rebated for dado, or if dado tongued to same describe as grooved, and take an item of rebate as described for plinths. Number mitres, ends, &c., as described for skirtings. Mouldings planted on face of panelling are measured separately, as described to mouldings on doors, &c.

Pilasters, &c., per foot run.—State size and how fixed, measure separately flutes, giving the width and depth and stating if stopped, and number the stops, stating the shape. It is sometimes advisable to number flutes, including the stops, averaging the lengths.

Plinths, cappings, neckings, &c., to pilasters are frequently better numbered, giving the size of the mouldings, the full widths on face and returns, the number of returns, and the mitres and ends to each, and state whether housed in or merely planted on.

Fittings and Sundries.

Cupboard fronts, per foot superficial.—Measure over the front, state thickness and description of frame, and also the doors, stating whether single hung or folding, and whether in two or more heights, also describing the panelling of the doors as previously noted under the heading of "Doors," and any other particulars.

Ends and Divisions, per foot superficial.—State thickness, and also whether plain or panelled; if the latter, the description of panelling.

Keep dwarf cupboard fronts separate from remainder, and describe as such.

If doors are hung to slide, it will be found necessary to measure the frame in detail, and also the doors, describing the latter as "sliding." Runners, parting beads, grooves, &c., will also have to be measured at *per foot run*; but, of course, the particular details will depend entirely upon the architect's intention in this case, and as these are sometimes of rather an elaborate description, it is well that this should be clearly understood.

Skirting, per foot superficial.—State thickness

and if wrot one or both sides. Measure wall bearers at *per foot run*, giving size and description, and stating whether plugged. Measure ship lap joints at *per foot run*, and number notches, rounded corners, also brackets under shelves.

Movable shelves should be so described, and the movable bearers at ends numbered, the vertical bearers, such as "shark's tooth," &c. should be measured at *per foot run*.

Lattice shelving is measured at *per foot superficial*, giving the size of the laths, the distance apart, and the size and spacing of ledges. State whether rough or wrot.

Water-closet Fittings.—Take the girt of the seat and riser by the width, and bill at *per foot superficial*, giving thickness and full description, and include the bearers. Flaps and frame are also measured at *per foot superficial*, describing the flaps as "clamped," "mortice and mitre clamped," or otherwise. Any finish to the edge as rounding, moulding, &c., to be measured at *per foot run*, as are also thumb mouldings. In the latter case give the size, and if tongued on include the grooves. Skirtings to water-closet seats are measured as previously described. Number seat holes and holes for handles, &c., stating if the latter are finished with bead or moulding around.

The foregoing description is, of course, for enclosed water-closets, but if for a pedestal closet, number the item complete, making it perfectly clear what is intended, as there is a very great variation, both in character and general detail in these.

Bath Fittings.—Measure the bath top net at *per foot superficial*, and state that the item is "measured net." Measure at *per foot run* the work to edges and number the rounded corners, &c. For the enclosure the rules for measuring framings, &c., in Chapter IX., generally will apply. Unless the bath has feet it will be necessary to take an item of cradling as a number.

Sinks, per foot superficial generally.—Keep the rim and bottom separate and state how put together, i.e., whether dovetailed or otherwise. Small draw-off sinks to irregular shapes are frequently numbered complete. Measure at *per foot run* the legs and bearers, describing as framed and chamfered, &c., as the case may be.

Enclosures to Sinks and Lavatories, per foot superficial.—The notes as to measurement of cupboard fronts, &c., will generally apply to these.

Labours at per foot run.—Grooves, rebates, chamfers, moulded edges (in these keep "stopped" and "cross-grain" separate from the remainder, and in the case of chamfers and mouldings number the stops and give descriptions. Grooves and rebates if of exceptional size, and also chamfers and mouldings, should have the girt noted, housings, scribbings, angles, stating the thickness of the material dealt with, and in the case of angles note whether tongued and whether external or internal, and if the former, whether staff-beaded, moulded, or plain. *Note.*—Scribing is not required to be taken next a new plain face, such as new plaster, as the work is supposed to be finished to a true face. Take plugging at the end of framing next a brick wall whether plastered or not.

Pipe-casing, per foot run.—State thickness and give full description, and include the grounds, stating if the latter are plugged and if the casing is fixed with brass screws and cups, or otherwise.

Rails, &c., per foot run.—State width and thickness and finish to edges, and how fixed. Number returned ends, mitres, &c.

Sundry items billed as numbers.—Notches, small scribbings, attendances on water-closets, baths, lavatories, sinks, &c., brackets, draining boards (giving sizes and thicknesses and description of flutings and if stopped, and any other particulars), plate-racks (giving size), dressers (giving sizes and full description and dimensions and thicknesses of detailed portions throughout), and any items that cannot be measured. However, the surveyor must not be tempted to number items to save himself trouble at the expense of the contractor having to take off his own quantities for items that should appear in the bill in detail. It is sometimes advisable, however, where detailed measurements do not thoroughly explain the work involved, to number the item and to give the detailed dimensions underneath, kept short to enable the contractor to make up the total cost of this particular item before placing the amount in the general money column of the bill.

Staircases.

Treads and Risers, per foot superficial.—Allow beyond the sight width of the treads and risers 1 in. each end-for housing, and take this dimension by the width of the tread and the height of the riser added together (making an additional allowance for the nosing). Give thickness of tread and riser, description of nosing, and state whether risers are tongued one or both edges and the number of carriages.

Winders and Risers, per foot superficial.—to be measured net and so described in the bill.

Landings, per foot superficial.—These are generally measured to include the framed bearers. Measure nosings to landings at *per foot run*, stating size and thickness, and, if tongued on, state this, and include the groove, keeping that cross grain separate from the other. Number mitres, housings, &c., to nosings.

Wall Strings, per foot run.—State size and thickness and whether moulded or otherwise. If moulding elaborate mention girt. State whether plugged to wall and if grooved or rebated for plaster or wall framing. Keep "ramped" portions separate, numbering the heading joints. If ramps are very short number these, and describe as "extra." Number mitres, splayed ends, returned ends, heading joints with skirtings, &c.

Outer Strings, per foot run.—State size and thickness and the labours on the string. Take framed and housed ends as numbers, stating if "on rake" and the nature of the wood to which they are housed and framed; keep "ramped" and "wreathed" portions separate, or, if short, number as described for wall strings. Any cappings, face mouldings, &c., should be measured separately at *per foot run*, keeping "ramped" and "wreathed" portions separate, and numbering the ends, &c., as described to the strings.

Newels, per foot run.—Give size, and if merely chamfered or moulded at the angles include labours: number shaped caps and pendants, giving sketch if required. If turned, take the newel plain and number turnings to "waists," stating size and length of turning, and "caps" and "pendants." Number any sunk panels, flutings, moulded cappings, neckings, and any other works that cannot be measured, giving full dimensions and particulars. In the case of very elaborate newels, it is sometimes the better plan to number the item complete, giving a sketch.

Handrails, per foot run.—State size and if moulded or rounded. It is frequently necessary to give a sketch, or to note the girt of the moulding. Keep "ramped" and "wreathed" portions separate, or if very short, number these and describe as "extra." Number mitres, newel caps, housings, and framings (stating if on rake), ends cut and wedged, &c., and take handrail screw at each joint.

Balusters.—These are generally better numbered, giving size and length, and stating whether "plain," "shaped," or "turned," with full description of the labour, and including the housings, keeping those to raking strings and handrails separate, and mentioning also the woods into which they are housed.

Sundry items as numbers.—Ends of treads and risers housed to strings (stating whether nosings are rounded or moulded), wide ends of winders and risers and narrow ends of ditto housed to strings, notches in treads, &c. to newels, bull-nosed or curtain ends and rounded corners (giving description of nosing, &c., and the girt of the ends or corners).

The framing under stairs being in spandrel shape is frequently kept under the heading of "Staircases."

Hard Woods.

The foregoing modes of measurement have been written as for "deal," but of course the same will apply to "hard woods." These should be kept under the same headings under the different woods as described in the early part of Chapter IX.

Ironmongery.

The Ironmonger's bill, being almost without exception a collection of numbers, very little description as to the method of taking ironmongery is needed. It is, however, a good plan to keep under various headings, e.g., "Ironmongery and Fixing in Deal," "Ironmongery and Fixing in Hard Wood," "Brasswork and Fixing in Deal," and "Brasswork and Fixing in Hard Wood," the brasswork being fixed with brass screws.—Note in the heading that the fixing includes screws.

As the quality and description of the items of ironmongery is so varied it is absolutely necessary in most of the items to give the "p.c." or "l.p.," or the maker's name and number in the catalogue, and all particulars necessary, to leave no element of doubt as to what the items refer. It is advisable in the case of some of the items—some makes of weather bars, for instance—to obtain from the makers particulars as to the works necessary to take for these items. This will apply to various special manufactures.

OBITUARY.

MR. WILLIAM GALLOWAY.—Mr. William Galloway, who has been employed for the last twelve or thirteen years in excavating the foundations of the old cathedral at Whitthorn, died on the 17th inst. after a short illness. Mr. Galloway, who was about sixty-five years of age, was born in Edinburgh, was educated at the High School, and afterwards apprenticed to Mr. Patrick Wilson, architect, Edinburgh. He early took to painting, and also turned his mind to ecclesiastical architecture. But old monuments of all kinds had a strong attraction for him, and his skill in deciphering characters on ancient stones was very great and exact. Mr. Galloway was a poet of some note, and he was an author of several volumes.—*Scotsman.*

MR. A. P. COTTERILL.—Mr. A. P. Cotterill, a builder of Crewe, for many years member of the Town Council, and latterly an alderman for the borough, died on the 16th inst.

GENERAL BUILDING NEWS.

SYNAGOGUE AND CLASS-ROOMS, SOUTH HACKNEY.—These new buildings occupy a frontage of about 95 ft. to Devonshire-road, Mare-street, and comprise a lower ground floor, consisting of nine class-rooms, and an assembly hall, accommodating 400 children simultaneously, and on the same floor is lavatory and cloak-room accommodation for boys and girls. This floor is fitted with movable partitions, which, when put aside, convert the entire floor into a great hall for prize distributions and overflow services. The lower ground floor has two stone staircases leading direct to the street. The upper ground floor is the main floor of the synagogue, and is approached by a separate entrance from the street. It contains accommodation for 340 males, the whole of the seats are placed crossways, and the ark, pulpit, and reading platform are grouped together at the eastern end of the building; there is also, on this level, lavatory accommodation for gentlemen, and a robing-room for the ministers. Two self-enclosed staircases lead direct from the street to the gallery, which contains accommodation for 270 ladies, and two sets of cloak-rooms. The interior is finished in pure white, the joinery being stained imitation oak. The exterior has been built in red bricks, with artificial stone dressings. The total cost, including the freehold site, has been about 8,000l. The contractors for the whole of the works are Messrs. Brown, Son, & Blomfield; the gas work has been carried out by Messrs. Verity; and the heating by Messrs. Wontner-Smith, Gray, & Co. The artificial stone was prepared by Mr. Bickley, and the constructional ironwork and steelwork by Messrs. Drew-Bear & Co. The architect is Mr. Delissa Joseph, of Basinghall-street, E.C.

NEW CHURCH, MAIDSTONE.—The new church of St. Luke's, situated near the old building in Foley-street, was consecrated recently by the Bishop of Dover and Bishop-Designate of Wakefield. The length of the nave is 75 ft., the breadth 52 ft., and the height 40 ft., the roof being of pitch pine. The chancel is 20 ft. long. The seating accommodation is sufficient for 800 persons. In the design the architect has sought to embody the principle upon which all the great styles of architecture have been founded and developed—namely, that every building, while exhibiting a knowledge of that which has preceded it, should not be merely a collection of archaeological features tastelessly combined, but that every part should indicate thought as to its purpose, construction, and artistic effect, and that the whole should, at the same time, possess unity and consistency. Although Gothic in general character, the church is not distinctively Early English, Decorated, or Perpendicular, nor can it be said to be a combination of these styles. The design of many of its features is novel, such as the coupled shafts and bold segmental arches and mouldings of the nave arcade, the capitals of the chancel arch, the treatment of the east window of the chancel and the west doorways. The fittings of the choir also exhibit the same independence of treatment. The suppression of the customary clerestory for the sake of ensuring good artistic results and preventing down draughts in the nave has produced a low roof, and an unbroken line from ridge to angle wall. The absence of the clerestory windows, and the consequent deficiency of light in the nave, called for an unusually large west window, and as there was little weight above its great arch, a more flowing treatment of its tracery was considered legitimate. On the other hand, the setting of the side windows is more perpendicular, as giving all the support possible to the weighty roof. The stone of the chancel steps was

obtained from the Forest of Dean. At present the old organ will be used. The chancel floor is of mosaic. The choir stalls and prayer desks are of open carved wood, and the pulpit from the old church has been cleaned and renovated. The floor of the nave is of wood blocks and the seats are of polished Columbian pine. The old stone font is being utilised for the new church, and the floor of the baptistry is covered with mosaics. The building will be heated with hot water. The means at the disposal of the committee did not allow a tower or spire, but a small bell turret has been provided. The bell was specially cast for the church by Messrs. Warner, London. The turret is surmounted by a copper dove (substituted for the originally designed figure of St. Luke) symbolising the Holy Spirit descending on the congregation. Local ragstone has been used for the external facings; the windows, weatherings, copings, and other dressings, as well as all the internal stonework, being of Monks Park stone. The roof is covered with Broseley tiles, and the bell turret with oak shingles. Messrs. Wallace & Sons, of Maidstone, were the contractors for the carving of all the capitals and the bosses of the chancel arch has been executed by Mr. Aumonier, and the remainder of the stonework by Mr. Gilbert Seale; the choir stalls and clergy seats by Messrs. White, Allom & Co., the glass by Messrs. A. Moore & Co., the reredos by Messrs. Jones & Willis, the gasfittings and communion rail stands by Mr. Bainbridge Reynolds, and the lectern modelled and carved by Mr. Turner (all of London). Mr. Ireson acted as clerk of the works. The whole, including the fittings and furniture, was designed by the architect, Mr. W. Howard Seth-Smith, of London.

BUSINESS. **GLASGOW.**—Cambridge-buildings, the new block now in course of erection in Sauchiehall-street, will have a frontage to Sauchiehall-street of 94 ft. 6 in., and a depth of nearly the same. The buildings are five stories in height, with a basement floor, the stone used being Lochabriggs red freestone, enriched in parts with Peterhead granite. The entire buildings will be occupied by Messrs. Thomas Muirhead & Co., warehousemen. The work is being carried on under the designs of Mr. James Thomson, architect, Glasgow.

ALTERATIONS, ST. JOHN'S WOOD CHAPEL.—Considerable alterations have been carried out in the east end of this church in order to afford more accommodation to the choir, and to widen the approach to the sacristy; for which purpose the high pulpit has been moved more forward towards the west, involving the removal of some of the seats. The smaller pulpit has been cleared away, and part of it utilised as a reading desk and a credence table. Formerly the choir seats were on a level with the floor of the church, but they are now raised upon platforms. The organ, which was formerly in the west gallery, has been remodelled and brought down to the rear of the choir, under the north gallery. These alterations have been carried out by Mr. Forsyth, of Finchley-road, from plans prepared by Messrs. Forsyth & Maule, architects, of Great Marlborough-street.

MEMORIAL CHAPEL, WEMYSS CASTLE.—A chapel was dedicated at Wemyss Castle on the 18th inst. to the memory of Mrs. Erskine Wemyss, mother of the present laird. The chapel has been constructed out of an old vaulted apartment in the basement of the castle. The walls have been lined throughout with stone arcading. At the end a deep recess has been formed for the altar. The arch over this recess is surmounted by a large rood cross. Behind the altar is a gilded frame of elaborate design, which is to contain a picture of the Nativity, painted by Mr. Louis Davies, of Finner. The crucifix, which stands on the table behind the altar, is an example of old Spanish workmanship, the base and cross being of worked tortoise-shell, while the figure is made of carved and burnished brass. The monument built into the north wall is richly carved, and surmounted by a panel showing a boldly-carved swan supporting a shield, on which is carved the lion-rampant—being the crest of the family. Here will be placed a recumbent effigy of the late Mrs. Wemyss, which is being executed by the Princess Louise. Over the spot where the recumbent figure will repose there is a scroll, on which in quaint characters is carved—"Sleep after toyle; port after stormie seas; ease after warre; death after life does greatly please."

An organ will occupy the wall facing the altar. The windows are to be filled in with stained glass illustrating the life of Saint Margaret of Scotland. The chapel is paved with stone throughout, and several old sculptured stones have been let into the pavement. The whole stonework of the Castle is from the quarries on the estate. In addition to the public entrance from the colonnade, a new staircase has been constructed leading down from the large saloon of the Castle to the chapel. The steps of this staircase are constructed of solid blocks of elm, grown on the estate. Immediately within the entrance to the chapel the dedication plate, of solid silver, with embossed letters, has been let into the wall. The whole of the work has been carried out under the designs of Mr. R. S. Lorimer, architect, Edinburgh.—*Scotman.*

PRIMITIVE METHODIST CHAPEL, DUNSTON, NEAR NEWCASTLE.—The foundation-stone has just been laid of a new chapel for the Primitive Methodists. The site is in Ravensworth-road. The building is of

brick with stone dressings, and has been designed in the Early Gothic style by Messrs. Davidson & Bendle, architects, Newcastle and South Shields. Mr. John Ross, Bensham, is the builder. For the present the edifice is to consist of two apartments, a two-aisled chapel and a vestry—the two can be thrown into one when necessary—giving seating for 200 people.

BAPTIST CHAPEL, IPSWICH.—The Burlington Baptist Chapel, after having been closed for several weeks, has been re-opened. A considerable sum has been expended upon the fabric itself. The interior has been thoroughly cleaned, and the walls discoloured, and stencilled. All the windows have been filled in with cathedral stained glass. The organ has also been renovated, and considerably enlarged by Messrs. Bishop & Son. The work of restoring the chapel has been carried out by Messrs. Charles Stearn & Co., Messrs. Eade & Johns being the architects.

CONGREGATIONAL CHURCH, WHITTINGTON, SALOP.—The memorial stones have just been laid of a new church at Whittington. The style of the building will be Gothic. At the rear of the church there will be a vestry, a heating chamber, and a boiler-room, whilst room has been reserved for the erection in the future of a schoolroom. The internal woodwork will be of yellow pine, and seating accommodation will be provided for some 180 persons. The architect is Mr. Williams, of Liverpool, and the contractor Mr. W. Griffiths, of Ellesmere and Knockin.

BAPTIST CHAPEL, KING'S HEATH, WORCESTERSHIRE.—The foundation-stone of a new Baptist chapel for King's Heath was laid on the 15th inst. The building will be erected in the Alcester-road, and the total cost is estimated to be about 5,200l. The building will be 72 ft. long by 43 ft. wide, and will have transepts and a chancel. Accommodation will be provided for 550 persons. At the rear of the site of the church and vestries, a school costing over 1,400l. has already been erected, and is temporarily used as a church. The large hall will seat 450 persons. Mr. A. Harrison is the architect, and Mr. Moffat the builder.

WESLEYAN METHODIST CHAPEL, NEAR RAMSGATE.—A new chapel for Wesleyan Methodists was laid at St. Lawrence recently. The building is in course of erection in a situation just opposite the old chapel in Chapel-road. Mr. W. W. Martin is the contractor carrying out the work. The building will consist of a nave, with chancel, organ-chamber, and two vestries. The front will have an outside porch. The roof is partially open with arched ribs and pitch pine ceiling. The pulpit and pews are also pitch pine. The chapel is 50 ft. long by 31 ft. 6 in. wide inside, and will seat 250 adults, or a mixed congregation of 335 persons. Mr. J. Wills, of London and Derby, is the architect.

CONGREGATIONAL CHURCH, OTLEY, YORKSHIRE.—The foundation stone of a new Congregational Church was laid at Otley on the 15th inst. The new building will have a spire, the apex of which will be 94 ft. above the ground. The church will contain sitting accommodation for 542 worshippers. The cost of the church when completed will be about 6,500l., exclusive of boundary walls. The architects are Messrs. T. H. & F. Healey, of Bradford.

DIAMOND JUBILEE ROOM, HOLTON, SOMERSETSHIRE.—A public room for the Diamond Jubilee, built as a memorial to the Diamond Jubilee. The structure is of local stone, with Ham Hill stone dressings. The building consists of a room 18 ft. by 32 ft., and an ante-room. The architect was Mr. T. Hudson, of Wincanton and Gillingham, and Mr. Noah Read, of Buckhorn Weston, was the builder.

BUILDING IN ABERDEEN.—For the last three years the building trade in Aberdeen has been unusually brisk, and in ordinary circumstances the outlook might be considered very favourable. Many of the large buildings that are now in progress will not be finished until after the winter has come and gone, and there are other large buildings in prospect which are expected to be placed on the market soon; but the unfortunate dispute in the engineering trade has reached us, and there is no saying how far it may affect the future prosperity of the building department of the granite trade. The prosperity of the city will no doubt suffer by the stoppage of this important industry, and should the lock-out continue for any length of time it will probably be followed by a depression in the house-building department.—*Aberdeen Journal.*

NEW CONGREGATIONAL CHURCH, SCARBOROUGH.—On the 10th inst. Mr. J. Compton Rickett, M.P., laid the foundation stone of the new Congregational Church for Scarborough, to be known as the Manor Road Congregational Church. The church, which is situated at the corner of Manor-road and Gordale street, will consist of a nave, two aisles, a transept and chancel. In addition to the church proper there are four rooms, these being a church parlour, a vestry or class-room, a minister's vestry, and a choir vestry. Sufficient ground has been obtained for the erection of school-rooms, class-rooms, a minister's house, and the corner of a new residence. For the present, however, it is intended to erect the church only. The accommodation is for 350 persons, but provision is made so that 500 could be seated by means of the addition of galleries, and one of the class-rooms to the body of

the edifice. The church is to be built in the Gothic style. At the principal corner (the south-west) is placed a tower. Mr. J. Caleb Petch is the architect.

PARISH CHURCH, ALRESFORD, HANTS.—Sir Arthur Bromfield reports that, on further examination of this church, he finds that the posts supporting the nave roof are in an extremely unsound state. One was split from top to bottom, and a collapse with a part of the roof falling, might have occurred at any moment. The unsoundness of the posts was not visible, as they were cased. If the posts were removed, it would be necessary to disturb a large portion of the roof timber, and as those are shabby and twisted, it would be almost impossible to replace them. Under those circumstances, he recommends that "columns and arcades, with clerestory windows, in stone of a similar character to those existing before the fire, should replace the existing wooden construction." The estimated cost of an entirely new roof to the nave in oak, with nave arcade and columns, and forming a window in stone, is approximately 10,000l., beyond the present contract. A discovery of an Early English window has been made.

NEW CHURCH OF ST. AMBROSE, EDGBASTON, BIRMINGHAM.—The foundation-stone of the new Church of St. Ambrose, Pershore-road, has just been laid by the Misses Stokes. The design is prepared by Mr. A. Chosson, architect, showing a church of red brick, with terra-cotta dressings upon the outside, and Bath stone dressings in the interior. The building will consist of a nave 90 ft. long, with a chancel; north and south aisles, shallow north and south transepts, a choir vestry with organ-chamber over, clergy vestry, and sacristy. There is also to be a tower and spire at the north-west corner, and a south porch; but only a portion of the tower will be erected in the first instance. The spire, when completed, is also intended to be of terra-cotta, and will rise to a height of about 150 ft. The style is a mixture of the thirteenth and fourteenth centuries. The church will accommodate 708 adults. The walls will be faced with bricks from the Coalville Brick Company, Leicestershire, and the terra-cotta will be supplied by Messrs. King & Son, of Cradley. Messrs. Collins & Godfrey, of Tewkesbury, are the builders. The cost will be between 6,000l. and 7,000l.

RESTORATION OF ST. ANDREW'S CHURCH, ROTHNEY PAGNELL.—In our account of the restoration of this church, page 224 ante, we omitted to mention that Mr. N. Hitch, of London, carried out the order for the triptych, and also executed the statues of the Virgin and St. Andrew. The brass lectern was supplied by Messrs. J. W. Singer & Sons, of London, and the chancel stalls by Mr. A. Robinson, of London.

TECHNICAL SCHOOL, PRESTON.—The new technical school in Corporation-street, Preston, which has been built on a site given by the Corporation, was opened by the Countess of Derby on the 10th inst. It has been built from designs of Messrs. Charles Ashpitell, Smith, and will cost, exclusive of furnishing, probably about 15,000l. It comprises a weaving shed, 84 ft. by 64 ft., a large spinning school, 64 ft. by 40 ft., a textile museum, a lecture hall, 50 ft. by 40 ft., class-rooms, and provision for teaching the staple trades of the district. Special rooms are set apart for classes in mechanics, engineering, machine tool building construction, carpentry and joinery, plumbing, &c. Steps are at present being taken to equip the building with machinery and all the most modern appliances for teaching the various industrial processes. The building is Gothic in style; it consists of three stories, and has a frontage of 150 ft. to Corporation-street. It is constructed of Accrington red brick, with ornamental stone dressings. The school is fitted throughout with electric light and hot-water heating apparatus. Mr. F. J. Pye has acted as clerk of the works. The contract for the building was let to the late Mr. John Walsmley, Preston, and since his death the work has been carried out by his trustees, under the supervision of Mr. James Smith, foreman of the works. The other contracts were let as follows:—Ironwork, Messrs. Stephenson & Co., Preston; stonework, Messrs. D. Tullis & Co., Preston; hot water supply, Mr. J. Metcalf, Preston; mosaic tiling, Mr. Macfarlane, Leeds; slating, Mr. J. Pradshaw, Preston; plaster work, Mr. William Crook, Preston; fans, the Blackpool Ventilating Co., Preston; lead lights, Messrs. Seward & Co., Lancaster; glazing, Messrs. Heywood, Huddersfield; cabinet work, Messrs. Bell & Coupland, Preston.

ALTERATIONS, &c., FERRYHILL FREE CHURCH, ABERDEEN.—For some weeks past Ferryhill Free Church has been in the hands of tradesmen, undergoing various alterations. The improvements have been carried out under the superintendence of Messrs. D. and J. R. McMillan, architects; the contractors being:—For the joiner work, Messrs. Garvie & Sons; painter and glazier work, John Whyte; ventilating arrangements, J. F. Anderson.

PROPOSED ENLARGEMENT OF ST. MARY'S CHURCH, BLYTH.—An effort is being made for the purpose of the enlargement of this church. The Diocesan Architect, Mr. W. S. Hicks, has submitted plans which embrace a scheme of gradual extension of the church, eventually affording accommodation for 1,000 people. The first portion of the work to be taken in hand will include the

extension of the chancel, the building of a north aisle, with organ chamber and vestry.

NEW CHAPEL, HOVE, NEAR SALISBURY.—A new chapel of ease has just been dedicated at Hove Heath. The building was designed by Mr. W. Jeffery Hopkins, architect, of Worcester, and is now dedicated to St. John the Evangelist. Mr. Meader, of Wimborne, was the contractor.

ALMSHOUSES, LOUGHTON, BUCKS.—The memorial stones were laid recently at Loughton of four cottages which are being built in commemoration of the Queen's Diamond Jubilee. The contract was given to Mr. Richard Bird, of Loughton. Mr. Hailey, of Stony Stratford, is the architect, and the cottages will be in red brick, with stone facings.

SCHOOLS, EDMOND, SALOP.—The new schools at Edmond were opened recently. Accommodation has been provided for 100 boys and girls in a mixed school, and for sixty-one infants in a separate portion, with entrances, hat and coat rooms, lavatories, &c., attached. In the rear are enclosed playgrounds, with the usual out-offices, drainage, &c. The buildings are carried out in Lillesham bricks with stone and blue brick dressings. The works have been well carried out by Mr. Edwin Whittingham, of Newport, from the designs and superintendence of Messrs. J. R. Veall & Son, architects, Wolverhampton.

PUBLIC SCHOOL, CLACKMANNAN.—A new public school was opened on the 10th inst. at Clackmannan, by Lord Balfour, of Burleigh. The school, which has been erected by the Clackmannan School Board, is a building two stories in height, with accommodation for 400 children in eight class-rooms, four on the ground floor and four on the upper floor. There are separate entrances and separate staircases for boys and girls, and near the entrances are provided private rooms for the teachers. The buildings are of white stone, and the roofs are covered with Aberfoyle slates. The plans were prepared by Messrs. Thomas Frame & Son, architects, Alloa.

CONGREGATION, CHURCH, RUGBY AVENUE, BELFAST.—The new church for the congregation formerly worshipped in the Wellington-place Evangelical Union Church, Belfast, was opened on the 12th inst. The frontage is 57 ft. long, and extends 160 ft. backwards towards University Avenue. The front of the church is flanked by a square tower and copper spire, rising to a height of 120 ft. The dimensions of the church are 70 ft. by 40 ft. Two large doorways give access to the vestibule, on one side of which is the staircase to the end gallery. A large Tudor window occupies the centre of the main front gable, which terminates in a cut-stone finial. Buttresses are placed at the sides of the church, and the walls between them are pierced with double-light Tudor windows. At the transepts the windows rise to a higher level, and are surmounted by gables. Red brick walling, with red sandstone dressings from the Aspatia Quarries, has been employed throughout. All the windows are filled with cathedral glass of varied tint in lead quarries. A feature has been made of the pulpit, which is in American walnut and pitch pine, with wrought-iron balusters, by Messrs. Riddell & Co. The buildings at the rear of the church comprise two large halls, the upper one 30 ft. square, and roomy lecture committee, and ladies' offices attached, occupying about 40 ft. by 40 ft. From an enclosed yard access is obtained to the heating chamber. The ground is enclosed with iron railing and gates. Mr. T. Gray has supplied the heating apparatus and the gasfitting, and the copper spire has been done by Messrs. Ewart, of London. Mr. Robert Corry was the contractor for the work. The architects were Messrs. Young & Macdonald.

GLASGOW ART GALLERIES, CONCERT HALL, AND MUSEUM.—This building, which is the outcome of the International Exhibition held in Glasgow nine years ago, was opened on the 10th inst. by the Duke of York. Messrs. J. W. Simpson & Milner Allen, London, were the architects, and the cost of the building has been about 200,000l. The galleries will be oblong and four-sided. They extend east and west parallel with Sandford-street, and the principal elevation fronts the Park or the north. The length of the building will be 400 ft. and the depth 60 ft., and the style is a free treatment of the Jacobean. Including the basement story, in which the School of Art will be situated, the block will have three stories. Both at the main entrance in the north side and the Sandford-street entrance there will be vestibules, and from these there will be access into the central hall or into the galleries, which are to go all round the building on the two principal flats. On either side of the central hall there is to be a large court, and an arcaded gallery or balcony and promenade will extend round the hall. Two hydraulic lifts will rise to the various galleries. The refreshment department will occupy a central position. The buildings are of brick, the exterior being built of red sandstone from the Lochbarbriggs Quarries, near Dumfries, while some parts of the interior are being faced with white Giffnock stone. The exterior of the building is being treated as an asymmetrical composition on several classical lines, but with free Renaissance in detail. Regarding the different apartments, it may be stated that the central hall will cover an area of from 10,000 to 12,000 square feet. There will be six galleries for art exhibits, two of them 94 ft. 7 in. by 25 ft., and the remainder 93 ft. by 28 ft.; four

pavilion galleries of 35 ft. square, and four cabinet galleries 14 ft. square. As to the museum, the east and west courts will be identical in size—105 ft. by 64 ft. The west gallery and the east gallery will be 94 ft. 6 in. by 37 ft., and the other galleries, four in number, will be 93 ft. by 28 ft. There will be four pavilions of 35 ft. square, and galleries will run round the east and west courts. As regards the School of Art, the elementary room will be 72 ft. 6 in. by 36 ft.; the designing room, 35 ft. by 20 ft.; the antique room, 54 ft. 6 in. by 36 ft.; the painting room, 36 ft. by 36 ft.; and the modelling room and clay store, 35 ft. by 20 ft. Masters' rooms and cloak-rooms are also included. Provision is likewise made for four offices, a library, a house of five rooms and kitchen for the resident attendant, manager's room, service rooms, larders, store rooms, sculleries, and pantries. The outer walls of the building vary in thickness from 3 ft. to 4 ft.

MISCELLANEOUS.

ST. PAUL'S, LONDON.—A proposal has been made for celebrating the approaching anniversary of the opening of the Cathedral for divine worship. December 2, 1607, was appointed as a day of national thanksgiving for the Peace of Ryswick, and on that day Bishop Compton celebrated service for the first time in the choir. But it was not until 1710 that the building was declared to be completed by 9 Anne, c. 17; the balustrade being added, against Wren's wishes, in 1717. On June 21, 1675, Wren (who until 1711 had Hawley, of Coventry, as assistant) and Thomas Strong, master mason and contractor, laid the first stone at the choir's south-east corner, the work proceeding from the west end. To Strong, who died in 1681, succeeded his brother Edward, whose son, Edward, began the lantern in 1706; the father and son laid the last stone of the lantern in October, 1708 (or 1710), in the presence of either Wren or his son. Edward Strong, the elder, died February 8, 1723, aged 71, at his house "New Barns," Sopwell, St. Albans; the epitaph on his monument at St. Peter's, in that city, will be found in the *Builder*, vol. xxi., page 700. Richard Jennings, appointed 1707 as master carpenter on the work, and superseded in favour of John James, of Greenwich, was buried in the parish churchyard of Henley-on-Thames. We may add that the old railing around the church and Queen Anne's statue was cast, 1714, in the Gloucester foundry, Lamberhurst, and that the posts around the west front (circa 1874) are of Shap Fell granite, and lathe-turned. Bird's statue of Anne was lately removed to Beaulieu, near Hastings; the ball and cross were recast, at Herefield, in 1821, during Cockerell's surveyorship. Father Smith's organ, enlarged by Cranz and by Bishop, was removed, with the screen, in 1860; it was divided and reconstructed by Mr. Henry Willis, 1871, from Sir John Stainer's designs.

PROPOSED STREET IMPROVEMENTS, CHESTERFIELD.—On the 15th inst. Colonel J. F. Marsh, R.E., held an inquiry at the Municipal Hall, Chesterfield, in regard to the application of the Town Council for permission to borrow 10,000l. for purposes of street improvement. The Town Clerk Mr. J. Middleton informed the Inspector that, with the exception of High-street and Burlington-street, which were laid with wood, all the streets were now made and maintained in the old-fashioned way and out of the current rates. In these streets they had all varieties of make—tar macadam, granite, and blocks. Two new railways had come into the town since the extension of the borough. In West Bar they had the Derby, Derbyshire, and East Coast Railway, and at the time that company was promoted power was obtained to widen the whole length of West Bars to 40 ft., and in order to carry out that scheme it would be necessary to deal with the tramway which ran along that thoroughfare, while the street needed reconstruction throughout. It had also been deemed advisable to widen Derby-road, and it would probably be necessary to reconstruct that street. It was also proposed to widen the bridge there from 10 ft. to 36 ft., at an estimated cost of 1,000l.

DUNSTONBURGH CASTLE.—Steps are to be taken by the trustees of the Dunstonburgh estate to protect the ruins of Dunstonburgh Castle as far as possible from the disintegrating influence of the weather. It is not intended to do anything in the nature of conjectural restoration, but simply to take the necessary measures to keep the weather out of the walls, and to thoroughly examine the more exposed parts of the ancient structure. The highest parts of the noble old barbacan and of the Lilburn Tower are landmarks which it would be a thousand pities to suffer to fall, and while there may be two opinions as to the desirability of wholesale restoration of our ancient historical buildings, there can be but one as to the wisdom of exercising care and attention for the preservation of such portions of the fabric as are left to us. The work will be under the supervision of Mr. George Reavell, jun., architect, Alnwick.—*Berwick Advertiser*.

ELECTRIC SUPPLY, LIVERPOOL.—The City Electrical Engineer of Liverpool (Mr. A. B. Holmes) has prepared for the Lighting Committee of the City Council a report dealing with extensions of generating stations and plant necessary to meet the demand for electrical energy during next year. He points out that the Corporation now supplies electricity for 63,000 sixteen-candle power lamps. In

addition, the favourable rates offered by the committee for power purposes are developing a demand for hoists and for motors for use in printing and other trades, and experience in other places indicates that a very material increase may be anticipated in this branch of the business. The area of supply comprised in the Liverpool Electric Lighting Order of 1896 includes the whole of the extended city, a district about seven and a half miles long and five miles wide. It is not unreasonable to assume that this area may ultimately require the equivalent of 250,000 to 300,000 sixteen-candle power incandescent lamps, or 25,000 horse-power for lighting, and 5,000 horse-power for motors and other purposes. In addition to this the tramways may ultimately require at least 10,000 horse-power. For this purpose the Engineer assumes that the power required at a not very distant period for the generation of electrical energy may be estimated at 40,000 horse-power. The Paradise-street and Oldham-place stations are very favourably located for the supply of energy for lighting in the most important portion of the city, and when completed will be capable of supplying about 10,000 horse-power for this purpose, with due regard to economy of working. The Highfield-street and Lark-lane stations will ultimately be used as distributing stations only. In conclusion, Mr. Holmes considers that the future demand for electrical energy should be provided for in the following way:—1. That sites should be secured preferably at Pumpfields and Edge Hill for two generating stations, each with sufficient space to contain plant of 15,000 horse-power, and designed for construction in sections as the demand for electrical energy increases. 2. That the system of generation and distribution should be direct current not exceeding 550 volts pressure, except for the outlying districts. 3. That the engines should be compound or triple-expansion, with condensing apparatus, each capable of developing 1,000 horse-power at most economical load.

LECTERN, PARISH CHURCH, BISHOP'S WALTHAM.—The new lectern presented to the parish church, Bishop's Waltham, has now been placed in the church. The lectern, which is of oak to match the choir stalls, &c., has a double book board, at the ends of which are carved the Tudor Rose and the arms of the present Bishop of Winchester. The shaft is of cylindrical shape, standing on an octagonal base. The lectern is the work of Mr. Chas. Churcher, of Bishop's Waltham, from designs by Mr. T. G. Jackson, R.A.

MEMORIAL FOUNTAIN, LOCHILFHEAD, ARGYLL.—The erection was completed on the 10th inst. of a fountain which has been put up in the square in memory of the late Dr. A. R. Fraser. The fountain, which is of red freestone on a concrete base, measures 7 ft. 6 in. by 6 ft., and stands 10 ft. high, and is the work of Messrs. Muir & Co., sculptors, Kilmarlock. The fountain is from a design by Mr. William Fraser, architect, Glasgow.

CLOCK TOWER, EXETER.—The new clock tower to be erected on the site of the obelisk at the end of Queen-street, Exeter, is, says the *Western Morning News*, not to be, as was generally supposed, a Jubilee memorial, but will commemorate the work done by the late Mr. Miles on behalf of dumb animals. The original intention, it is believed, was to have a drinking fountain erected; but the idea of combining with it a clock tower crept in, and all the designing sent in were drawn upon this principle. The assessor's award was given in favour of Mr. Green-lade, who designed the Volunteer memorial, but Mrs. Miles decided to have the memorial constructed in accordance with the plans of Mr. Andrews, of Lancashire. The stone work is now being busily prepared, but it is not probable that the work of erecting the tower will commence before the spring. The design, which is Renaissance, is to be carried out in Chudleigh limestone and red Corsehill. The lower portion of the tower is essentially a fountain, square in plan, with angle and flying buttresses. The four flying buttresses, which are composed of four clustered columns of Chudleigh limestone, with bases of Corsehill, form also standards for lamps, and will be surmounted by wrought-iron frames and electric lamps. These buttresses are connected to the main building by small arches and carved trusses, above which are small cornices and carved pediments, which support carved groups of horses. There are three horses in each group, struggling with six serpents, suggested by the crest of the donors. On the north side will be fixed the existing cattle-trough, and on the south another large drinking-trough for cattle, executed in granite with carved and moulded fronts. On the east is placed the fountain for wayfarers, which is also of granite, and on the west side is the door for access to the tower. Above the troughs on three sides are moulded recesses corresponding with the opening on the fourth for the door with hood moulds, key stones, and cornices over, filled in with carving to the margin of the bronze commemorative tablets, two of which terminate on bronze ejects to supply water to the trough and fountain, that to the new cattle trough being in the form of two bulls contending for the water issuing from the eject pipe. The clock-chamber is surmounted by an octagonal cupola, with circular-headed openings in each face. Herein will be fixed the bell upon which the clock strikes, and the whole will terminate with a wrought-iron and copper vane.

SANITARY AND ENGINEERING NEWS.

NEW FISHING HARBOUR, ABERDEEN.—In order to alleviate the pressure at Albert Basin, where Aberdeen Fish Market is situated, the Aberdeen Harbour Commissioners have constructed a new fishing harbour at Torry, on the south side of the River Dee and near its mouth. The works have been executed from Glasgow by, and under the superintendence of, Mr. R. Gordon Nicol, C.E., Harbour Engineer, all the operations having been carried out by the Commissioners' own workmen. The harbour is recessed back into the shore clear of river floods and ice, and is protected on the east from the swell coming up the navigation channel from the sea by a jetty projecting at right angles to the bank 60 ft. into the river. The west wharf extends from the shore into the river a distance of 240 ft. and forms a covering or protecting arm to the harbour basin from the upland waters. The structure is built of pitch pine timber throughout. The total quayside is about 900 lineal feet, and the water area about 1½ acres. The total estimated cost is about £2,001.

PUBLIC WORKS, CLACKMANNONSHIRE.—Colonel T. Marsh, R.E., held an inquiry at the Town Hall, Clackmannon, recently, with reference to the Urban District Council's application for sanction to borrow £501 for the provision of shelters on the sea front; £2,800 for the purpose of a scheme for using sea water; and £1,250 for the provision of a town yard. Referring to the provision of three shelters on the greensward, the Clerk (Mr. A. R. Chamberlayne) explained that owing to the extreme urgency of the shelters being erected before the close of the present season, the Council were forced to anticipate the sanction of the Local Government Board to the borrowing of the money.—The Inspector remarked that there was some risk attached to the proceeding. The Clerk said that land in Clackmannon was going up in value so rapidly that had the Council been obliged to obtain the Local Government Board's sanction before completing the purchase they would never have got the land. The trustees would not have accepted a provisional purchase.

THE NEW NORTH BRIDGE, EXETER.—The new North Bridge was opened recently by Lord Provost McDonald and the Magistrates and Council. The new bridge replaces the old North Bridge, which, begun in 1763, was opened in 1772, having taken nine years to build. Under the present contract, the old bridge has been renewed and the new bridge erected in about two and a half years. The new bridge is built under an Act of Parliament obtained in 1894, which also authorised the widening of North Bridge-street—an improvement now also in progress. Constructed of iron girders resting on stone piers and abutments, the new bridge consists of three spans of 175 ft. each. The width between the parapets of the new bridge is 75 ft., as compared with 54 ft. of the old bridge at altered more than twenty years ago. Each span is formed of six steel arched ribs, each 175 ft. from pier to pier, with a 20 ft. rise at the centre of the arch. They are set into the masonry of the abutments in cast iron springers, each weighing 12 tons. The holding-down bolts are 3 in. in diameter. Each rib is 4 ft. in depth by 1 ft. 9 in. in breadth, and weighs about 40 tons. They were built at the Glasgow works of Sir William Arrol, Limited; were milled to suit the radius; and were delivered in 9-ton "lifts" or segments. On the top of these "booms" are fixed vertical posts, which carry longitudinal girders, and on these again are fixed cross girders, which carry the brick forming the roadway. The whole is braced diagonally and horizontally by lattice girders, &c. In the bridge there is about 2,000 tons of chilled steel and about 500 tons of cast iron work, which is chiefly of an ornamental nature. The spandrels of the great spans, for example, are filled in with an arched graduated in height, surmounted by a frieze broken up by carved corbels, and carrying a moulded festoon of flowers and fruit. At each end of the large spans is an expansion joint, which has a play of 1½ in. so as to make due allowance for expansion and contraction caused by the summer and winter temperature. In taking down the old bridge nothing of great interest was found. The only curious objects embedded in the masonry were an old pewter jug, now in the Antiquarian Museum, and several old moulded headstones and carved stones, as if from an ancient church. The abutments at the south and north ends of the bridge rest on solid rock. The two large piers are built on concrete foundations, laid the south pier 40 ft. below the rail level, and the north pier 35 ft. below ground. Each of these piers is 100 ft. long, measuring from east to west, and 22 ft. in thickness. They are hearted with brick laid on cement, and faced with grey sandstone ashlar. In the construction of the bridge there has been used by Messrs. Beattie 100,000 cubic feet of ashlar, equal to 8,333 tons; nearly 3,000,000 bricks, and 10,000 cubic yards of about 800 tons, of concrete. In addition to this there were 500,000 of blue bricks required for the arching which carries the roadway. From the spring of the arches the piers are carried up above the iron parapet of the bridge with ornamental panelled and moulded faces, and below the top moulding is a carved ornament. On the top of the arched brick abutment has been spread, and on that are placed the granite blocks of the roadway. The cable rails have been laid, and on each side of the

roadway of the bridge a subway for pipes has been constructed, about 12 ft. by 2 ft. in depth, with man-hole entrances at each pier. The engineers of the bridge were Messrs. Cunningham, Blyth, & Westland, C.E., Edinburgh; the City Superintendent, Mr. Robert Morham, designed the elevations; the contractors were Sir William Arrol & Co., Limited, Glasgow, with Messrs. William Beattie & Sons, Edinburgh, sub-contractors for the mason work. The cost is £90,000.

LOOE WATER SUPPLY, CORNWALL.—Colonel A. G. Durnford, R.E., Local Government Board Inspector, held an inquiry at the Town Hall, East Looe, on the 8th inst., in regard to the application of the Rural District Council of Liskeard for sanction to borrow £3,500 for works of water supply for the chapel of East Looe. Mr. S. W. Jenkin, the Engineer, whose plans the District Council have accepted, gave particulars of his proposals, and described the existing waterworks, which in summer give a very insufficient supply.

PROPOSED NEW BRIDGE OVER THE TAY.—The Special Committee appointed to carry out the Perth Harbour, city improvements, and new gas works, met recently, and the Clerk was instructed to request Messrs. Blyth & Westland, engineers, Edinburgh, to prepare alternative plans for a new bridge over the TAY—the one to show a bridge similar to plan already submitted, and the other a bridge suitable for tramway lines. They were also asked to prepare a plan of the grounds for the road of access.

NEW DOCKS, GLASGOW.—The new Prince's Dock, Glasgow, was opened on the 10th inst. by the Duke of York. Nearly fifty vessels called since the construction of Prince's Dock was first begun upon. It has cost, including the graving dock and equipment, nearly a million and a half sterling. Mr. James Deas, C.E., the Engineer of the Trust, who had designed and superintended the construction of Queen's Dock, was commissioned to prepare Parliamentary plans for utilising the space for docks. Cessnock Dock, as the new dock has been known during its construction, has its entrance on the south side of the river about a mile and a half from Glasgow Bridge. Outer and entrance basins give access to a canting basin, from which branch eastwards at right angles to the basin and parallel to the river come three large basins, separated from each other by quays. The canting basin is 135 ft. long, and large enough to allow of the easy turning of a vessel 700 ft. long. Each of the three basins is about 200 ft. broad and 1,200 ft. long, and the intervening quays have a breadth of 250 ft. The depth of water in the docks will be from 20 ft. to 28 ft. at low water, and from 31 ft. to 39 ft. at high tide. The water area, including the canting basin (15½ acres), is 35 acres, and the quays measure 3,737 yds.—over two miles. Originally the trustees obtained power to construct two graving docks at the head of the inner basins, but that idea was abandoned in favour of one large dock, parallel to and immediately south of the two existing dry docks, and with access from the entrance basin of the new dock. This dry dock, of which the Duke of York laid the last keystone, is one of the largest in the world—is 880 ft. long and 82 ft. broad on the floor, and 115 ft. broad at the top. It has an entrance 83 ft. wide, and the depth of water on the sill is 26½ ft. The dock can be divided by steel gates into two practically independent sections, the outer 460 ft. and the inner 420 ft. long. The total cost of the dock, including the pumping and other apparatus, is about £240,000.

WATER SUPPLY, STORMNESS.—A report, with plans and estimate, of a water supply for the burgh of Stormness, prepared by Mr. W. Copeland, C.E., Glasgow, which has been under the consideration of the Burgh Commissioners, has now been approved of, subject to some slight modifications. The scheme includes the formation of an artificial storage reservoir, about two miles from the town, covering about twelve acres. The whole cost is about £6,000.

HARROGATE AND ITS SEWAGE.—An inquiry was held on the 17th inst., in the Council Chamber at the Municipal Offices, Harrogate, before Colonel W. R. Slack, R.E., one of the inspectors of the Local Government Board, with reference to an application by the Corporation of Harrogate to borrow the sum of £3,500 for further sewage disposal works at the Corporation Irrigation Farm, in the Ripon-road. In the new scheme it is proposed to utilise some 71 acres of land contiguous to the farm for the purposes of sewage pumping. Among those who attended the inquiry were Mr. J. Turner Taylor (Town Clerk), and Mr. S. Stead (Borough Engineer). There was no opposition to the scheme. It was stated that it was proposed to lift the sewage to the highest point on the Corporation farm.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOWS, NORWICH CATHEDRAL.—Two stained glass windows have just been placed in Norwich Cathedral as memorials of the late Lieut.-Colonel Bignold, and of the late Mr. and Mrs. Hotblack. The one to the memory of the late Lieut.-Colonel Bignold is situated in the south-east corner of the south transept, near the entrance to the vestry. The upper portion bears a representation of St. Paul, on either side of which is a smaller figure, bearing a scroll inscribed "Sanctus Paulus."

The apostle stands beneath an elaborate canopy. St. Paul in the presence of Agrippa forms the subject of the lower portion. The other window is in the south aisle of the nave. The three lights are filled by full-length figures. That in the centre represents our Saviour. The Virgin Mary, bearing a lily, is figured in the left light, and St. John the Evangelist, with the emblematic cup and serpent, in the western light. The upper portions of the window are filled in with angels bearing shields emblazoned with the sacred monogram and other ecclesiastical emblems. Beneath the window-sill is a brass tablet on which are engraved the arms of the deceased and an inscription. Both windows were designed and executed by Messrs. Clayton & Bell, and were erected under the supervision of Mr. Brown, architect to the Dean and Chapter.

WINDOWS, GREAT EASTON CHURCH, ESSEX.—Four stained-glass windows, by Messrs. Clayton & Bell, were dedicated recently in the Church of St. John at Great Easton. The east window, consisting of three lights, was presented to the church by the Countess of Warwick. The other three are memorial windows. The subjects represented on them are the Virgin Mary, St. Peter, and St. John. Mr. Richard Creed, of Little Bardfield, is the architect, and he has also prepared plans for the restoration of the church.

DECORATION OF UDDINGTON CHURCH, LANARKSHIRE.—After having been closed for six weeks for painting and repairs, this church has just been reopened. The work has been carried out under the supervision of Mr. John Gray, C.E.

MEMORIAL WINDOW, FROYLE CHURCH, HANTS.—A window has just been placed in the chancel of St. Mary's Church, Froyle. The subject is the "Presentation of Christ in the Temple," and it is the work of Mr. C. E. Kempe.

DECORATION OF CHURCH, BELFAST.—The Crescent Church, Belfast, has just been reopened after interior decorations. The painting generally has been executed in Duresco paint, and the work has been carried out by Mr. Alexander Thompson, Belfast, from the drawings and designs of Mr. John B. Wilson, architect, Glasgow, who was also architect for the church.

FOREIGN.

FRANCE.—Twelve young architectural students of the Ecole des Beaux-Arts have just been admitted to compete for the Chaussegny prize, the subject for which is "an open air theatre."

—The pupils of the former Atelier Constant-Dufeux propose shortly to offer M. Bouvard a banquet in order to celebrate his nomination to the rank of Commander of the Legion of Honour.—The masonry works of the substructure of the railway station constructed on the Esplanade of Invalides are now finished, and in a few weeks the excavation made to receive the offices and the metals of the new station will be entirely covered by a platform constructed at the ground level, on which the booking-offices and waiting-rooms, &c., will also be erected right and left of the Esplanade.

—The plans for the new station of Invalides, the works of the new hospital for children, which is about to be erected in the Rue Etienne. The area covered by the building will be 3,412 square metres, and the expense of construction is estimated at 2,012,000 francs, which includes everything.—Very shortly there will be opened the new buildings of the Ecole des Beaux-Arts, the works of the Ecole des Beaux-Arts have been commissioned to erect at Paris in the Boulevard Brune.—A commencement has been made with the first operations in the restoration of the National Ecole des Beaux-Arts which for some years past has been falling into ruin. The engineer, M. Legouez, has just completed between the Port Clitchey and the Place Moncey a tunnel 6 metres in diameter, intended to drain off the surface water which along this road runs into the elevator factory at Clitchey. This subterranean aqueduct will be, when finished, some 4½ kilometres long.—The Administration des Ponts et Chaussées is about to commence, with very little delay, the work of forming a new landing stage for the Ile des Cygnes, which will be erected on the Seine between the Passy Bridge and the Grenelle Bridge.—An Exhibition of Fine and Decorative Art is now open at Rheims.—A committee has just been formed at Bazoches (Nièvre) for the purpose of raising a monument to the honour of Marshal Masséna, whose remains have just been interred in the small church of Bazoches.—It is announced that the Bishop of Fréjus is about to rebuild, at his own cost, the church of Brancourt (Aisne).—The Municipality of Evreux have announced a competition for the erection of a theatre.—There has just been discovered at Saumur a tomb dating from the Gallo-Roman period of the third century.—Work is being actively carried out by the construction of the iron viaduct at Tanus which crosses the deep valley of the Vaur on the line from Carmaux to Rodez. This bridge will be 100 metres in height, and nearly 500 metres long. The central span itself measures 220 metres in length.—The commemorative monument of the Franco-German war, which is being actively carried out by the sculptor, M. G. Meunier, is the work of M. G. Meunier.—The Government have just resolved upon the final lines of the works which are about to be undertaken at Bizerta

for the formation of a military post at the end of Lake Sidi-Saïd. The duration of the works is estimated at three or four years, and the expense of carrying them out at about fifteen million francs.—There has just been opened in the Department of the Sarthe a new railway line between Muzet and Le Mans.—The death is announced, at the age of seventy-six years, of M. Henri Blondel, the architect to whom is due the transformation and the creation of the Marbeuf Quarter, and also the erection of the Bourse du Commerce on the Place of the Halle aux Bles.

CAPITAL AND LABOUR.

PETERBOROUGH CARPENTERS' AND JOINERS' WAGES.—A settlement between the master builders and the carpenters and joiners of the Peterborough district, with regard to the rate of wages has, after nearly nine months of correspondence, been effected. The men had asked for an increase, and the masters had offered a halfpenny rise to all joiners whom they considered competent. An agreement has now been signed that the standard rate of wage shall be 7d. per hour. The agreement dates from January, 1897, until January, 1900, and if any alteration is then desired a three months' notice must be given.

THE BUILDING TRADES IN EAST DURHAM.—The building trades in East Durham are said to be so busy that workmen are at a premium, and high wages are consequently being paid. This is especially so with the bricklayers, who are receiving from 10d. to 1s. per hour as wages. If the men have to go from home to work "travelling money" is allowed in addition. One master builder, in order to keep his men together, has hired a wagonette, in which the latter are conveyed to work at morning, and to their homes in the evening, the distance each way being about five miles.—*Newcastle Leader.*

THE LEEDS BUILDING TRADES.—In accordance with the terms of settlement of the dispute in the Leeds building trade a twelvemonth ago, two new rules came into force on the 20th inst. One of them gives the labourers an advance of ¼d. per hour, making their wages 6½d. an hour, and the other—a modification in favour of the employers—calls upon the labourers to wheel bricks and mortar to ground levels.—*Leeds Daily News.*

LEGAL.

ALLEGED OBSTRUCTION OF ANCIENT LIGHTS IN LUDGATE HILL.

CASE IN THE VACATION COURT.

THE case of Goode v. Bridgewater (reported in the *Builder* of September 18) again came before Mr. Justice Ridley in the Vacation Court on the 22nd inst., on the motion of the plaintiff for an injunction to restrain the defendant from erecting a wall or building in Ludgate Hill so as to obstruct his (the plaintiff's) ancient lights.

Counsel now stated that it had been arranged the motion should stand till the trial, the costs being reserved.

His Lordship assented to the application. The learned counsel then applied for leave to ask Mr. Justice North to expedite the trial.

His Lordship: You have nothing to show why you should come on sooner than anybody else?

The learned counsel explained that as the plaintiff was applying for a mandatory order it was in the interest of the defendant that the case should be disposed of as soon as possible.

His Lordship: Is it part of the terms you have made?

The learned counsel said it was not, but that it was in the interest of both parties the trial should come on quickly. The defendant had spent a large sum of money on his building, and if the plaintiff got this mandatory order at the trial he (the defendant) would be materially damaged if he had to pull down the premises then. He (the learned counsel) asked leave to set the case down for trial at once, with liberty to apply to Mr. Justice North to expedite it.

His Lordship also granted this application.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS.

CASE IN THE VACATION COURT.

THE case of Burr v. Sir Isaac Pitman & Sons, Limited, came before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division on the 22nd inst., on the motion of the plaintiff for an *interim* injunction to restrain the defendants until the trial of the action from building so as to block out the light and air from his premises.

Mr. Stewart Smith, for the plaintiff, said that his client had a lease, and carried on a private hotel in Queen's-square, Bloomsbury, and defendants were putting up a large building which was to be used as a technical school for instruction in shorthand. The old building on the defendants' site was pulled down a few years ago, and the new building which had been put up was 27 ft. higher than the old one. The learned counsel stated that the facts were not in dispute, the only question which arose being whether the additional height to which the new building had been erected materially affected the light and air

coming to the basement window and to the window of the dining-room of the plaintiff's hotel. It was a case in which there was a conflict of testimony by the architects on either side. Witnesses on one side swore that there was a material diminution of light to the plaintiff's premises by the erection of the new building, while the witnesses on the other side said that there was no material diminution. He (the learned counsel) said he felt he could not ask his lordship to try the case in the vacation on affidavit. He thought it was a case in which it was necessary that the witnesses should be seen.

His Lordship: And probably to see the premises also?

Mr. Stewart Smith agreed. Of course, the plaintiff was compelled to move to restrain the building of the defendants, inasmuch as it might have been said that he had stood by and allowed the defendants to put up their building. He wished to suggest the means whereby all difficulty on that head was got over. He was content, having got all the evidence of the defendants, that the motion should stand till the trial, and that the case should be set down at once without pleadings. He would further suggest that Mr. Justice North, before whom the case would come, should be applied to to advance the trial. That was the practice in the Chancery Division when the judge felt that he could not try a case out on affidavit.

His Lordship: Does Mr. Justice North object to the case being set down without pleading?

Mr. Stewart Smith: No; it is the usual practice in light, and air, and nuisance cases.

His Lordship: Is the issue quite clear?

Mr. Stewart Smith: Yes; I think so.

His Lordship: Is there any question about the plaintiff's lights being ancient?

Mr. Stewart Smith: No; my learned friend does not raise that question on the affidavits.

Mr. Alexander, Q.C. (for the defendants): No; there is no question about that.

His Lordship: What does Mr. Alexander say about it?

Mr. Alexander: I do not think on the affidavits that there is any case at all against the defendants.

His Lordship: I cannot give you judgment now, Mr. Alexander.

Mr. Alexander: I should like the motion dismissed at once.

Mr. Stewart Smith (to Mr. Alexander): Perhaps you would like the costs paid in advance?

After some further discussion it was mutually arranged that the motion should stand till the trial, the case to be set down at once without pleadings, and with liberty to apply to Mr. Justice North to advance the trial.

Order accordingly.

THE PROTECTION OF BUILDINGS.

AT the Second Court of the Sheffield City Police on the 15th inst., before Messrs. F. P. Rawson and Bernard A. Firth, Mr. Robert Hunt, builder, 85, Empire-road, was summoned for having failed to provide proper hoardings or fencing to separate from the roadway certain houses he intended to build in Wath-road. Mr. H. Sayer, Deputy Town Clerk, prosecuted, on behalf of the Chief Constable, and Mr. W. E. Clegg defended.

Mr. Sayer said defendant was building several houses on one side of Wath-road, the other side being already built up. He had taken up a great portion of the road, only leaving sufficient room for one cart to pass. He had failed to erect a proper hoarding in front of the houses to protect the people who used the road. Wath-road was undedicated. An erroneous impression prevailed amongst all the builders in Sheffield that when they were building in undedicated roads the Act of Parliament did not apply, and they were not compelled to provide hoardings. There could not be a greater mistake. The question of dedication was entirely immaterial, as the words of the section were very wide. A builder, even if he were erecting a house in a back-yard, to which people had access, would have to provide a hoarding for their protection. Defendant had been cautioned, and a notice had been served upon him from the City Surveyor's office. An inspector called upon him with regard to the matter, and defendant said he was not going to be bothered, and it there was anything more said, he would build a wall at the end of the road, and thus close it. That course would not have done him any good, as he would have been compelled to erect a hoarding for the protection of the people living in the houses already built.

Mr. Clegg said his client, as well as other builders in Sheffield, had held the opinion that where they built houses in undedicated roads the Corporation could not force them to erect hoardings, and that if people went along the roads they did so at their own risk. The Corporation were building a wall a few yards away from the place, and had thrown all their material on the highway, and had not erected a hoarding. No one could take proceedings against them.

The Chairman: You must summon them.

Mr. Clegg said they could not, as the Corporation would probably be able to say that they had obtained their own consent to do away with the hoarding.

Mr. Sayer said the work the Corporation was carrying out was the building of a wall. It was not

a building, and did not come within the Act, and did not require a hoarding.

The Magistrates imposed a fine of 2s., and costs, 7s.

LANDLORDS AND SANITARY INSPECTORS

IN the City of London Court on the 16th inst. before Mr. Commissioner Kerr, Mr. Robert E. Clarke, builder, 16, Finsbury-pavement, E.C., sought to recover the sum of 10l. 2s. against the defendant, Mr. Frederick London, 170, Edmund-street, Birmingham, for work done at 85, Finsbury-pavement, of which the defendant was the landlord.

Mr. Harry Dade, for the plaintiff, explained that the defendant's London property was managed by Messrs. Tillet & Yeoman, a firm of estate agents. The house in question had been empty, and they succeeded in letting it. The tenant wanted certain repairs done, which the plaintiff estimated would cost 85l. The order was given him; and, indeed, the 85l. had been paid by the defendant, as the landlord. But while the work was in progress the City of London Sanitary Inspector visited the house. That official ordered the plaintiff to do extra work, for which he now asked the defendant to pay.

Mr. Aldous, for the defendant, urged that no liability could attach to the defendant for the extra work which he had never ordered to be done. What business had a builder to do work which the landlord had not instructed him to do?

Mr. Commissioner Kerr replied that if a sanitary inspector required work done a builder was bound to do it. Under the Sanitary Acts a landlord was liable for such work, although he did not give any order.

Mr. Aldous argued that the defendant, as the landlord of the property, should have been communicated with.

Mr. Commissioner Kerr said that if that had been done, and the defendant had not given the order, the Sanitary Inspector would have taken him before a magistrate, who would have made an order. It was no use opposing Sanitary Inspectors when they wanted necessary work done. It was for the public benefit.

Mr. Gathercole, the Sanitary Inspector, said the work was done on his verbal order. He did not have to serve the landlord with a written notice.

Mr. Aldous contended that without a written notice the statute had not been complied with.

Mr. Commissioner Kerr said he could not hold that. The defendant could not get out of it. There must be judgment for the plaintiff for the amount claimed, with costs.

CASE UNDER THE LONDON BUILDING ACT, SECTION 74 (2).

ON the 16th inst., before Mr. Dickinson, at North London Police-court, the case of A. Payne, District Surveyor of East Hackney (South) and North Bow v. Simpson & Cove, builders, was heard. Defendant had made alterations and additions to a public-house, the "Devon Arms," 88, Morning-lane, Hackney, exceeding ten squares in area, and had formed an approach from the back leading to the bar and the staircase for the use of the dwelling house without fitting the opening between the said approach and the bar with fire-resisting doors. The defendant replied that he was carrying out the instructions of the architect, who said the doors were not necessary. The defendant was fined 10s. and 12s. costs, with an intimation that he would be liable to a further penalty if the doors were not placed there.

APPLICATION TO RESTRAIN ERECTION OF BUILDING.

MR. JUSTICE RIDLEY, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., had before him the case of Hind v. Worthington & Co., Limited, a motion by the plaintiff for an injunction to restrain the defendants from erecting a building and from committing an alleged building trespass.

On the application of counsel, his Lordship directed that the case should stand over for a week, it being stated that in all probability the parties would be able to come to terms.

APPLICATION TO RESTRAIN ERECTION OF BUILDINGS.

THE case of Godber v. Collbran was in the list for hearing before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., it being an application by the plaintiff for an *interim* injunction until the trial of the action to restrain the defendant from the erection of certain buildings.

His Lordship directed that the motion should stand over for a week in order that terms might be arranged between the parties.

MOTION TO RESTRAIN ERECTION OF BUILDING.

THE case of Ward & Goldfinch v. McBlain & Freeman was, on the 22nd inst., in the list for hearing before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the motion of the plaintiffs to restrain the defendants, by injunction, from erecting a building, &c.

It was stated by counsel that the evidence was

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall and Law Courts	Cardiff Corp.	200l.; 300l.; 200l.	Dec. 4

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Bas relief, &c. on Locher Water	Renfrew C.C.	R. Gilmore, C.R. Municipal Buildings, Glasgow ..	Sept. 24
Waterworks at Workhouse	Downpatrick Union ..	J. W. Montgomery, Clerk to Union, Downpatrick ..	Sept. 25
Rebuilding Prisons	Mr. P. Gingles	E. & J. Byrne, Archt. 4, Waring Street, Belfast ..	do.
Farmhouse, Arlary Banks	Rev. H. Lonsdale	F. H. Livesey, Archt. Mar kelp, Ballybrack, Dublin ..	do.
Twenty Villages, Barry	Barry Waterford Building Co. Ltd.	A. M. Loom, Archt. Central Chambers, Working Street, Cardiff ..	Sept. 27
Fifty-two Cottages	do.	do.	do.
Six Houses, Marlborough	do.	do.	do.
Five Artisans' Dwellings, Forres	do.	do.	do.
Additions, &c. to Forres	do.	do.	do.
House and Shop, Collingwood-road	Mr. A. M. Atkinson ..	J. T. Wilson, Archt. West Hartwood ..	do.
Roadworks	Knutsford U.D.C.	W. J. Downes, Archt. To Central Knutsford ..	do.
Roadworks	Llandaff and Dinas Powis U.D.C.	J. Holden, Esqr. Council Chambers, Queen's Quay, Cardiff ..	Sept. 28
Ten Houses, &c. Elldershorpe	Levenham's U.D.C.	J. Jerns, Esqr. to Council, Levenham-on-Clay ..	do.
Nineteen Houses, Featherstone	W. Battle	J. Farnham, Archt. Bridlington-on-Clay ..	do.
Residence, &c. Kedgeley	Mr. W. Anderson	Garnard & Keyworth, Archt. Pontefract ..	do.
Wharfage	Irvine Harb. Trustees ..	J. L. Hughes, Archt. District Bank Chambers, Bradford ..	do.
Four Villas, Tadcaster	do.	do.	do.
Drainage Work for Cemetery	Rathdown Union	G. Thomas & Sons, C.E.S. Wellington-st. Glasgow ..	do.
Waiting Room, Office, &c.	do.	do.	do.
Addition to Registry's House	do.	do.	do.
Three Labourers' Cottages	do.	do.	do.
Sewerage Works	Ham U.D.C.	Col. Sedd to Esqr. 27, Bow Lane, London, E.C.	Sept. 29
Limestone	Gillies and Rhighe R.P.C.	W. Evans, Highway Survey, Dept. of Civil Eng., London ..	do.
Offices and Extensions to Mill	B. Vickerman & Sons ..	J. Barry, Archt. 5, Queens Street, Bradford ..	do.
Buildings, Aylesmere (two contracts)	Highland Ry. Co.	W. Roberts, Esqr. Inverness ..	do.
Sewer Works	Tanfield U.D.C.	R. Heslop, Esqr. Burnopfield, R.P.C.	do.
*Public Library	Southwark Vestry	Philips & Jackson, 25, Mecklenburg-square, W.C.	do.
Epitaphic Block at Workhouse Infirmary	Guardians	W. H. Wood, Archt. Paradise Street, Birmingham ..	do.
City Cottages, Trelaw	do.	T. E. Philp, Esqr. Old Backhouse, Pontypridd ..	do.
Additions to Hotel, Hemsworth	do.	do.	do.
*Repairs and Materials	War Department	R. & W. Dickson, 5, Eastgate House, Aldershot ..	do.
Painting, &c. Rate Collector's Office	Gateshead Corporation (do. Committee) ..	Commanding R.E. Head quarters Officers, Stanhope Lines, Aldershot ..	do.
Painting, &c. Sheriff Hill Hospital	do.	do.	do.
Alterations, &c. Barry School	Glamorgan C.C.	J. Bower, C.R. Town Hall, Bridgend ..	Sept. 30
Alterations to Farmhouse, Gressford, Bargoed	Glamorgan County Governing Body ..	County Survey, Town Hall, Bridgend ..	do.
Painting, &c. Cemetery Chapels, &c.	do.	W. R. E. Allen, Glamorgan County Office, Westgate Street, Cardiff ..	do.
House, Nunthorpe Station, &c.	Darnell Serial Board ..	W. Reid, Clerk to the Board ..	do.
Continuous Brick Kiln	J. J. Broton	R. Moore, Archt. 7, Albert Road, Middlesbrough ..	do.
Alterations, &c. Premises, Bridlington	Durham City & Rhincliffe Brick and Tile Works Co.	J. Curry, Manager, Clifton Moor, Fence Houses ..	do.
Business Premises	Hardwick & Sons, Quay-side, Bridlington ..	do.	do.
*Extension Carriage Painting Shop, Derby, and School, near Alfreton	Midland Railway	Eade & Johns, Archt. Cornhill Chambers, Ipswich ..	Oct. 1
Medical Officers' Residences, &c. Arlary	Bathford Union	Cox Archt. Cavendish House, Derby ..	do.
Bolton House, &c. South Gloucester Union Workhouse	do.	B. Manning, Clerk Workhouse, Bathford ..	do.
Alterations, &c. Magheragall Church	Kel Guardians	W. H. Mitchell, Esqr. & Gutteridge, Archt. 9 Portland-st. Southampton ..	do.
County School, Hawarden	do.	Blount, Archt. Atlantic Bridge, Warrington ..	do.
Sewerage Works	Demp's (Isle of Man) Corp.	Grayson & Gault, Archt. 31, James-st. Liverpool ..	do.
Shop, &c. Walton	Freehold Land Soc.	Stevens & Burdall, Esqr. 38, Parliament-st. Westminster, London ..	do.
*Repairs, Cleaning, Painting, & Infirmary	do.	Office of Soc. Prince's St. Ipswich ..	do.
Chimney Shaft	Crofton Union	T. West, 25, Cornhill, Ipswich ..	Oct. 4
Cottage, Froehoch	Rotherhithe Vestry ..	Norman Nevins, Town Hall, Rotherhithe ..	do.
Classroom, Writtle	Bala & Penllingry Co. Station ..	Station Master ..	do.
do.	Writtle Sch. Bd.	A. P. Lindsey, Clerk ..	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Water Supply and Sewage Works, Candeley	do.	J. Langton, Esqr. Northern Bank Chambers, Royal Avenue, Belfast ..	Oct. 4
Six Houses, Tir Phil-road	do.	O. Keshole, Archt. 28, Dunfermline, New Treligan ..	do.
Sewerage Pipe Sinks, Iron Pipe Construction Pumping Station Buildings	Southend-on-Sea Corp.	J. H. Mearns, Esqr. Victoria Street, S.W.	do.
*Constructing Stables and Fencing Water-spraying Plant	do.	J. Patten Barber, Vestry Hall ..	do.
*Supplying and Laying Norway Kelp Stone Gravel, Banchory, &c.	do.	The Survey, Council Offices, Remford U.D.C.	do.
*Band Stand, &c. Bethnal Green	do.	Arch't & Dept. 17, Pall Mall East, S.W.	Oct. 5
*New Wall, Alterations to Engine House, Pump, &c.	Remford U.D.C.	The Survey, Council Offices, Remford U.D.C.	do.
*Pipe Sinks and Manholes, Granite Kerb, Footpath	do.	W. Dawson, Town Hall, Leyton ..	do.
*Repair of Road	do.	County Borough of Epsom ..	do.
Alterations to Workhouse	do.	Plancher Union ..	do.
Bridges, Frome & Langenord	G.W.R. Co.	Union, Petworth ..	do.
*Bridges, Oxford (Contract 2)	do.	Esqr. Paddington, Town Hall ..	do.
*Materials (various)	do.	J. E. Swindell, Esqr. Clarendon, Clarendon ..	do.
Main Concentrating Sewers, &c.	Glossop Corp.	Lomas & Lomas, Esqr. Grayswood Chambers, Manchester ..	do.
Alterations to Workhouse	The Guardians	A. P. Mearns, Clerk, Petworth ..	do.
*Laundry	do.	W. Adair, Esqr. 1, Victoria Street, S.W.	Oct. 6
Laundry, Lancaster Workhouse	Lancaster Union	G. T. Wilson, Archt. 121, Durham-st. Black Hill ..	do.
Stables	Weybridge U.D.C.	J. C. Williams, Esqr. Weybridge ..	do.
*Sewerage Works	Westminster Vestry ..	G. R. W. Wheeler, Town Hall, Westminster, S.W.	do.
*Making up Streets	Southend-on-Sea Corp.	A. P. Mearns, Esqr. Clarendon, Clarendon ..	do.
*Gravels	do.	Grayswood Chambers, Manchester ..	do.
School	do.	W. Clement Williams, Esqr. 29, 8, Salisbury, Halifax ..	do.
Central Police Station, Belfast	do.	City Survey, Belfast ..	Oct. 7
Street over Market, &c.	Coombes & Co. Ltd.	T. Martin, Esqr. Redwood Office, Maitland, &c.	do.
Painting, &c. 22, Charles-st. Cardiff	Cardiff Union	A. J. Harris, Cardiff Union Office, Queen's Chambers, Cardiff ..	do.
Class-room, Gurn Schools	Barnston Sch. Bd.	Landman & Co., Esqr. Griggs, Archt. Newport, Mon.	Oct. 9
Sanitary Sewerage	Sanitary Authority, Berwick-on-Tweed ..	R. Nicholson, Esqr. Berwick-on-Tweed ..	do.
Asylum Blocks, &c.	do.	U.S.A. Bldgs. Berwick-on-Tweed ..	do.
*Making up Road Sewers, &c.	Peckham U.D.C.	Board of Control of Lunatic Asylums, Dublin ..	do.
Alterations to Gymnasium School, Perth	do.	J. J. Angell, Council Offices, Perth ..	Oct. 11
Alterations to Hospital, Haverton Hill	Yatney Lodge Sch. Bd.	County, Perth ..	do.
*Gate Porter's Lodge	Met. Asylum Board ..	Pennington & Son, York-st. Strand ..	Oct. 13
*Isolation Hospital	Essex U.D.C.	Essex, Strand ..	do.
*Sewerage and Iron Pipe Sinks, &c.	do.	E. Collins, Esqr. House, Essex ..	do.
*Alterations, Workhouse, Blitchingley	Billericay R.D.C.	Messrs. Jones, 25, Parliament-st. S.W.	do.
*Erecting New City Hall	Gudstone Union	T. E. Philp, Esqr. Old Backhouse, Pontypridd ..	Oct. 16
*Cottage Home	Essex U.D.C.	Essex, Strand ..	Oct. 21
*Alterations, Surface Drainage	War Department	Union House, Wincoburn ..	Oct. 22
*Doat Destructor Building and Chimney	do.	R.E. Office, N. Aldershot ..	do.
Passenger Station, &c. Port St. Mary	do.	do.	do.
Two Houses, Whithage, Armlay	do.	do.	do.
House, Roundly	do.	do.	do.
Pair of Semi-detached Houses, Lidgate Park Estate	do.	do.	do.
Sixteen Houses, Perton	do.	do.	do.
Street Works, Unbank-road, Norwich	do.	do.	do.
Alterations, &c. Waterloo Hotel, Swansea	do.	do.	do.
*School	do.	do.	do.
Office, &c. Atlas Brewery, Newbury	do.	do.	do.
National School	do.	do.	do.
Alterations, Royal Hotel, Kirby Lonsdale	do.	do.	do.
Villa Residence, Whitehead, Belfast	D. J. Lanyon	J. Russell, Archt. Kirby Lonsdale ..	do.
do.	do.	T. Penland, Archt. 35, High-st. Belfast ..	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be made in.
*Architect and Surveyor	Catlin's Company	100l. per annum	Sept. 25
*Surveyor	Woolfend U.D.C.	250l. per annum	do.
*Chief Clerk (Engineers' Department)	County Corp.	150l. per annum	do.
*Two Road Foremen	do.	2l. per week each	do.
*Architectural Assistant	do.	100l. rising to 150l. per annum	do.
*Building Inspector	do.	150l. per annum	do.

Those marked with an asterisk (*) are advertised in this Number. Contracts, pp. iv. vi. & vii. Public Appointments, pp. xviii. xix. & xxi.

not yet complete, and his Lordship, by consent, directed that the motion should stand over for one week.

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS.

In the case of *Jermyn v. Cooke*, Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., gave the plaintiff leave to serve notice of motion with the writ on the defendant returnable for next week, the application being to restrain the defendant from building back his premises so as to interfere with the plaintiff's

ancient lights. Council for the plaintiff said that he had in support of his application an affidavit by an architect, who said that if the building by the defendant went on it would seriously interfere with the plaintiff's lights.

MEETINGS.

SATURDAY, SEPTEMBER 25.
Architectural Association.—Summer visit to the Grove Hospital, Tooting. Mr. A. H. Tiltman, architect.
Devon and Exeter Architectural Society (Plymouth, Devonport, and Truro branches).—Visit to the Cathedral. Depart from Plymouth (G. W. Railway) 11.5 a.m.

MONDAY, SEPTEMBER 27.
Sanitary Institute (Lectures for Sanitary Officers).—Introductory Lecture: "The Outcome of Sanitation," by Dr. Louis Parkes. 8 p.m.

WEDNESDAY, SEPTEMBER 29.
Builders' Foremen and Clerks of Works Institution.—Quarterly meeting of the directors. 8 p.m.

THURSDAY, SEPTEMBER 30.
Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. Manley, M.A., on "Sanitary Law, English, Scotch, and Irish; General Enactment Public Health Act, 1875; model by-laws, &c." 8 p.m.

SATURDAY, OCTOBER 2.
British Institute of Certified Carpenters.—Visit

LONDON.—Accepted for building shops and flats at 5, 7, 9, and 11, Lower Kensington-lane, S.E., for Mr. E. Studwick. Mr. Percy Field, architect—
John Welbank & Sons £2,155

LONDON.—Accepted for about 5,000 yards super of hardwood paving, Stroud Green-road, including excavation, concrete foundation for the Horseley District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate—
Wm. Griffiths, Kingland, 155, rd. per yard super.

LONDON.—For alterations, repairs, &c., to the "Goldsmith Arms," East Acton, for Messrs. Fuller & Co., the Griffin Brewery, 1, hawick, Mr. J. Hume, architect and surveyor, Chiswick—
Poore & Son £198 17
Wenborn 20 0
Drainage.
L. Leader £102

LONDON.—Accepted for alterations to the "George IV." Chiswick, for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick—
T. H. Adamson & Son £1,773 10

LONDON.—For repairs and alterations at "The Angel," Hammersmith, for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick—
Charleston Bros. £109 0
1. Bendo 15 10 Heywood 100 0

LONDON.—For stoneware pipe sewers, View-road, Highgate, for the Horseley District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate—
Williamson & Sons £795 12 5
F. A. Jackson & Son 88 0 8 J. A. Dunmore, Crouch Neave & Son 89 0 0
* Accepted.

LONDON.—For road works, Tunderwick-road (3rd section), for the Horseley District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate—
Williamson & Sons £1,481 0 10
F. A. Jackson & Son 1,528 8 10
W. Neave & Son 1,579 0 0
* Accepted.

LONDON.—Accepted for tar-paving work, Gordon-road Work-house, Peckham, for the Guardians—
F. G. Glover, 17, Milton-st., Southend-on-Sea £337
Sheppard & Co., Milton-st., Southend-on-Sea £337

PENSFORD.—For the erection of new schools for Stanton Drew School Board. Mr. J. Ace Beynon, architect, Colledale, Bath—
Hughes & Weeks £1,440
S. K. Corbett 1,375
Stephen Hinton 1,125
M. Durnford 1,110
* Accepted.

PONTLOTTON (Glamorgan). For erecting sixty-nine dwelling-houses, for the Building Club. Mr. W. Davis, architect, 5, Heol Evan Wynne, Pontllyon, via Cardiff—
E. Rowlands £156 0
E. Rowlands 153 0
F. James & Sons 149 10
W. Williams & Sons 149 10
Davies Bros. 149 10
* Accepted.

PONTYCYMMER (Gwent Valley). For paving, curbing, &c., Richard-street and High-street, for the Gwent and Gwent Urban District Council. Mr. H. Dawkins Williams, surveyor, Blackmill, R.S.O.
Richard-street.
Mark & Williams £210 10 4
Batchelor & Hall 515 7 8
Jonathan Maddocks 5 8 11
High-street.
Mark & Williams £500 14 8
Rattray & Jenkins 340 8 4
Batchelor & Hall 597 12 3
* Accepted.

PONTYCYMMER (Gwent Valley). For paving, curbing, &c., Richard-street and High-street, for the Gwent and Gwent Urban District Council. Mr. H. Dawkins Williams, surveyor, Blackmill, R.S.O.
Richard-street.
Mark & Williams £210 10 4
Batchelor & Hall 515 7 8
Jonathan Maddocks 5 8 11
High-street.
Mark & Williams £500 14 8
Rattray & Jenkins 340 8 4
Batchelor & Hall 597 12 3
* Accepted.

PONTYCYMMER (Gwent Valley). For paving, curbing, &c., Richard-street and High-street, for the Gwent and Gwent Urban District Council. Mr. H. Dawkins Williams, surveyor, Blackmill, R.S.O.
Richard-street.
Mark & Williams £210 10 4
Batchelor & Hall 515 7 8
Jonathan Maddocks 5 8 11
High-street.
Mark & Williams £500 14 8
Rattray & Jenkins 340 8 4
Batchelor & Hall 597 12 3
* Accepted.

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17, BACK HILL, HATTON GARDEN, and 20, RAY STREET, FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, and FIT FOR IMMEDIATE USE.
Telephone, 66, 274. Brompton. Tel. Address: "SNEWIN," London.

RHAYADER (Radnorshire).—For the erection of a new north side and new roof to nave, &c., to Rhayader Church. Mr. S. W. Williams, architect, Rhayader. Quantities by architect—
Thomas Lant £1,552
Smith 1,551
Morgan 1,477
Lloyd, Rhayader 1,183
* Accepted.

RICHMOND.—For rebuilding "The Angel and Crown" for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect, Chiswick—
S. Hunt £2 055
T. H. Adamson & Son 1,974
J. Dorey & Co. 179 0 0
* Accepted.

RYTON.—For the construction of a culvert and road improvement at Bradley, for the Urban District Council. Mr. J. P. Dalton, Engineer, Council Office, Ryton-on-Tyne. Quantities by the Engineer—
M. D. Young £790 0 0
G. T. Manners 193 0 0
W. Street 179 0 0
* Accepted.

TAUNTON.—Accepted for additions, Magdalen-street premises, for the Taunton Co-operative Society. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton. Quantities by the architect—
T. Manning, 10, St. James-street, Taunton £594
* Accepted.

WILTON.—For building a new laundry and for other works at the workhouse. Messrs. Harding & Son, architects, 51, Canal, Salisbury. Quantities by architect—
E. Witt £591 9 6
Webb & Co. 545 0 0
Vincent & Folland 469 0 0
E. Hulse 498 0 0
J. Whalley 497 0 0
* Accepted.

TO CORRESPONDENTS.

H. H.—A. S.—J. E. P.—J. H.—J. E. (below our limit).
NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications. Letters or communications (beyond news items) which have been duplicated for other journals are NOT DESTROYED. We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who reserves the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES, GREENHOUSES,

WOODEN BUILDINGS, Bank, Office, & Shop Fittings.

CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 15s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 4, Cannon-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 19s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trank & Sons, The Douling Stone Co.).
Chief Office:—Norton, Stoke-under-Ham Somerset.
London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

THE TEST OF TIME
has proved that
SZERELMEY STONE LIQUID
Absolutely waterproofs and preserves Bricks,
Stone, Cement, Stucco, Plaster, &c.
SZERELMEY & Co., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVTE.]

SPRAGUE & CO.

LITHOGRAPHERS AND PRINTERS.
Estate Plans and Particulars of Sale promptly
executed.
4 & 5, East Harding-st., Fetter-lane, E.C. [ADVTE.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"
For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVTE.]

PILKINGTON & CO.

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING,
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING
SEYSSSEL ASPHALTE.

ERNEST MATHEWS & CO.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
Head Office and only City Address, 61, ST. MARY AXE, E.C.
SEND FOR ILLUSTRATED PRICE LIST.

ILLUSTRATIONS.

The Abbays of Great Britain.—XXIII., Pershore.—Drawn by Mr. Roland W. Paul	Double-Page Photo-Litho.
Plan of Pershore Abbey.—Drawn by Mr. Roland W. Paul	Double-Page Photo-Litho.
Church of St. Stephen, Nottingham.—Mr. W. D. Carter, F.R.I.B.A., Architect	Two Single-Page Ink-Photos.
Parish Church, Handforth, Cheshire.—Mr. J. Brooke, Architect	Single-Page Photo-Litho.
A West Country Church.—Mr. F. Forbes Glennie, Architect	Single-Page Photo-Litho.

Blocks in Text.

Foundations of Walls of Early Oratory, near Llanllechid by Bangor	Page 258	Pershore Abbey.—	256
North Wales		Effigy of a Knight	261
Interior View of "Trinity" Church, Glendalough: looking into the	253	Shields from Vaulting of South Transept	261
Chancel		Effigy of Abbot (St. Marston)	261
Doorway showing resemblance to "long and short" Work, at Killybeg,	254	Woodwork of Abbot Newton's Tomb	261
near Dublin		Early English Window in the North Aisle of the Choir	262
Remains of Church at Dulagh, Co. Meath	254	Interior of the S.E. Angle of the South Transept showing Norman	
Doorway of "Our Lady's" Church, Glendalough	254	Work. Abbot Newton's Vaulting, &c.	262
Sketches of London Street Architecture. XIX.—No. 19, Lincoln's	258	Encaustic Tiles now in the Floor of the Presbytery	262
Inn Fields, W.C.	258	Fragments of Doorway now in Vicarage Garden	262
The "Industrial" Lamp	Page 268		

CONTENTS.

The Manchester Drainage Question	251	Wauters' "La Grand Place de Bruxelles": J. Stubben's "La	255
The Ancient Architecture of Ireland	251	Construction des Villes": "Bruxelles Exposition Interna-	255
Notes	254	tionale, Avril-Novembre, 1897"	255
Technical Instruction on the Continent	257	Trade Catalogues	256
Sketches of London Street Architecture.—XIX.	258	Pershore Abbey	256
The Architectural Association Summer Visits	261	St. Stephen's, Nottingham	259
St. W. Richmond on Church Art	259	Proposed Parish Church, Handforth, Cheshire	263
Archæological Societies	259	Design for a West Country Church	263
Competitions	259	St. Mary's, Oxford	263
Books: I. Singer and L. H. Berens' "Unrecognised Laws of		The Mosaic Decoration of St. Paul's	264
Nature"; C. Lemonnier and A. Wauters' "Le Palais de la		Measuring Lead Light Glazing	264
Ville de Bruxelles à l'Exposition Universelle de 1887"; A.		Student's Column: Quantities and Quantity-Taking. XI.	264
		Obituary	265
		General Building News	265
		Sanitary and Engineering News	267
		Electric Lighting News	267
		Miscellaneous	267
		Stained Glass and Decoration	267
		Foreign	268
		Miscellaneous	268
		Capital and Labour	268
		Legal	268
		Meetings	269
		Recent Patents	269
		Some Recent Sales	269

The Manchester Drainage Question.



HE great sewage-culvert scheme, to which we have already alluded more than once,* does not meet with the approval of the militant section of the Manchester rate-

payers. On Friday, the 24th ult., for the second time, the scheme was rejected by a very large majority. Whether a poll of the ratepayers will result in a different decision, it is impossible to say; at any rate, a poll has been demanded, and will take place at the end of October. Even the City Council is only half-hearted in the matter. At the meeting, in which the Council approved the scheme, only forty-nine members, out of a total of 104, voted for it. Another meeting has, therefore, been called for October 6, in order that, if possible, the statutory majority of fifty-three may be obtained. If it cannot, no money can be borrowed for the project. Meanwhile, the Mersey and Irwell Joint Committee grows impatient of Manchester's procrastination, and the Ship Canal, into which the Manchester sewage—after precipitation and partial filtration—is discharged, grows daily more and more foul. The twelve months allowed by the Joint Committee for a sewage scheme to be adopted, have been spent in experiments and bickerings, and the request for a six months' extension of time has been met by the grant of three months. If, therefore, the requisite majority of the Council, in favour of the culvert scheme, cannot be obtained, or if the ratepayers by poll refuse to sanction the scheme, a deadlock will ensue, and a fine of 50*l.* a day may be levied on the city for its non-compliance with the Joint Committee's orders.

Different objections are raised to the culvert scheme by different people. One man regrets the waste of good manure, and advocates the return to dry methods of collection and disposal, believing that if this were done the tank-effluent could easily be made pure enough to satisfy the Joint Committee. Another, startled at the thought of a culvert

sixteen miles long, suggests national sewers as a way out of the difficulty; there is reason in his contention, but what Chancellor of the Exchequer will find money for them? Others say that the present method of disposal is quite good enough, and if the Joint Committee does not think so, its judgment must be defied; indeed, a well known barrister, who took a prominent part in opposing the scheme at the ratepayers' meeting, declares that the Committee is acting *ultra vires* in objecting to the existing method of disposal, and boldly advocates resistance to their will. An alderman hints that the Ship Canal belongs to Manchester, and that they ought to be allowed to turn into it what they please; and a newspaper correspondent recommends the dilution of the tank-effluent with the surplus water from Thirlmere, and the completion of another culvert from the lake to bring water for this purpose if necessary. Others, again, indulge the fond hope that a little more delay will inevitably bring to light a method of sewage-treatment which shall be at once efficient, final, and cheap. Even members of the recent Sanitary Congress at Leeds made presents of suggestions to the bewildered City Council. Advice certainly is not lacking; the difficulty is to sift the bad from the good.

All objectors to the culvert agree, however, on two points—the great initial cost, and the probability that the engineer's estimate will be exceeded. Certainly a work which is estimated to cost 258,000*l.*, exclusive of legal and parliamentary expenses, is not one to be lightly undertaken, especially by a city whose burdens are already almost too grievous to be borne; and it is not unnatural that men who have the Ship Canal continually before their eyes as an object-lesson of engineers' miscalculations, are somewhat distrustful of estimates, however able and honourable may be the engineer by whom they have been prepared.

Assuming for the moment—as appears to be done by the Council and its advisers—that the precipitation of the sewage by milk of lime and copperas is the best method of preliminary treatment, we may turn at once to a consideration of the available means of disposing of the tank-effluent. These are stated by the City Engineer, Mr. T. de Courcy Meade, as follows:—

(a) Treatment by filtration through land;

(b) Treatment by artificial filters;

(c) Removal to the tidal waters of the Mersey.

Two of these, it will be seen, are methods of purification. The third is a method of "disposal," pure and simple, and is a confession of the failure of science to discover an efficient and economical method of purification; it has, however, the approval of Mr. Meade, and has been favourably noticed by Sir Henry Roscoe, Sir Benjamin Baker, and Mr. James Mansergh. Nevertheless, the ratepayers will have none of it. The chief objection taken by the ratepayers against the culvert appears to be its great initial cost. For purposes of comparison, we have prepared the following table, which shows the estimated cost of each method of disposal, together with the *annual* cost, including interest, repayment of loans, repairs, and working expenses. The estimates of the first cost and of the working expenses and repairs of the three methods are taken from Mr. Meade's report on the subject to the Rivers Committee of the Council, with the exception that the sum of 42,000*l.* has been added to the estimate for the culvert, on account of legal and parliamentary expenses, and that about 5,800*l.* has been included for repairs of the culvert, an item which appears to have been overlooked by Mr. Meade and the Council.

Method of Disposal.	First Cost.	Annual Cost.			Total.
		Interest, and repayment of loan in 50 years.	Repairs and Working Expenses.		
Land Treatment	£. 150,700	£. 22,400	£. 3,000	£. 25,400	
Artificial Filtration	220,000	8,150	23,500	32,110	
Culvert	300,000	11,600	6,000	17,600	

If Mr. Meade's figures are even approximately correct, it follows that the culvert scheme is by far the cheapest of the three, even though we have added 50 per cent. to its annual cost on account of estimated repairs. Treatment by means of artificial filters, although cheapest in first cost, entails the highest annual charge, on account of the enormous cost of repairs and working expenses. It is in respect of this item that there is room for questioning the engineer's estimate, not, however, because it is too low, but because it is too high; it is based on the

* See our issues for February 6, 1897, and August 28, 1897.

opinion that the filtering material in artificial filters will have to be renewed every four years at one-third of the original cost, in addition to an annual charge of 5,220*l.* for working expenses. If the filters will last six years instead of four, the annual cost will be reduced to 26,000*l.*; if they will last eight years, the annual cost will be less than 23,000*l.* Sir Henry Roscoe, in his Report on Experiments made by him for the Manchester Corporation, does not come to any definite conclusion respecting the life of a filter; he says: "When the experiments were ended on March 22 [after about three months' working], the materials composing the filters were examined, and it was found that there was some accumulation of both organic and inorganic matters in the filters, extending from the top to the bottom of the filtering material. . . . To what extent this accumulation of foreign matters in the filters may go on and cripple the working of the filters, time alone can determine." It is quite possible that, with suitably-constructed filters, the greater part of these accumulations, if not all, could be removed by upward washing, replacing of the surface material, and a long period of aeration. If this were so, the annual cost of artificial filtration would be less than that of the other methods of disposal.

It must not be forgotten, however, that the cost of the two methods of filtration is based on a dry-weather flow of only 26,000,000 gallons daily, while the culvert will be large enough to remove 70,000,000 gallons in the same time. When this is taken into calculation, the culvert will be not only cheaper in first cost, but also in annual charges, and from a purely self-regarding point of view might well have great attractions for the Manchester ratepayers; but the question is whether such a way of dealing with the problem is, so to speak, morally defensible. What Runcorn, Widnes, Liverpool, and Birkenhead will have to say against such a scheme it is not difficult to imagine. Warrington appears to object to the effluent being turned into the estuary *above* its boundary on sanitary grounds, and objects to its discharge *below* on manufacturing grounds—the abstraction of so much water will, it is said, be injurious to its mill-owners. Liverpool has already raised her voice:—"What has to be recognised," says the *Liverpool Daily Post*, in an article on the subject, "is that the amenities and the health of Liverpool are threatened in a manner which is nothing less than impudent, and that the most vehement and uncompromising resistance must at once be put in train." Doubtless Birkenhead, Runcorn, Widnes, and other districts along the estuary, will also offer strong opposition to the scheme. The legal costs will be enormous, and the delays will be great. Whether it is worth while persevering with a scheme which is bound to encounter so much opposition is a point requiring careful thought. As far as the scientific aspect of the question is concerned, little can be said. No attempt appears to have been made to ascertain what part of the sewage will be carried out to the open sea with each tide, nor does the discharge of the effluent into the estuary for fixed periods only after high tide appear to have been considered. This last could only be done at a greatly-enhanced outlay. The experiments of Dr. G. Sims Woodhead on the mud of the Conway estuary during

the last twenty-four years show that no increase of organic deposit in the mud has taken place, although more and more sewage has been turned into the river and estuary above, but it would be unwise to argue from this that no nuisance would accrue from the discharge of the large volume of the Manchester sewage; indeed, Dr. Woodhead himself said at the recent Sanitary Congress that he believed that before long great efforts would be made "to keep out of tidal estuaries all sewage contaminations."

The ratepayers of Manchester have another month in which to consider this important problem. Meanwhile, would it not be well for the Council to obtain and publish the opinions and advice of one or two prominent engineers, chemists, or doctors, so that the ratepayers may not err through ignorance?

THE ANCIENT ARCHITECTURE OF IRELAND.

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

BY PROFESSOR BALDWIN BROWN.

III.

THE problem of the extent to which Irish churches owed their form to Continental examples is one that merits some special attention.

Bearing in mind the intercourse that must have existed between Irish Christians and their Continental brethren, we note with some surprise that there is no sign in early Irish architecture of the apse. St. Patrick's mission rested certainly on a Gallic basis, and it is probable that the churches of Gaul in his day were uniformly apsidal. This is, of course, to some extent a matter of conjecture. We possess more or less legendary accounts of the first foundation of Christian churches on the sites where afterwards arose the great cathedrals of the French episcopal cities, but we have no actual remains of them. The chapel, now called a crypt, of St. Gervais, above Rouen, is probably as old as any existing ecclesiastical edifice of Gaul, while researches on the site of the great church of St. Martin of Tours brought to light a few years ago fragments of the earlier buildings on the spot, of which we read in Gregory of Tours. We may be allowed to appeal to the Romano-British church as evidence of Gallic institutions, as its relations with Gaul were of a filial character, and in a sense we are better off in England than our neighbours across the Channel in regard to actual remains of the Early Christian period. We possess not only Silchester, but St. Pancras, Reculver, and Lyminge, with their ground plans practically intact in their most important features. The only other churches which may be Romano-British are Stone, near Faversham, and St. Martin's, Canterbury, and these have both been altered at their eastern ends. The others just mentioned are all apsidal, and so is St. Gervais and the old churches at Tours, so that the proposition hazarded above is a pretty safe one. Now if St. Patrick and his companions and successors were familiar with apsidal churches, why did they not introduce this form into Ireland? Constructive difficulties could hardly have stood in the way, for to build an apse would have been to the early Irish masons the easiest thing in the world—it is just a bee-hive cell cut in half. Some of the pagan structures in the interior of the cashels in the west of

Ireland seem actually to have had an apsidal form! It is not a little curious that the builders of the first generation of Irish churches should have passed from the round to the rectangular plan without adopting that combination of the two which would have given them a form almost exactly like that of the apsidal church of the Romanised regions of the Continent.

This Irish neglect of the apse leads us to inquire what was the form of the early churches in the kindred district of Wales. The connexion between the two regions was a close one. It seems that after the time of St. Patrick, Irish Christianity suffered a temporary eclipse, but was again revived in the sixth century. Bede evidently knew nothing about St. Patrick, and regarded the leaders of this revival as the real founders of the Hibernian Church. The important early document known as the "Catalogue" of the Irish Saints recognises this break, and after the "first order of saints" of the time of St. Patrick gives a second order that had "received a Mass" at the hands of holy men of Britain, such as St. David, St. Gildas, and St. Cadoc. This points to a revival of Irish Christianity proceeding from Wales, in which the Romano-British Church was then concentrated. When British Christianity retired westwards before the Saxon invaders we might expect to find still maintained the same ecclesiastical fashions that had prevailed when its centres were London and York. If we ask ourselves, however, what was the actual form of those innumerable early churches, which, as local nomenclature shows, swarmed in the Cymric provinces, we can obtain no satisfactory answer. Welsh churches contemporary with the early ones of Ireland do not appear to have survived. The ground plan of what seems to have been an early Welsh oratory may be recovered from some remains existing not far from Bangor, in Carnarvonshire, on the hillside between Bethesda and Aber, in a neighbourhood noted for its archaeological interest. About a mile due east from the modern church of Llanllechid, just where the path to Aber crosses a stream, the lowest courses of the walls of a small rectangular building, pointing nearly due east and west, may still be traced (fig. 13). The faces of

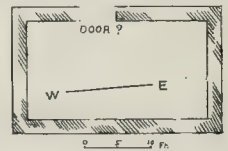


Fig. 13.—Foundations of walls of early Oratory, near Llanllechid by Bangor, North Wales. (The shading indicates where stones are in situ.)

the walls were carefully formed of large, flat stones, untouched by the hammer, and smaller stones filled in the interior, no sign of mortar being visible. The walls were about 2 ft. 4 in. thick. There seems to have been a doorway on the northern side. There are all the signs of great antiquity about the work, which is referred to in "Archæologia Cambrensis," 4th series, vol. 13, p. 222. More substantial remains of assured early date are hard to find, and Mr. Romilly Allen thinks that probably none of the existing

* See the ground plans of some of these in a paper by G. Du Noyer in the *Archæological Journal*, Vol. xv.

Welsh churches are older than the eleventh century,* while we cannot be sure that the original plans were preserved in the various rebuildings that have taken place. The presumption, however, is that there would have been a certain continuity in the architectural tradition, and the almost entire absence of apsidal ground-plans in Wales as we know it certainly suggests that the apse was not a feature in the earliest churches of the Principality. The "Mass" (by which we must understand a whole ecclesiastical system) given by St. David and his contemporaries to Ireland was probably not accompanied by the Romano-British fashion of the apsidal altar-house.

Miss Margaret Stokes has explained the square termination of the early Celtic church by the following suppositions. Following a suggestion made by the late Professor Freeman, she has argued† that the Celtic oratory may represent an early form of the Christian church that was once generally prevalent, but which only survived in outlying regions like these Celtic lands. After Constantine, this argument runs, the Christian meeting-house altered its shape by borrowing the apse from the pagan basilica, but the change did not penetrate to the outlying regions. The particular shape of the Irish oratory this excellent authority is inclined to derive either from the tomb or from the shrine or reliquary of which she conceives it to have been a copy. We can only differ with hesitation from one whose services to the archaeology of her native land have been so great, but neither of these hypotheses will really bear investigation. The Christian meeting-house did not borrow its apse from the pagan basilica, for the very good reason that the pagan basilica had, as a rule, no apse to lend. The survival of the old delusion that the Christian church was derived from the pagan basilica is a very curious phenomenon. Every one who goes to Rome sees the Basilica Julia; every visitor to Pompeii examines the basilica there; but few seem to realise how different these are to the Christian meeting-house. They have no apses, and the colonnades are carried along the ends as well as the long sides of the building—an essential point of difference from the Christian church. The truth is that the Christian churches, so far as can be judged from existing evidence, were apsidal from the first, long before they attained to the large size or received the flanking aisles from which they derived the name of "basilicas." In Romanised lands, east and west, the apse was primitive-Christian. That it did not remain a normal feature of church plans in the outlying parts of the Empire and beyond, may have been due to the fact that it had a specially Roman aspect. Missionaries in these regions may have regarded the feature as not so much Christian as Roman, and they may not have thought it worth while to introduce the fashion among their converts. The later history of the apse in Christian architecture is in this respect significant. We find it generally abandoned by the reformed monastic orders, whose bent was towards simplicity. It is in reality an architectural form almost as simple as it is beautiful, but it involves the use of vaulting, and is to that extent a piece of elaboration. If the



Fig. 14.—Interior view of "Trinity" Church, Glendalough, looking into the Chancel.

Cistercians deliberately rejected it on this account,‡ a similar feeling may have been operative in earlier times. The instances, which are abundant enough, of square east ends to early churches outside the Celtic lands may have been due to local preference for simple methods of building, and not to any reasons of ritual. In other words, there need not be anything specially Celtic about the square east end, though the form is conspicuous in Celtic regions, because there it is the only form employed.

That the Celtic oratory copied the shape of a shrine or reliquary is rendered most unlikely by the fact that this particular piece of ecclesiastical garniture was not an early possession of the Church. In was the bonafide tomb of the saint that was connected with the primitive oratory, not bits of his dismembered skeleton. He was ultimately broken up and distributed in shrines and reliquaries among the faithful in many lands; but this was a shame and an abuse of later times, long after the Christian meeting-house had assumed its normal forms, whether Roman or non-Roman. Shrines were, of course, made in the form of churches, but these belong rather to mediæval than to early Christian days. There is no known form of the ancient tomb which has any special resemblance to the early Irish oratory, and a derivation from this source does not seem very probable.

The nave-and-chancel plan was accordingly of quite natural growth, and the chancel may be regarded as only a second smaller oratory for the special accommodation of the altar. At what period this form became established in Ireland we cannot tell, but in every known example mortar is used, and wherever the church is sufficiently preserved to show this feature, the chancel is divided off from the nave by an arch, which in every case but one—St. Kevin's at Glendalough—is an arch constructed voussoir-fashion and not by encorbelment.

The chancel arch at St. Kevin's is a so-called "false" arch, all the stones being bedded horizontally, but there is nothing primitive about it. Its form is due to the fact that it was cut through an already exist-

ing wall, for the building in question is one in which a chancel was added to an original single-celled oratory. It is not an early example of its class, and in other parts of the structure the arch is used in the orthodox fashion. Now both the arch and cement are importations—not features of the native Irish style as it is found in pre-Christian structures, and their introduction implies foreign intercourse as well as a certain lapse of time from the epoch of the primitive dry-stone oratory as represented at Skellig Michael.* How long a lapse of time is to be allowed for we cannot say, and in the uncertainty in which all these questions of date are involved, it is open to any one to argue that churches of this type were really as early in England as in Ireland, or that Wales set the fashion to both. Who shall say whether Escomb is not as early in date as any of the similar buildings of Ireland?

Without entering here on any further discussion of these vexed questions of date, we may now go on briefly to indicate the points of agreement and difference between these Irish nave-and-chancel churches and those of our own country.

In general plan the two agree, but not in proportion, for the Irish examples do not exhibit the great proportionate length observable in some Saxon churches, plans of which were given in the *Builder* of September 28, 1895. The narrowness of the Saxon chancel arch, as at Escomb or Bradford-on-Avon, is not paralleled in Ireland, where we find, on the contrary, in some examples, as in B, fig. 12, that the opening is the whole width of the chancel. This is shown in the interior view given in fig. 14, from which a general idea of the effect of these Irish structures may be gained. The porch, a familiar feature in Saxon buildings, does not occur, so far as the writer knows, in connexion with any of the Irish churches of this class, though at Trinity, Glendalough (B, fig. 12), there is a western addition, of later date than the main fabric, that has no doorway except into the church, and reminds

* It must be noted that Gallenus, though in many respects "primitive," has a round-headed east window, (ante, fig. 11).

* "Monumental History of the British Church," p. 43.

† "Early Christian Architecture in Ireland," London, 1878, p. 38.

u of the similar structure at the western end of the Saxon church of Barton-on-Humber.

Passing from plan to elevation we find points of similarity balanced by equally marked points of contrast. The two agree in the feature of singularly sharp gables in which they contrast with the churches of Roman type. No reason can be given for this in the case of the English fabrics, but there is in the case of those of Ireland a very distinct constructive ground that will be presently considered. On the other hand, while the side walls of the Saxon churches that seem the earliest are very high, those of the Irish examples are low. At Trinity, Glendalough, the walls of a nave 17 ft. 6 in. wide are in height about 9 ft. 6 in., while the side walls of Monkwearmouth church which is about 19 ft. wide reached an elevation of more than 30 ft. In the matter of technique there is considerable resemblance. The plinth, which in Saxon work is rather a sign of an advanced period, appears in Ireland from the very first, and is well marked in some of the Skellig Michael buildings as well as at Gallerus. For walling, large roughly-squared stones bedded in abundant mortar are common in both cases, and there is, in both, signs of a certain megalithic taste in the use of big material. Herring-bone work, which occurs, though rarely, in Saxon masonry (it is rather Early Norman than Saxon), is not found in this class of Irish buildings. The thickness of the walls is pretty much the same in both cases and their fabric is fairly homogenous. It is noteworthy that the great stone walls of the pagan forts in Ireland are distinctly constructed with facings and core, but the comparatively thin walls of these Irish churches are of the same texture throughout.

When we come, however, to the quoins, the difference is very marked. Saxon "long and short" and Saxon "big stone" quoins are alike absent in Ireland. When the former occurs it is accidental and is generally confined to window and door jambs, in which it occurs at a comparatively late date,



Fig. 15.—Doorway showing resemblance to "long and short" work, at Killiney, near Dublin.

as fig. 15, from a mediæval addition to the old church at Killarney, will show. The Irish masons paid little attention to their quoins, and these show none of that distinctive character which appears here in pre-Conquest work in England.

In the case of features and details we may note that the simpler windows in the two classes of buildings have a close resemblance, though the Irish are not so high above the ground as those in the more lofty side walls of Saxon churches. On the other hand, our more elaborate two-light windows divided by baluster shafts, are not found in

Ireland, and neither the baluster nor the moulded impost, nor any other piece of architectural carving which occurs in Saxon churches is paralleled in the class of Irish buildings now under review. A severe plainness is characteristic of these, and this is not a little curious when we consider the extraordinary development of ornament in Ireland in early times as evidenced in manuscripts and metal-work. This peculiarity is very noticeable in the case of the doorways. Saxon doorways (and the same applies also to window openings) resemble Irish in the one feature of the inclined jambs—a feature that is of special significance because it is essentially un-Roman—but they are nearly always arched, and are often supplied with imposts, side pilasters, or other form of architectural enrichment. In Ireland, though arched doorways occur before the development of Irish Romanesque, yet the characteristic doorway of the class of churches we are considering is flat-headed and austere plain, preserving obvious reminiscences of the doorway of the pagan cashel and beehive hut. It is sometimes ornamented with a cross incised on the soffit of the lintel—no Saxon example of this is known—and has occasionally a primitive moulding on jambs and architrave that reminds us of early Classical forms rather than of anything seen in Saxon England. The Irish builders took as much pains with these doors as the Saxon with their quoins, and they used for them the biggest stones they could procure, sometimes forming the whole opening with five, or even three, stones. The subjoined ex-



Fig. 16.—Remains of Church at Dulane, co. Meath.

amples from Dulane (fig. 16) and "Our Lady's" Church, Glendalough (fig. 17), will suffice for illustration of this important feature of early Irish architecture. The



Fig. 17.—Doorway of "Our Lady's" Church, Glendalough.

doorway at Dulane, near Kells, in Meath, was pronounced by Lord Dunraven the finest he had ever seen. This was on account of the singular massiveness of the lintel stone, which measures 7 ft. 4 in. in length by 1 ft. to in. in height, and is 3 ft. deep. The ground outside the west end of this interesting ruin has been so raised by

interments that it is almost up to the height of the lintel.

At Glendalough the construction is of granite, and there is a fine megalithic feeling about the work. All the stones go through the whole thickness of the wall, which measures 3 ft., and the size of the lintel is 5 ft. 3 in. in length by 15 in. in height. The sinking which frames the opening, with the incised cavetto on the architrave above, are indicated in the drawing. Saxon architecture has really only one doorway of the same kind to show—the blocked-up northern opening at Escomb (see the *Builder*, December 7, 1895, fig. 38). Besides this slight enrichment on the Irish doorways, there are one or two other ornamental features that may be illustrated later on, but these have no parallels in Saxon work in England.

On the whole, therefore, the resemblance here discussed, though at the first glance it is striking enough, is a matter rather of general aspect than of details. The general plan, the pointed gables, the inclined jambs to door and window openings, are common to both classes of buildings, but the differences between them are at the same time so numerous, that it would be rash to affirm without further consideration that there was a historical connexion between them.

NOTES.

The exquisite Lady Chapel at Gloucester Cathedral, which has been closed for many years owing to its dilapidated condition, was re-opened on Wednesday after repairs which hardly amount to restoration in one sense of the word, as no old stone has been touched except what was absolutely decayed, and remnants of ancient tiling and stained glass have been carefully reset in floor and windows. There is talk, however, of decoration and new stained glass windows. Anti-restorationists will no doubt exclaim against this, and we concede that it is a point to be considered carefully; but seeing that the chapel is now restored to its position as a portion of a cathedral church in modern use, it appears reasonable that it should be re-decorated with stained glass, at all events, as a means of enhancing its effect, provided the stained glass is really modern art work and not mere ecclesiastical shop production. "The Clergy and Artists Association," concerning the aims of which Mr. Hallward read a paper at the Church Congress, might be of service in putting the Cathedral authorities in communication with the right kind of artist. The question of decorating the walls in colour (if it has been entertained) is another matter. We should recommend leaving the cleaned stone surface.

PETERBOROUGH has been visited by many pilgrims lately, without the discovery having been generally made that a fine piece of Mediæval architecture, situated not a mile away from the cathedral, is in process of being—not repaired, or even "restored"—but literally and absolutely swept out of existence. No necessity by reason of its ruinous condition, no plea of utility or convenience has been urged to account for its destruction. The building was up to a few months ago complete and sound enough to

have endured for centuries; its site is of no importance for any public purpose; nothing has prompted its demolition but the hope of profit to be derived from selling its materials. (It is said to have been sold by the Ecclesiastical Commissioners for a comparatively small sum to a speculator, through whose death the process of pulling down has for the present ceased.) The building in question is known in Peterborough as the "Monks' Barn," or the "Old Tithe Barn," and, from what can still be seen of it, was apparently built about the end of the thirteenth century. Although not comparable for richness of detail, it was considerably larger than the famous "Abbot's Barn" (of later date) at Glastonbury, and nearly as large as the fine early fourteenth-century barn at Bradford-on-Avon. It consisted, until the other day, of a stone-built structure, about 145 ft. by 31 ft. internally, divided into a nave and aisles by massive timber posts and framing, supporting a high-pitched roof in one span. From one side projected two large "transepts" or porches, each containing a large end doorway and two side doorways, with well-moulded jambs and arches. These latter are still standing, but with this exception, all the walls and the whole of the roof covering have been removed, leaving the timber framework, which is so far, through its own solidity, still quite unimpaired, standing up bare and unprotected in the midst of an open piece of waste ground, surrounded by rows of "speculative" cottages, truly a melancholy spectacle. Even in its present desolation, the mighty skeleton of this old barn is far more impressive than many a modern building of high pretensions, and it seems a thousand pities that some useful purpose cannot even now be found for it, and such an interesting and effective specimen of really monumental carpentry be thus saved from the ignominious fate of absorption into the mushroom structures springing up around it. For a city of such increasing prosperity as Peterborough to suffer the disappearance of such an inheritance as the Monk's Barn would be certainly discreditable, and, we may also add, possibly somewhat shortsighted.

Contamination of Water Supply. ACCORDING to information given in a certain evening paper—whose statements, however, we always take *cum grano*—the Town Council of Maidstone some months ago objected to the amount spent on water analysis, and after discussing a proposal that it should be abandoned entirely, eventually passed a resolution authorising a quarterly analysis only. If this is true, they are paying dearly in pocket for their false economy, besides being weighted with the moral responsibility of bringing disease to hundreds of persons. The lesson is a grave one, which it is to be hoped other municipal bodies in small towns and rural districts will profit by. In the present state of sanitary science it is always possible to avoid water contamination with proper precautions. We shall no doubt have an authoritative and reliable report, as to the causes of the epidemic, from the Local Government Board; and we hope it will be issued without delay. In the meantime the announcement that two young men have been fined for bathing in the East London Water Company's aqueduct at Walthamstow, and that the defence was that "hundreds of men bathed there every Sunday," forms

pleasant reading for consumers of the East London water, and we should like to know what steps the Company are taking to put a stop to this disgusting condition of things.

The Stage Accident at Drury Lane.

It will be remembered that Drury Lane Theatre had to be suddenly closed on Saturday week owing to an accident to the new hydraulic machinery, and the assembled audience had to disperse. As numerous exaggerated accounts of this accident have been circulated in the daily Press, we are requested to contradict these reports, and we do so the more readily as they would otherwise tend to prevent architects and theatre-owners from adopting the more modern forms of equipment on their stages. As a matter of fact, there has only been one other instance in London where water-power has been employed with a view of obtaining stage effects, for all the other metropolitan theatres have the antiquated, cumbersome, and highly dangerous wooden appliances, in which little or no improvement has been shown for a century past. The modern iron stage of the Continent, in which manual labour has been discarded for quite fifteen years, has nowhere been introduced, and even in the lighting of the stage by electricity we are still far behind France, Austria, and Germany. The machinery at Drury Lane comprises two large "bridges," and these had collapsed shortly before the performance. The accident, according to Mr. Edwin O. Sachs, who has been called in to investigate the affair, must be attributed either to wilful damage or culpable negligence, and so it would appear that the system is not at fault. This is fortunate in many ways as far as the advancement of stage mechanism is concerned, for the stage carpenter of to-day, who always opposes innovations, would otherwise have only been too ready to utilise the accident as an example of the disadvantages of hydraulics. A modern iron stage would materially lessen the danger of fire, quite apart from giving the management greater facilities, and the Drury Lane accident in no way proves the contrary.

The Associated Archaeological Societies of Germany.

THE associated Archaeological and Historical Societies of Germany organised a general meeting of delegates last month, at which no less than twenty-five of these bodies were represented. Among the numerous papers read at this gathering we may notice one by Dr. Koehl on the Roman remains at Worms. It appears that numerous excavations have been carried out in this locality, and that they will soon be the subject of an official report. Perhaps the most interesting questions under consideration were those relating to the Government measures which have been recently adopted in Germany for the conservation of historical monuments, and we should remember that Prussia, for instance, has appointed archaeological custodians for each of its provinces, who have instructions to work together with the local committees, &c. There appears to be an active movement to direct the attention of all the minor governments of the German principalities to the question of conservation of monuments, and at the same time to avoid "restoration" in its bad sense. Among other matters under discussion at this very gathering was the arrangement of a series of maps

which are to mark the position of the various monuments of interest in the country, and at the same time to indicate their dates.

The Arc de Triomphe, Paris.

THE "Direction des Bâtiments Civils" is much occupied about the state of the Arc de Triomphe de l'Etoile, which has now been scaffolded and under repair for three years. It seems to be concluded now that the damage to the stonework has resulted from the state of the flag paving of the platform on the top, executed in 1832 under the direction of M. Blouet, who made use of a stone (Cherencé) far too porous in character for the situation; cementing the joints afresh was of no avail, as the rain soaked through the stone. M. Esquié, the architect now in charge, has drawn special attention to this defect, and he is now instructed to relay the whole platform in a more efficient manner.

The Amalgamated Architectural Societies of Germany.

THE annual meeting of the special delegates of the Amalgamated Societies of Architects and Civil Engineers was held last month at the picturesque town of Rothenburg. These meetings, which should not be founded with the bi-annual gatherings of the members of the allied societies, are essentially of a business character, whilst the latter are to a great extent social functions. The City Architect of Cologne, Baurath Stuebben, was in the chair, as President of the societies, of which twenty-seven were represented by fifty-one delegates. Altogether, there are thirty-three societies, and over 7,000 members. The agenda included, as usual, numerous matters of local interest, or only of interest to the members of the German profession, but among them we may observe the proposal of the executive to found a journal, which is to be started on January 1. This proposal was accepted, so that besides two new German contemporaries which have been started this month, we shall soon have yet another. The question of a new scale of charges was under discussion, but no decisions were arrived at; and the question of architectural and technical training generally was considered.

The Riviera.

AN anonymous correspondent was last week honoured with a prominent place, and equally prominent type, in a daily paper, who called attention to the sanitary state of the Riviera. He pointed out the inconsistency of wealthy people taking minute precautions in London, and then going to the Riviera and taking their chance as to the sanitary condition of the houses there. This gentleman gave a striking account of a new and expensive house where the cesspool was placed quite in the centre of the building. It was regarded apparently as being quite up to the mark. We recently called attention to this same subject of sanitation in regard to winter health resorts in Switzerland. The dangers to health from this cause are greater in winter than in summer, since so much more time is spent inside the houses, and there is so much less fresh air admitted. Every one knows of instances of typhoid fever contracted on the Riviera, and medical men who send patients to this part of Europe, and do not also warn them to show some care in regard to the sanitary state of the houses, incur a good deal of responsibility. It is

useless for a man with weak lungs to go to the south of France to repair the mischief if he is to contract another illness from want of proper sanitation.

Sanitary Inspectors. SOME unnecessary fuss has been made over a recent decision, in a case of Clarke v. London, of Mr. Commissioner Kerr in regard to the powers of sanitary inspectors, and it has been suggested that a fund should be got up to enable the defendant to appeal—on the ground that the public interest calls for it. Mr. Mark Judge, who made this suggestion in the *Times*, appears to forget that Mr. Commissioner Kerr merely occupies the position of a County Court judge, and therefore that this decision is absolutely without any force as a precedent. To appeal against a decision of the Queen's Bench Division, which, of course, till reversed by the Court of Appeal is governing law, is quite a different matter. County Court judges, who deliver what may be called rough-and-ready judgments on points of law in the middle of a quantity of miscellaneous legal work, necessarily make slips, and in any event their decisions on the construction of statutes have no value as precedents, and, therefore, no alarm need be felt at them.

Aluminium for Electric Wires. THE cost of bare aluminium wire for electric purposes is now practically the same as that of bare copper wire of equal carrying capacity. The cheapness of electric power and the falling in of patents in the immediate future will greatly lower its price. The St. Lawrence Power Company have contracted to complete their works at Massena, in New York State, for the supply of 75,000 horse-power, in about a year's time. They are going to charge 2d. per horse-power for a day of twenty-four hours. Aluminium is already supplanting copper in trolley line wires for electric traction. When trolley wires of this metal are used, fewer poles are necessary, and, in respect of lightness, strength, and ability to resist corrosion, they have the advantage over copper wires. We think that aluminium wire might very well be used instead of bare copper wire wherever the latter is used in telegraphic or telephonic work. It is as pliable and easy to work. Its mass conductivity is about sixty per cent. that of copper, but as it is three and a half times lighter it has the better weight conductivity. For interior wiring it would be more expensive, as its greater bulk makes it require a heavier insulation; but even for this purpose it would have some advantages over copper wire. At the discussion on electric wiring at the Institution of Electrical Engineers a year or two ago several of the speakers related cases where the copper wires in damp places had corroded and made the installation dangerous from a fire risk point of view. This danger would be greatly lessened if aluminium wires were used.

Postal Orders. MR. HENNIKER HEATON very rightly calls public attention to the question of postal orders. He suggests that they should be issued with a counter-foil, which would bear the number of the order, or a place where the name of the payee could be filled in. This would be a great improvement. It would enable men of business to have a memorandum of the

orders which they had sent, and in case of loss would lead to the detection of the thief. Moreover, if books of, say, one dozen orders could be issued, such counterfoils would be even more useful, since they could then be filed without difficulty in an office. Another point to which attention is called is the absurd system of the cost of orders, which vary in the most troublesome manner without rhyme or reason. These charges should be simplified. We strongly support Mr. Heaton's suggestions in the interests of our readers who are men who have to transact business.

St. Clement Danes, Strand. THROUGH the liberality of the Rev. J. J. H. S. Pennington, rector, the profits, amounting to 5,750*l.*, of the stands erected by Mr. William Whiteley, contractor, around the church last June, are allotted to purposes of a complete restoration of the exterior and interior of the fabric, by Mr. H. Currey, of Norfolk-street, Strand. An inscription on the west gallery records that the church was repaired and beautified in 1857; another, on the south gallery, that it was restored in 1879. Its predecessor, excepting the tower, having been pulled down in 1680, the present church was completed two years afterwards, at a cost of 8,787*l.*, borne by the rector and parishioners, with other benefactors. The inscription on a white marble tablet set in the chancel north wall, 1684, says, "Sir Christopher Wren his Majesties Surveyor freely and generously bestowing his great Care and Skill towards the Contriving and Building of it." Some say that William Pearce furnished the design, but there can be very little doubt this is a mis-statement, for in the British Museum is the agreement, dated May 13, 1680, by Edward Pearce and John Shorthose, as the builders.* The latter was a master mason in the City of London, and Master of the Masons' Company 1686-7. Wren recased and modified the mediaeval tower, whereof portions may be seen inside. His alterations include all up to the stage next above the clock dials, as we see it in John Kip's view of 1715. Kip's later view of 1725 shows the belfry-stage and spire designed, 1719, by James Gibbs, whose "Book of Architecture," fo. 1728, contains a plate giving the elevation from the west, and a plan of his additions to the tower. On the south side was a portico with six Ionic columns, similar to that of St. Mary-le-Strand. The portico gave way to the alterations for widening the thoroughfares, north and south of the church, carried out by Alderman Pickett in 1813-14; to the narrowness of the old roadway, and the block of houses at the church's east end, is probably due the singular plan of the semi-circular east end of the nave, with a semi-circular apse beyond. St. Clement Danes is conspicuous for its adornments; the arched ceiling, and spandrels of the vaulting, are extensively decorated with panels and enrichments; the aisles are groined in plaster. The organ, by Father Smith, was rebuilt by Robson in 1856, and further repaired four years ago. Dr. Johnson's pew is in the north gallery, at the eastern end; the inscription on a brass tablet, to com-

memorate his attendance in the church, fixed, 1851, in the back of the pew, is from the pen of Dr. Crosby. The oak pulpit is finely carved; the altar, of porphyry, upon solid supports, has been raised, and covered with wood. In the Vestry-Hall is Kent's altar-piece, removed from the church in 1725, depicting a choir of angels, into which he introduced portraits, albeit disguised, of the Old Pretender, his wife, and children.

Window for All Saints, Chigwell-row. MESSRS. BELHAM & Co., of Buckingham Palace-road, have just completed a window, from the designs of Mr. John P. Seddon, to be fixed in one of the aisle windows of All Saints Church, Chigwell-row, as a memorial to the late vicar. The window is a two-light one, with trefoiled heads. The subjects are Simeon with the child Jesus, and Anna. Both are set in a conventional framing of pinnacles and canopies, and Messrs. Belham's "antique" glass has been used throughout, the varied tones of which obviate the employment of surface pigment to a great extent. This is particularly the case with the draperies, which are only slightly outlined, the glass itself being so chosen as to give the effect of the shades and shadows of the folds. Some of the lighter tones have been used effectively in the representation of the marble pavement on which the figures stand. Some of the colours—especially the rubies and greens—are very good, and the somewhat heavy appearance of the design as a whole will, no doubt, be lessened when the window is fixed in its place.

Bexhill-on-Sea Promenade Competition. THE Bexhill Pier Park and Land Company have instituted a competition for designs for a new promenade, pavilion, and landing stages, which is we presume addressed rather to engineers than architects, and serves to show that the engineering profession receives the same kind attention from competition committees of which architects have so often to complain. No plan or section of the ground is supplied, though it is manifestly impossible for competitors to know what they are doing without one; it is probably concluded that the enthusiasm of competitors will lead each of them to make his own survey, at his own cost. Nothing is said of an assessor; the Company will select a plan, and if it is not carried out, the author of it will receive twenty-five guineas, and the plans become the property of the Company. As the work represents a cost of 20,000*l.*, the fee to the successful engineer for parting with the whole property in his design is at the rate of about half-a-crown per 100*l.* Nothing is said as to the rate of remuneration if the plan is carried out; competitors would probably do wisely to get a definite statement on that point also before going to work.

THE ARCHITECTURAL ASSOCIATION.—The Association will hold its annual general meeting on Friday, October 8, at No. 9, Conduit-street, W., at 7.30 p.m., when Mr. Hampden W. Pratt will deliver his presidential address and distribute the prizes, medals, and certificates. The drawings submitted in competition for the various prizes offered by the Association will be exhibited, also students' drawings executed in the Studio and School of Design during the past session. The classes, which are held at 56, Great Marlborough-street, commence on October 11, and the Studio re-opens on October 12, at 6.30 p.m.

ALTERATIONS, BAPTIST CHAPEL, WALTON.—The Baptist Chapel at Walton has just been opened after alterations. Mr. R. Girling, of Ipswich, has carried out the work, under the direction of the architect, Mr. Alfred Conder, Westminster.

* Shortrose and Pearce, "citizens and masons," covenant with William Jarman and Thomas Cox, churchwardens, to pull down and rebuild the "church and chancel" under Wren's directions and after his designs. Their receipts for 3,071*l.* 1*s.* 9*d.* are endorsed.

TECHNICAL INSTRUCTION ON THE CONTINENT.

IN July and August of the present year the Technical Instruction Committee of the City of Manchester appointed a deputation to visit technical schools, museums, and other institutions of a like nature in Germany and Austria. The Report was presented and approved at a meeting of the Committee held on the 16th ult., and has now been printed. It contains a great deal of interesting information in regard to technical instruction on the Continent, and shows how much ahead of us many Continental centres are in this respect. The following information is extracted, nearly in the words of the Report:—

The industries which were regarded by the deputation as the most important for inquiry were those connected with electrical science as applied to industry, and those connected with textile industry in its various departments of spinning, weaving, designing, dyeing and finishing. In regard to this latter industry the most important institution visited was the Textile School at Crefeld.

It has been found necessary in the dyeing and finishing schools abroad to discard mere laboratory methods, and to equip them on a scale approaching that of the works themselves, and analogous to the practice obtaining in the spinning and weaving schools, so as to give the students who are trained in them a real, practical, and effective knowledge of the processes employed.

Hence at Crefeld the Prussian Government have built and equipped a large three-story building in the near neighbourhood of the present Textile School and Museum, as a dyeing and finishing school, containing extensive chemical laboratories for instruction in qualitative and quantitative analysis, physical laboratories, drawing-rooms, lecture and testing rooms, chemical museum, reading-room, and library. In the library are to be found technical books of all nations bearing upon textiles, all of which are introductory to the special work of the school, namely, the dyeing and finishing of textile goods, particularly those of importance to the special industries of Crefeld and the district.

The equipment includes, amongst other appliances, machinery for dyeing yarn and piece goods in bulk, bleaching vats and kiers, washing machines for piece goods, hydraulic presses, steam drying machines, raising machines, jiggers, stretching machines, raising machines, silk and velvet finishing and velvet cutting machinery, and printing machinery. These machines and appliances are in constant use, and under skilled guidance the students carry out the work, which is on a commercial scale.

As an example of the esteem in which the dyeing school is held as an institution competent to undertake highly responsible work and important researches, the deputation was informed that the school is entrusted by the Royal Gobelin Factory in Berlin with the dyeing of the yarns used in its special productions, which offer many serious difficulties in producing the delicate shades required. Experiments are undertaken in testing the colours employed, and in dyeing the yarns for exposure to light, adverse atmospheric influences, resistance to acids, alkalies, and soaps; and investigations are made with a view to the production of colouring matters formerly employed in the dyeing of old tapestries. Every effort is made to assist the manufacturers and merchants; and on their behalf the school will undertake investigations as to the dyeing and finishing of materials submitted.

The importance of this help to the merchant is considerable. He often gets patterns from abroad of goods dyed to a particular shade, which, if he can get produced, means probably considerable business. These patterns are sent to the school for examination and report. On the occasion of the visit of the deputation the students of the school were all for the time being engaged in dyeing for a manufacturer 100 kilos. of yarn to a particular colour, which the dyer himself could not produce. The report observes:—

"If the assistance of the school in this regard is found to be valuable in Crefeld, how much more so would such facilities be in the Manchester district, with its world-wide commercial connexions, and where the dyeing industry is so much more extensive and important.

Indeed, it is plain that the better education of the dyer is a matter of far more vital moment in Man-

chester than it can possibly be in Crefeld; and yet the means of securing it here on an adequate and effective scale can scarcely be said to exist."

The Museum, which is open free to the public, is of especial interest and value. It contains not only an admirable collection of ancient and mediæval stuffs, but no opportunity is lost of obtaining samples of the best modern productions, and it is visited by many thousands of designers in the course of the year—a striking evidence of the value of an intelligently-conceived and well-organised museum under competent direction. Exhibitions of textile fabrics are occasionally held. The last resulted in the establishment of a new industry in the town for making Smyrna rugs.

As showing the thoroughness and the zeal with which the Government supplies the means of technical training in the various industries of the country, it was stated to the deputation that if any paper—dealing, for example, with some department or detail of the textile industry—is read before any foreign society, and is published, or appears in any journal, the communication is immediately translated, and circulated throughout the textile schools of Prussia, with directions to have it dealt with as a lecture to the students; and if models, illustrations, or lantern slides are required by way of illustration, they are prepared and sent with the paper. Moreover, in Berlin there exists a department of the Bureau of Education, not accessible to visitors or inquirers, where models, diagrams, and other means of illustration are prepared and circulated to the technical schools of the country.

The present and potential importance of the electrical engineering industry led the deputation to visit Darmstadt, where, in 1895, the Technical High School was entirely rebuilt on a greatly enlarged site at a cost of 130,000*l*. The school includes in addition to the main building, and opposite to it, two fine buildings—one for physics and technical electricity, and the other for pure chemistry, electro-chemistry, chemical technology, and pharmacy.

It is important to remember that these figures referring to the cost of building represent a much larger corresponding cost in England—for example, the cost of the Darmstadt building, which is of stone, was only 5*d*. per cubic foot, which is about half the cost of similar buildings in England. This remark applies also to statements of cost of administration and of teaching—salaries being on a lower scale than with us. It is, however, important to observe that the principal professors enjoy the status and the advantages of civil servants.

It is to be noted that Darmstadt has only 57,000 inhabitants, and that the entire State of which it is the chief city has a population of not more than one million.

This Technical High School is an institution of university rank, and is built on a scale of great liberality.

Considerable as it is, it was felt by the authorities that the growing demands and development connected with electrical science and its adaptation to industrial needs and the general service of the community necessitated the establishment of special provision in suitably equipped buildings of means of instruction in electro-chemistry and electrical engineering. This has been done, as already stated, in two new and separate buildings (which are even now being enlarged) on an exceptionally complete scale.

Darmstadt thus possesses the means of giving the highest possible theoretical and practical instruction to electrical engineering and electro-chemical students, and that this is highly appreciated is shown by the fact that out of the 1,100 day students in attendance in this school (all of whom are over eighteen years of age) more than a third of them are enrolled in the physics and electrical engineering division. The reputation of the school attracts a large number of students from various European countries.

At Nuremberg the deputation visited the works of Messrs. Schuckert & Co., begun on a very small scale in 1882, and now employing nearly 4,000 workmen and a large scientific staff, in the manufacture of optical and electrical machinery, especially search lights, arc lights, and large alternating-current dynamos. The works, which are being extended, are on an imposing scale, with every modern appliance for effective and successful production, and it was stated that the firm had now on hand orders to the extent of 3,000,000*l*. sterling.

"That Germany is in a prosperous condition, due to her successful manufacturing and commercial

enterprise, was plainly evident on every hand in the extension of her cities—the making of new streets, and the erection of fine, handsome buildings which is going on everywhere in her large towns. It is not less clear that the schools are the root and base of this surprising industrial development, and are the main contributors to this great economic result; it is no less certain that if we are to maintain our position as a great industrial community, it must be by following and adopting the same methods."

It is not, however, only in the domain of science that Germany is making great progress. In almost every town visited by the deputation fine industrial art museums were found, arranged with the express purpose of cultivating a knowledge of what has already been accomplished in the production of fine examples of colour, design, and workmanship. Every technical school has its special museum of objects applicable to its purposes. These museums help to preserve and hand down the traditions of past achievement and excellence, and stimulate the desire to reach to as high, or higher, levels to-day. At Nuremberg there has been recently erected, at a cost of 50,000*l*., a fine industrial and trade museum known as the Bavarian Museum, to which it is intended to add laboratories and class-rooms for chemical technology. It is really an institution of reference for the commerce and industry of Nuremberg and the district. It is replete with examples of all classes of industrial art, design, and workmanship, ancient and modern, native and foreign. It possesses an excellent collection of art and technical books, and there are regularly filed and accessible to inquirers more than 130 journals relating to art and industry, together with trade catalogues, directories, and address books of other countries. The officials undertake to give every assistance to designers, merchants, and manufacturers seeking information in any department of industrial art or manufacture, and will make researches, prepare designs and sketches. In short, this Museum only supplies another example of the activity, interest, and intelligence which characterises the endeavour of Germany to obtain for herself a commanding industrial and commercial position.

The deputation, whilst at Nuremberg, had the opportunity of visiting the newly-erected Art School, a handsome and well arranged building not far from the Museum, which has cost nearly 50,000*l*., exclusive of the land, which was given by the town.

The building is designed upon an ample scale, with a view to making provision for all branches of industrial art. It is intended for the instruction of from 500 to 600 day students; and there are at present 170 day students in attendance, and 150 evening students who are taught in separate departments.

These students are under the direction of ten professors and four teachers, and this leads to the remark that throughout Germany the supply of competent teachers of the highest class is on a scale of liberality of which we in England have no idea or example. The subjects of instruction are arranged in great detail, and placed, wherever the needs of the subject require it, in the hands of specialists. Frequently, as at Nuremberg, the departments are directed by men of the highest eminence, who are left free to undertake commissions outside the duties of the school.

It is also observed that even in the purely technical institutions the artistic element is not ignored. At the Technical High School of Charlottenburg, for instance, though art forms no part of the instruction in relation to painting or sculpture, the whole building is an object lesson in beauty and taste, and fine examples of the highest artistic excellence are placed in the corridors wherever they are likely to exert an influence upon the student.

The technical influence of the Charlottenburg School, at the same time, is striking and remarkable. This is exhibited in its magnificent library of scientific and technical literature, and in its ample and costly collections of models relating to architecture, mechanical and electrical engineering, and the building trades, especially the Museum of Kinematic Models formed by Dr. Reuleaux, a replica of which has been placed in the McGill University, Montreal.

In Germany, also, almost every industry has schools specially equipped and staffed—well described by the phrase Mono-technic Schools. Such schools are almost unknown in England, and are to be found in connection with only one or two industries, as, for example, with weaving and dyeing, and one or two other industries, such as tanning; but even in these



Sketches of London Street Architecture.—XIX. No. 19, Lincoln's Inn Fields, W.C.
Mr. Philip Webb, Architect.

cases the number is very limited, and the day students are comparatively few, whilst the equipment is nowhere on the ample scale of Crefeld.

The German Mono-technic School is intended primarily for day students, and only incidentally for evening students. The knowledge, skill, and experience of the highly-qualified staffs are all directed to the advantage and cultivation of the day students, "and your deputation are of opinion that that policy must be followed here if any marked industrial advance is to be secured.

The Report concludes with the observation that whereas exception has sometimes been taken to the size and cost of the new building now being erected by the Technical Instruction Committee for the Manchester Municipal Technical School, the deputation have returned from their visit doubly confirmed in their conviction that every foot of space will be needed, and that even when fully utilised and equipped it will fail to rival in amplitude of resource the splendid industrial schools of Germany and Switzerland.

SKETCHES OF LONDON STREET ARCHITECTURE.—XIX.

This house in Lincoln's Inn Fields was built in 1868. The peculiarities of its construction arose from the narrowness of the site, the great height of the adjoining hotel, and the length of the building from front to back.

The staircase had to be placed in the centre of the block to allow of passages right and left of it to the back of the building. The four large chimney stacks had to be sufficiently high to prevent down draught to the flues.

The architect was Mr. Philip Webb.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

THE NEW FEVER HOSPITAL, TOOTING.

THE last summer visit of the present year drew a large party of members to visit this hospital, now being erected from the plans of Mr. A. Hessel Tiltman which, as many of our readers will recollect, were selected in open competition. This is one of the three large hospitals which the Metropolitan Asylums Board have lately set about adding to the sanitary equipment of the Metropolis, and, like the others, is intended to accommodate something like 1,000 patients suffering from diphtheria, scarlet, or typhoid fever.

The members were met on the premises by Mr. Tiltman, who, after showing them the drawings and explaining the arrangements of the block plan, then conducted them over the various buildings. The visit, unfortunately, was scarcely arranged at the most suitable time to enable Mr. Tiltman's designs to be fully appreciated, as although the carcasses of the buildings were practically complete nothing in the way of fittings has yet been put in position, hence it was somewhat difficult for the visitor to see wherein lies the superiority of Mr. Tiltman's arrangements. It is to be hoped that a subsequent visit may be paid when the architect's work is practically complete, so that full recognition may be given to his skill. After inspecting the building, some of the members went on to visit the work by one of Mr. Tiltman's pupils, Mr. H. P. Burke Downing, from whose designs has just been completed the first portion of some new Board Schools at Merton. These proved to be quite a surprise in the matter of Board schools, as the architect has been fortunate in finding a Board who have allowed him to include far more detail than School Boards in general allow their architects. The result is certainly most fortunate, as Mr. Downing has made excellent use of the good opportunity afforded him, and has produced a most charming piece of building, delightful both in grouping and in the exceeding care and clever design which has been lavished upon every part. The school has a large central hall, and class-room accommodation for at present about 200 children, but this is to be extended as the needs of the locality require.

EAST LONDON TECHNICAL COLLEGE.—The Calendar of the East London Technical College, People's Palace, gives the course of instruction and work for 1897-8. The syllabus includes an important series of lectures and classes on engineering work, building construction, pattern making, carpentry, &c.

SIR W. RICHMOND ON CHURCH ART.

We take from the *Times* report the following summary of the paper read by Sir W. Richmond at the Church Congress at Nottingham, under the heading "Art and Architecture in the Service of the Church." He said that leaving aside the Classical period, for four hundred years and more, from the eleventh almost to the seventeenth century, it seemed as though in Europe the production of an ugly thing was out of the question. In times of turmoil and bloodshed of the Middle Ages and up to the culminating events of the Reformation, times of excess in vice, of excess in virtue, when there was little or no mediocrity to the front, art flourished. The standard of taste was very high, but at the same time eminently spontaneous and fluctuating. Notwithstanding eager struggles for power, political complications, internecine wars, there was all through the life of the Middle Ages and the Renaissance a keen zest for the arts of peace as well as of war. Cathedrals, monasteries, and palaces were built, upon whose adornments the keenest intellects and the most crafty artisans expended their creative powers and skill.

But the modern spirit, full of commercialism, differed from the spirit of ancient times, so appreciative of beauty. Contentment with "the commonplace"—aye, preference of it—had permeated every class, and industry more or less, and had crept into the Church, where one would have thought a spirit of "protection" would have been stronger than "free trade." There, as in our public buildings and in our houses, the tradesman was more evident than the artist; the commercial, rather than the creative, instinct. In England soon after the Reformation, even as early as the reign of Charles I., her churches were destined to become little more than preaching houses, open on Sundays and holy days for the rhetorical display of big-wigged parsons. There was no more art for the churches. Art in a church was like a red rag to a bull. It was a dull period, artificial in the extreme, a period in which it was impossible that any form of imaginative or decorative art, especially of a religious character, should flourish. The father of modern romance, the real author of the Gothic revival, that most imaginative, tender-hearted gentleman, Sir Walter Scott, by his poems first and then by his novels, created a new romance. To him they owed the revival, or rather the beginning, of interest in romance. It bore fruit in the noble literature of this century, in the revival of interest in Gothic architecture, and, directly and indirectly, Scott exercised influence upon the graphic arts. In painting, that most interesting revival, the Pre-Raphaelite, was an offshoot of Scott's genius. How was it that the most renowned painters of our time had been so rarely employed in the service of the Church, while there has been so much opportunity presented in that direction? The Gothic revival naturally led architects towards antiquarian research. Hence there had arisen a clear definition of the styles of various epochs. To accommodate these it had been sought to permit no decoration in glass, sculpture, or wall-painting which did not belong to the style chosen—thirteenth, fourteenth, fifteenth, or of whatever century of Gothic or Renaissance. Surely it was not "styles," but "style," that was wanted; the expression of something that an artist had to say after his own fancy, in accordance with such traditions as he had accepted. They would never get art worthy of their religion until they cared for it and realised its great importance. They would never get it if they treated it as furniture.

ARCHÆOLOGICAL SOCIETIES.

DERBYSHIRE ARCHÆOLOGICAL SOCIETY.—This society held its final expedition for this summer on the 18th ult. The party left Derby via Great Northern Railway for Tutbury, and drove thence to Church Broughton, where the vicar, the Rev. Wm. Auden, received the visitors at the church, and conducted them over the building. Mr. Auden traced the history of "Kirk" Broughton from the earliest times, in connexion with the Priory of Tutbury. In 1845-6 the church suffered from a "repairing" and repewing which appears to have necessi-

tated the raising of the floor level about 18 in., and the consequent concealment and part destruction of the bases of the Norman pillars. Fortunately there has since been a careful and conservative "restoration," with the result that the church now stands as a good example of the way a church's history can be read in its architecture when care is taken to preserve, and not, as is often the case, to remove all that is characteristic. The most interesting feature of the church is its circular font, of Norman (some will have it Saxon) period, with its remarkable ornamentations of interlacing triangles and circles. The three sedilia, rising in gradation, are also a feature in the church, and another as yet unexplained peculiarity is the trefoil opening in the south wall of the chancel. The church tower also bears distinct features of interest. After inspecting the church, the visitors walked across the fields to Barton Blount, the old seat of the Bradshaw family. Returning to Church Broughton, the party was entertained at tea in the vicarage by Mr. and Mrs. Auden.—*Derbyshire Advertiser*.

CUMBERLAND AND WESTMORLAND ANTIQUARIAN SOCIETY.—The Cumberland and Westmorland Antiquarian and Archaeological Society commenced their second meeting of the season on the 23rd ult. They assembled at Penrith in the morning, and the programme for the day included a visit to Edenhall, Langwathby, the Long Meg Stone Circle, and the Parks tumulus at Kirkoswald. The report of Mr. F. Haverfield on the excavations carried on by the Society during the last two years in the neighbourhood of Birdswald and Gilsland was read. It stated that at Birdswald they trenched various spots on the east side of the fort to discover the course pursued by the vallum, and to find out if the turf wall traced on the west side of the fort in 1895 and 1896 existed also on the east side. The results were most satisfactory. The vallum had been discovered in 1896, to diverge from its straight line as it approached the west side of the fort, and to pass in a rather irregular course along its south face. This year they ascertained that it returned on the east side of the fort to its normal position near the wall, and parallel to it. That was to say, they completed the proof that the vallum at Birdswald diverged from its course to avoid the area occupied by the fort. The turf wall was found in 1894-5 to run from Walldower due east, close up to the west wall of the fort, and indeed in such a course that it would have come close up to the north-west gateway, now no longer existing. In the present year they ascertained that it existed once on the eastern side of the fort, and not only that: their trenches seemed to show that it ran across the area now occupied by the fort. In other words, the turf wall at Birdswald represented what they had nowhere else along the whole line of Hadrian's Wall, a line of frontier earlier than the existing stone wall and forts. At present it is a line only two miles long, and all endeavours to find traces elsewhere had so far failed. But it was certainly a remarkable fact that they should have found even two miles of this earlier line, and Cumberland might be congratulated on the possession of this unique relic. At Gilsland their endeavours were limited chiefly to tracing the course of the vallum near the Poltross burn. For the next year, 1898, it was proposed to finish up certain details at Birdswald, and Gilsland. It should also be possible to ascertain the course of the vallum near Castlesteads, the one point east of Carlisle where the line of the earthwork was seriously obscure, to test the "camp" at Hawkhurst, near Brampton, and its vicinity, and to attack the problems connected with the wall west of Carlisle, for instance, its course near Burgh Marsh.—Chancellor Ferguson, the President, sent an account of the work done at Furness Abbey this month, under the superintendence of himself and Mr. St. John Hope. The foundations of the buildings round the cloister garth had been uncovered, and carefully planned and measured, and it became apparent that the refectory or frater had been pulled down, and two new ones erected side by side. This was done to evade the statute which directed that Cistercians were not to eat meat in the frater. So they built two. In one, the "lean frater," they had no meat, but on three days in the week they dined on meat in the "fat frater." The kitchens and other domestic offices were also examined and measured. A discovery was made about the church—that the Cistercians rebuilt it at an early date, using the old ashlar work over again; hence stones with mason marks of the

Norman time were found in Perpendicular work. This should be a caution to archaeologists not to be too confident in dating a building by the mason marks upon it, nor in speculating about families of masons with hereditary mason marks. Some unknown rooms were discovered at the Abbey, but more work has still to be done. In the course of the excavations a Papal bulla was found, which dates from the thirteenth century.—*Manchester Guardian*.

COMPETITIONS.

CORPORATION LODGING-HOUSE, STONEHAVEN.—The designs submitted in this competition by Messrs. J. & J. A. Souttar, architects, Aberdeen, have been awarded the first place by the assessor, and these architects have now been instructed by the commissioners to proceed with the preparation of the working drawings, &c. The selected site is on the south side of Cowie-lane, to which the building will have a frontage of 52 ft., extending 63 ft. back. The front elevation shows a two-story building. The main entrance is in the centre, and leads to an entrance hall, from which, to the right, is the day-room, with scullery, superintendent's office, and shop; while to the left the superintendent's house, comprising kitchen, parlour, bedroom and bath-room, is placed. To the rear, in the main building, is a dormitory for 12 cubicles, with bath-room and lavatory. The out-buildings consist of a wash-house for the use of lodgers, store, coal cellars, and lavatory accommodation, with an airing yard. The staircase, which is situated in the centre of the building, commands all the dormitories. The upper floor consists of three dormitories, containing 28 cubicles, with lavatory accommodation, a sick-room being provided in addition.

Books.

Some Unrecognised Laws of Nature: an Inquiry Into the Causes of Physical Phenomena, with Special Reference to Gravitation. By IGNATIUS SINGER & LEWIS H. BERENS. London: John Murray. 1897.

THIS book is curious, suggestive, and entertaining; after perusing it the reader will feel that modern scientists are all out of joint, and that the only persons who really understand the *raison d'être* of the commonest terrestrial physics are Mr. Ignatius Singer and Mr. Lewis H. Berens. Crude hypotheses, which nobody would dream of ranking with the "exact" portions of a science, are ridiculed as though they did; and well-known doctrines, based on the concurrence of a multitude of facts, are also impartially held up to scorn, supported by scathing hypercriticism.

Beyond doubt the book is original—very original—and that is where its suggestiveness comes in. Its object, according to the authors, is "an inversion of the task which Sir Isaac Newton set himself in his famous work. That is, whereas Newton's object was 'only to trace out the *quantity* and *properties* of this force [of gravity] from the phenomena, and to apply these in a mathematical way . . . and to avoid all questions about the *nature* or *quality* of this force,' our present object is to trace out the *nature* and *quality* of this force, and to avoid all quantitative determinations. While Newton achieved his object by the cultivation of mathematics, we shall have to devote ourselves to the study of physics." The magnitude of their task seemed almost too much for them, but courage stood by them in the long run. Their light and airy way of disposing of possible errors is charming. "Our explanations of specific phenomena may in parts be wrong"—and scientific criticism (although invited) is effectively disarmed thereby.

Of course, such a stupendous task would not be complete without a preliminary display of fireworks. "Dissatisfied with the ambiguities and subtleties of metaphysical dialectics, which in all matters appertaining to man are still made to do duty for science, but which, instead of explaining anything, only succeed in further mystifying an already obscure subject, we proposed to ourselves the attempt of applying to these problems what is known as the physical method of inquiry." Settling down to read the book, we were startled by the chapter on "Sources of Error." The authors are strong on the biological side. It appears that if you

* The *Times* report gives "surely it was not 'style' but 'styles' that were wanted," but we have no doubt this is a mistake of the reporter, and that what we have substituted was what Sir W. Richmond really said.

see a monkey in the distance you have no right to be certain on the point; all that you can be certain of is that you have received an impression—or a group of sensations—similar to those which previous experience has taught you to associate with the presence of a monkey. We are now beginning to understand some of the "Unrecognised Laws of Nature." Trees and houses are fixed objects, and if, on looking at them from a moving train, you believe they move, you are vastly mistaken. That is a decided hit, but we are astonished that a few "laws" are not laid down to force the matter more clearly home. Farther on, two pages are devoted to the consideration of two plumb lines, which, being placed near each other have the appearance of being parallel, though, in reality, they converge downwards! And the philosophers of antiquity are derided because they did not recognise this phenomenon. A chapter is devoted to "Methods of Verification," in which the value of facts in framing theories is expatiated upon, and the plumb line is again brought into requisition, whilst we are treated to a little elementary geography and surveying. In the chapter on "Equalisation" the authors inform us that in their endeavour to construct a terminology which shall be more universal than current scientific terms, they have thus far (chapter III.) introduced two new terms, viz., "Persistence and Resistance." The definition of these terms (pp. 52, 53), however, does not strike us as applying to anything new.

The chapter on the "General Tendency of Nature" is good, and that on "Matter and Energy" is decidedly entertaining, but they must be read to be thoroughly appreciated. Book III. treats of "Phenomenology; or, The Interconvertibility of Forces," in which many really good and sound deductions appear, especially in that portion relating to magnetism. But the culmination part of the work is in Book IV., "Gravitation," in which the views of modern scientists are quite set at naught. Using in many cases the same facts as do these latter, our authors arrive at entirely different conclusions; and it must be admitted that many of their views are extremely ingenious and well worthy of serious attention. Dealing with "gravity," the authors remark, following on from what was enunciated in a previous chapter, that "From the Law of Reciprocity we infer that if a body on earth is drawn downwards there must be another body which at the same time is drawn upwards by the falling body. And from the Law of Equalisation we infer that two such bodies attract each other in consequence of some difference in states,* and that this mutual attraction is proportional to that difference. We thus arrive at a theory concerning the different weights of bodies." The revolution (we had always called it rotation) of the earth round its axis is explained by the alternate heating and cooling of the earth, and by the circumstance that all parts of the earth are not equally heated or cooled. "That part of the earth turned away from the sun will always be colder than the part turned towards it. This colder part will, therefore, be more strongly attracted by the sun, whilst the hotter part will be more strongly attracted in an opposite direction." To force the point the authors cite the radiometer as a demonstration of the sun's attraction on inorganic bodies; and the peculiarities of a hyacinth are made to do duty for its attraction on organic bodies. And other of the earth's movements are also explained with marvellous ease. Common phenomena relating to the sun and stars are disposed of without much trouble; though the authors admit that they are neither mathematicians nor astronomers.

We have already given our opinion of this book, and we may only add that a more liberal use of the much-despised mathematics would unquestionably have led the authors to entirely different conclusions on many heads. There is much solid work in it, and it is very seriously written, but to our thinking the authors are too free with illustrative examples, which, in many instances, shroud main facts. These illustrations, too, as we have seen, are often grotesque, and there is a general tendency to magnify molehills into mountains. The "biological method," as here expounded, will not supersede the methods at present adopted by the majority of physicists; but we do not know how far this verdict may be affected by what will appear in another and larger book by the authors, with which scientists are threatened at no distant date.

* The italics are not ours.

Le Palais de la Ville de Bruxelles à l'Exposition Universelle de 1887. Texte par CAMILLE LEMONNIER et A. WAUTERS; illustrations par A. HEINS. Bruxelles: Edmond Deman (sous les auspices de la ville).

OF the many minor publications presented to the members of the recent Architectural Congress at Brussels, the above small work of some 130 pages, with numerous pen and ink illustrations, calls for the attention of those interested in the development of the larger cities of the Continent. The historical chapter, by M. Alphonse Wauters, the custodian of the Brussels Record Office, describes the principal occurrences which have led to the Belgian capital holding its present prominent position. The author of this chapter, we should add, is a member of the Belgian Royal Academy, and has long been associated with architects in various official capacities. The *raison d'être* of this publication is the municipal collection at the Brussels Exhibition, for which it may be said to serve as a guide, the various exhibits having been catalogued in an appendix; and the introductory chapter, by M. Lemonnier, includes a description of the special building where the collection is housed.

La Grande Place de Bruxelles. Par ALPHONSE WAUTERS. Bruxelles: Lyon-Claeson. 1897. This was another publication presented to the members of the Congress. It comprises twenty pages of text by M. Wauters, with some half-dozen reproductions from photographs. The history of the Market-place and its associations is described, and the views have been so selected as to show in turn the different sides of the square and its principal buildings. A detailed history of the Town Hall is given, and also that of the more important houses on the Market-place.

La Construction des Villes, Règles pratiques et esthétiques à suivre pour l'élaboration de plan de villes. Rapport par J. STÜBBEN, Conseiller Royal d'Architecture à Cologne; traduction de Ch. Buls, Bourgmestre de Bruxelles. Bruxelles: Lyon-Claeson.

THIS is practically an extract from Herr Stübben's standard work on the development of towns, with an introduction by M. Buls. Herr Stübben's extract had originally been prepared for the Chicago Exhibition; but its appearance in the French language may be useful, for no towns more require systematic "improvement" schemes or plans for future development than many of those in which the French language is spoken. M. Stübben's views, we believe, are too well known to require repetition, but his extract gives us the main points in such terse language as to be rapidly comprehended by those who are new to the author's arguments. M. Buls's translation is excellent, and his introduction has some weight as being from the pen of a man who has not only long held the post of Mayor at Brussels, but is a recognised authority on municipal management and economy. In this introduction, M. Buls speaks with admiration of German municipal management, as well he may, and he tries to impress some of the advantages of the German system on his countrymen.

Bruxelles Exposition Internationale, Avril-Novembre, 1897. Album Illustré, publié par le Comité Exécutif.

THIS comprises not only a description of the Exhibition at Brussels, but also a guide to the principal towns of Belgium. It has been written by a number of well-known authors, each of whom is responsible for his chapter or chapters, and about a dozen artists of standing have contributed to the illustrations. It is well edited and far above the usual standard of guide-books of this class, both in literary and artistic merit. This, like the three other publications mentioned above, was presented to each member of the Brussels Congress.

TRADE CATALOGUES.

THE catalogue of the Conduit and Insulation Company (London) is worthy of the attention of all architects and engineers who specify for the electric wiring of buildings. The new system of insulated steel pipe is a great improvement on the somewhat flimsy "interior conduit" system which is so popular abroad. By diminishing the thickness of the steel and the inner lining the new tubes have been made the same size as ordinary gas pipes, so

that larger cables can be taken by the new piping than by the old piping of the same outside diameter. We have recently pointed out in these columns that many of the numerous advantages claimed for insulated steel pipes over plain steel pipes are imaginary, and that the proper place for the insulating material is on the wires themselves. As it is claimed, however, that the cost of the system is practically the same as that of plain steel piping, it ought to prove a formidable rival. All the accessories and fittings have been well thought out. The tools required are those used by the ordinary gasfitter, namely, a wrench and tongs, a pipe-cutter, and a die-stock. In addition, a butt scamer for removing the "burr" caused by cutting the steel armouring, and a "fishing" wire to facilitate the drawing in of the wires are required. The system can be easily understood from the diagrams in the catalogue, and any pipe-fitter, with the assistance of an electric wireman, can put it up. Of course, the best time for installing a pipe system of electric wiring is before any plastering has been done, just as in gas and water practice.

We have received from Messrs. James Keesee & Sons, Limited, of Shoreditch, their new illustrated catalogue of tin and iron goods, japanned ware, &c., which is a very well-arranged work containing prices and illustrations of a large number of articles of domestic use, &c.—Messrs. Hart, Son, Peard, & Co., Limited, of Drury-lane, Strand, have issued a further edition of the section (No. 7) of their catalogue, treating of builders' ironmongery goods. The work, which is illustrated, contains prices, clearly stated, of a large assortment of ironmongery goods.—Messrs. Hartley & Sugden, Limited, of Halifax, have just issued a useful supplementary catalogue of wrought-iron and steel welded and riveted boilers. Two powerful hot-water heating-boilers which are shown in the catalogue are the "Eiffel" and "Lion," and the boilers illustrated on pages 22 and 26, for low-pressure steam-heating, also deserve mention. They are fitted with automatic regulator, and are stated to be very economical in fuel.

—Messrs. J. H. Sankey & Son, of Canning Town, E., have sent us their catalogue of sanitary pipes, fire-clay goods, tiles and tiling, &c. The same firm issue a circular relating to Sankey's patent deep intercepting gully, which is well suited for yard and surface drainage. As we have previously stated, the gully is well adapted for its special purpose, and it is very simple in construction.

Illustrations.

PERSHORE ABBEY.*

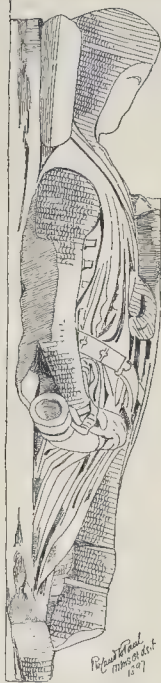
REFERENCE has already been made in the account of the Priory of Great Malvern to the Abbey of Pershore, as being one of the group of great Benedictine houses in or near the valley of the Severn. When perfect it must more nearly have resembled Tewkesbury and Gloucester, and the design of its nave in particular must have been almost a counterpart of the naves of those two great foundations on a slightly smaller scale. Although, according to Dugdale, its foundation dated back as far as 698, when a monastery was built here in the time of Oswald, nephew of Ethelred, King of Mercia, the present building retains no traces of architecture of a period anterior to Norman date. Some of the work in the transept is undoubtedly Early work, but it can hardly be ascribed to the Saxon period, and the late Professor Freeman, on the occasion of the visit of the Archaeological Institute to Pershore, in 1862, drew attention to the junction of the north transept and the base of the tower as that of the earliest date in the fabric. Of the cruciform Church of St. Mary Edburga and Holy Cross†, all that remains is the "crossing," with its lantern tower, the south transept, a fragment of the north transept, the presbytery, and its chapels, and the eastern responds of the arcade and portions of the aisle walls of the nave. The nave is said to have been of ten bays, and 180 ft. in length, and the length of the "crossing" and presbytery are 112 ft., giving a total length of

* The series of the "Abbeys of Great Britain" is continued this month with illustrations of "Pershore Abbey." The next of the series will appear in the number to be published on January 1, 1898.

† *Builder*, January 1, 1897.
The dedication of the church now called Holy Cross has, at different periods, been given as SS. Mary, Peter, and Paul; SS. Mary and Edburga; and St. Crucis.

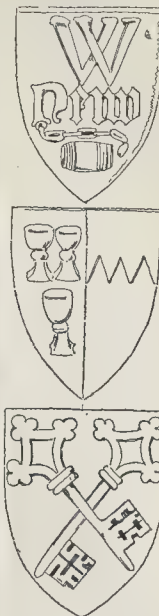


Top View
Pershore Abbey: Effigy of a Knight



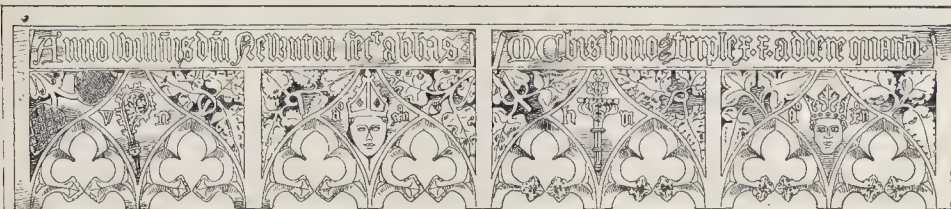
Side View.

3 feet.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
Scale for Effigies.



Shields from Vaulting
of South Transept.
Effigy of
Abbot Hervington.

Reuben Paul 1897.



Pershore Abbey: Woodwork of Abbot Newton's Time
Now in the South Transept.

0 5 10 inches
Scale.

Reuben Paul 1897.

292 ft.* Beyond the presbytery was a Lady Chapel, which, with the north transept, and the large chapels eastward of the transepts, shared the same fate as the nave in the destruction of the building at the Dissolution. In 1846 the present shallow sanctuary, with a semi-hexagonal apse was built, and various other repairs were made at that time, and in 1862, when the late Sir G. G. Scott restored the church.

The Pershore Monastery was particularly unfortunate in the number of fires which occurred at various periods of its history. Three fires are chronicled—one in 1000, a second in 1223, and a third in 1288. The first of these may possibly have been largely due to the amount of wood used in the early buildings. The rebuilding of the presbytery and lantern was probably accounted for by the second and third. The third fire was, perhaps, the most disastrous, as it not only included the destruction of the monastery, but also extended to the town. We thus have a building which, though a fragment of its former self, exhibits work of all dates, from Norman to Perpendicular, and, with the exception of the latter style, which is but slightly represented, all the work of the various styles is of the greatest possible beauty and interest.

* The total internal length of Tewkesbury Abbey is about 280 ft.; that of Gloucester Cathedral, 350 ft. (exclusive of the Lady Chapel).

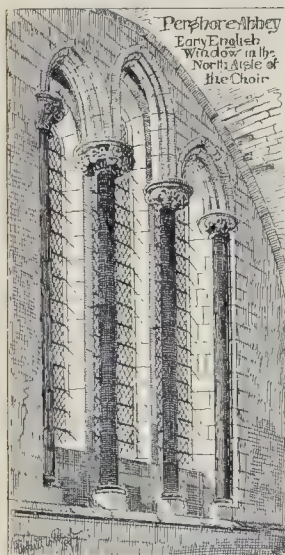
Two irregularities of plan are noticeable. The south wall of the transept is not at right angles with its side walls, and the whole of the presbytery bends slightly northwards from the "crossing," and the chapel which flanked the former Lady Chapel is larger on the south side than on the north. It is also later in date, and the enlargement may very well have been made at the time of its rebuilding.

The nave, with the exception of the bases of its walls, which undoubtedly could be recovered by excavating, now destroyed, was, as already mentioned, similar to the naves of Gloucester and Tewkesbury. The columns were remarkable, as in the other two examples, for their great height and the simplicity of their caps and bases. Within the south transept, among other fragments, is a portion of one of the nave caps, with a bold ornament in low relief, but the two eastern responds against the lantern are without enrichment. In the south wall is a doorway which led to the cloister, but this is of Decorated date, having been inserted in the earlier wall.

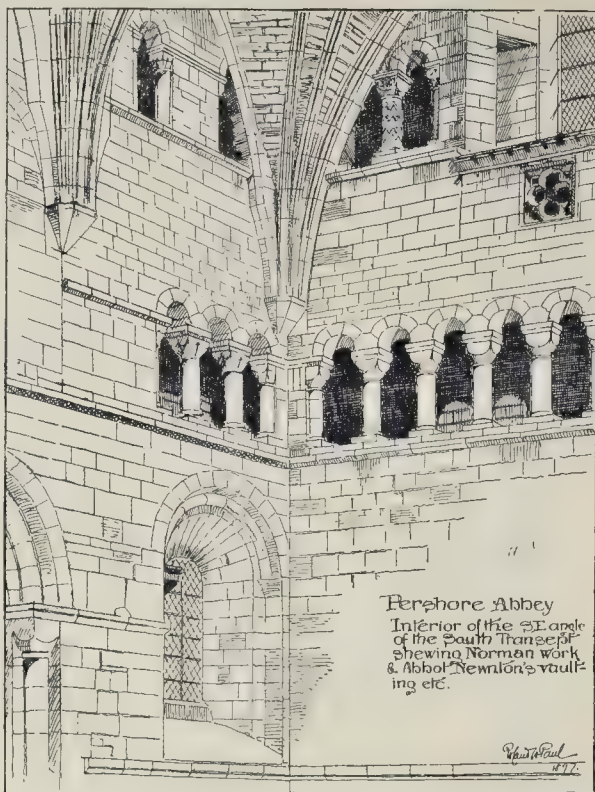
The four arches of the central tower and the transepts are likewise Norman, with some interesting details. The north transept only exists as far as the arches into the nave and presbytery aisles, and a wall, probably of the same date as the large buttress adjoining it (1686), was built with a lean-to roof much in the same way as the south transept was treated at

Malvern. The tower arches are of great simplicity, without moulding of any kind. The inner order is carried by coupled columns; in one case—at the south-west angle—the caps are carved. The south transept is still in a very perfect condition, and of considerable interest. In the east wall are the arches of the transept chapel, and the triforium opening over it; and both in the east and south walls are the original Norman passages at two levels. The lower part of the south wall was enriched with arcading, which extended along the east wall as far as the arch leading to the transept chapel. At the south-west angle is a large staircase carried up in the thickness of the wall. Abbot Newton (1413-1450) vaulted the transept, and made some alterations to the upper passage on the south side. Perhaps he also inserted the Perpendicular window on the west side. His rebus occurs on a shield at the south-west angle, and the vaulting was richly studded with carved bosses and some armorial shields. The exterior of the transept is simple. On the south, however, in the gable, is an arcade of some elaboration, under which is an ornamented string carried round the angle buttresses, and on the east side is the original corbel table with a series of grotesque heads. Both these features are shown in the exterior view. Abbot Gervase, 1204-1234, is credited with the rebuilding of the presbytery; doubtless rendered necessary by the fire of 1223. It is very

beautiful Early English work, of four bays with a semi-hexagonal apse of irregular form, the eastern arch being of greater width than those of the canted sides. There was no proper triforium, but over the arcade with its richly moulded arches springing from clustered columns of two patterns, are triple arches on slender shafts, the centre only having a lancet behind which shows on the exterior. On account of the roof of the Lady Chapel abutting against the east wall of the presbytery the eastern triplet is filled in solid behind the arcade, and, perhaps, this is the only feature which mars the charm of the presbytery. The aisles retain their vaulting and wall shafts, and on the north side is a triplet: the other bays, where un-



Pershore Abbey
Early English
Window in the
North Aisle of
the Choir



Pershore Abbey
Interior of the SE Angle
of the South Transept
showing Norman work
& Abbot Newnton's vault-
ing etc.

altered in later times, have lancets. Lesser transepts projected from the aisles, as at Wells, and on either side of the Lady Chapel was a chapel lighted on one side and at the east end by a lancet. The original position of the high altar was, undoubtedly, in the fourth bay of the presbytery, leaving the space in the apse as an ambulatory and approach to the Lady Chapel. The considerable length of the presbytery would also easily permit of this arrangement, and the stalls were under the "crossing" with the rood screen and pulpitum across the western tower arch or, perhaps, between the first columns of the nave arcade. Gervase's choir bends slightly to the north, and the width of the bay next the "crossing" on the south side is wider than that on the north side. There is a curious variation also in the treatment of the label of the arcade at the east end, which is a noticeable and interesting feature. On the south it ends in a cluster of conventional foliage, while on the north side it dies in the more ordinary manner on the cap. The reason for this difference is not clear. The vaulting of the presbytery seems to have been of a slightly later period, and the buttresses on the outside seem to have been altered as regards their pinnacles in Decorated times. A curious feature of the flying buttresses is the fluting on their upper faces. Over the lancets which, on the outside, are of two chamfered orders, is the Early English corbel table. This has, however, had a battlemented parapet of later date added over it. The Early Decorated period is finely represented by the central tower—a "lantern" open to the church, with a belfry stage over it. Its design will be clearly seen by the exterior view, and in the *Builder* of February 19, 1887, we illustrated it by measured drawings of its eastern elevation and section. The ringers are now accommodated in a wooden gallery supported by curved beams springing from the sides of the "lantern." This ringing stage, though perhaps unsightly in itself, has the double advantage of bringing the ringers within a reasonable distance from the belfry, and at

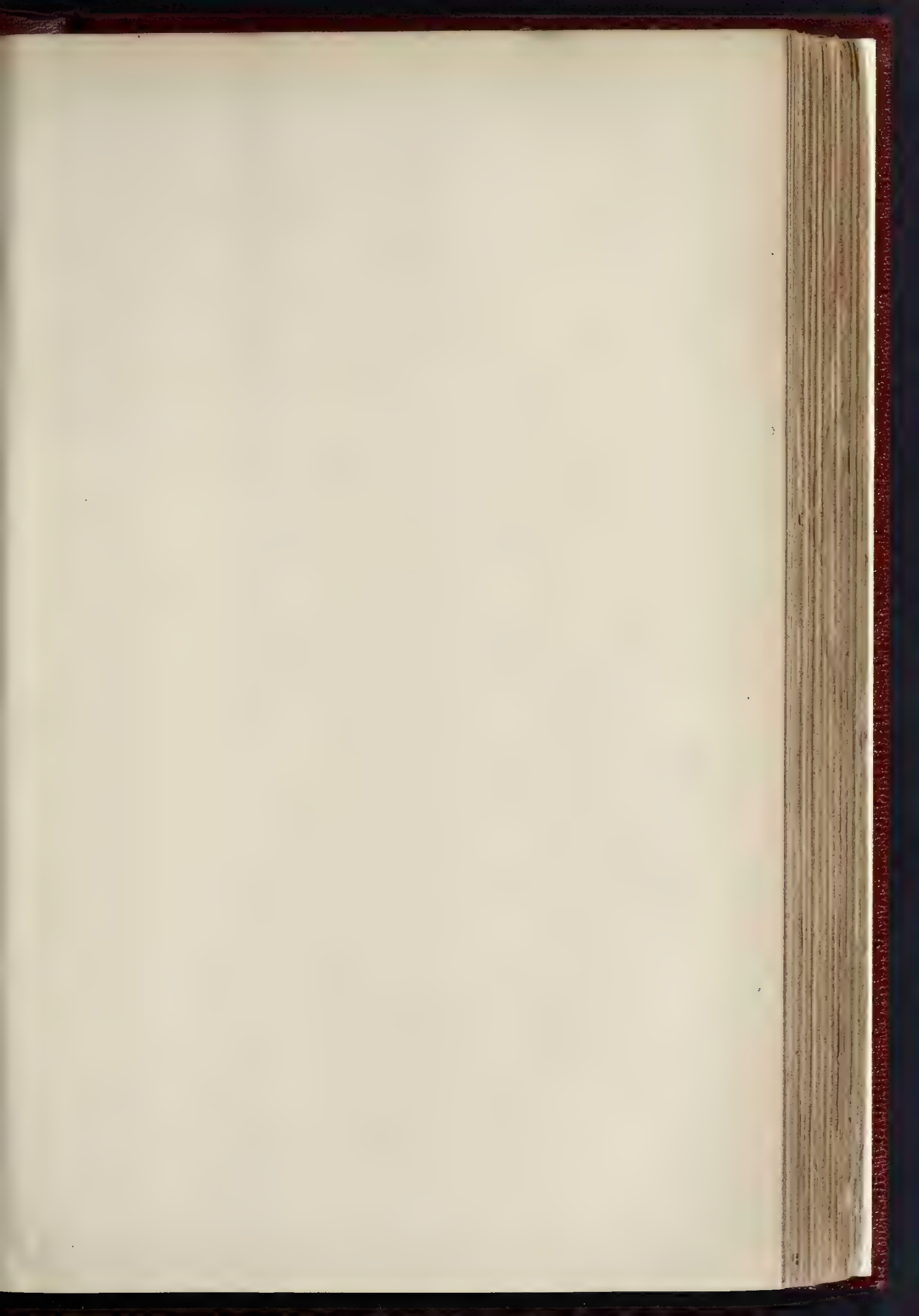
the same time interfering as little as possible with the view of the beauties of the lantern as seen from the interior of the church. It was erected by the late Sir G. G. Scott during his restoration in 1862. In the later Decorated period the Norman chapel which projected from the east side of the south transept seems to have been destroyed. The arch to it from the transept was walled up, and a large chapel, extending the full length of the transept from north to south and covering two bays of the presbytery aisle, was erected in its place. A stone screen with an elaborate cornice, which still remains visible in the transept, was built to partially mask the blocked-up arch, and possibly an altar was placed here. The new chapel was entered from the north side, or presbytery aisle, and a richly-moulded arch was thrown across below the Early English vaulting. The building, which measured about 38 ft. north and south by 34 ft. east and west, seems to have had two altars side by side, and in the exterior of the aisle wall are still traces of the step which doubtless ran its full length, and formed the raised pace in front of the altars. The chapel is said to have been that of St. Edberg or Edburga, to whom the church was at one time dedicated, and the shrine of the saint very possibly stood here. The chapel, from what remains, was evidently one of importance, and was elaborately ornamented, and the tomb and effigy of Abbot Hervington is said to have been originally here. The remains of its arches and vaulting are clearly shown in the exterior view, and also the beautiful fragment of arcading at its south-west angle. Here also is an aumbrey (see plan). The return wall on its east side still remains at its angle with the aisle wall of the presbytery, and is incorporated with the buttress at this point. The buttress itself is, of course, of modern date. The two windows east of this chapel in the third and fourth bays of the aisle are of five lights and of late Decorated work. They were probably inserted at or nearly the same time as the erection of the chapel, to give additional light, which on the filling up of the

lancet in the second bay would be somewhat reduced. Decorated windows were also inserted in the south and east sides of the chapel between the lesser south transept and the Lady Chapel; and alterations seem to have taken place in the nave about this period. The doorway to the cloister is of this date, with finely carved caps supporting a pointed and richly-moulded arch.

The chief remains of the Perpendicular period are of Abbot Newnton's date. His vaulting of the south transept is a fine piece of work, with the wall ribs slightly trefoiled near the springing, and from the similarity of the two corbels remaining against the north wall of the presbytery, near its junction with the north transept, a large chapel would seem to have been erected at this period, to in some measure correspond with the Decorated one against the south transept. A large three-light Perpendicular window was inserted in the west wall of the south transept, and a smaller one in the east wall of the lesser north transept. To this period also belongs a doorway, now in fragments in the garden of the Vicarage, referred to by Styles* as having been "in the lesser north transept." Traces of a doorway are still observable in its north wall, but the date of its removal does not seem to have been chronicled. In one of the spandrels is represented a group of animals—the chief one being a hare, with a griffin, and others, amongst which are two dogs, surrounding it. Over the doorway were a series of panels, one of which bears a shield charged with a hare between three chalices or cups (see illustration). It was a great piece of vandalism to have removed this interesting piece of work, and in its present position it will rapidly go to decay. It should be placed with other fragments now in the south transept.

Pershore Abbey was no doubt rich in monuments and tombs. A matrix of a brass of "Sir Adam de Hervington" is mentioned by Styles

* "History and Antiquities of Pershore Abbey Church." By Robert Poole Styles. 1838.



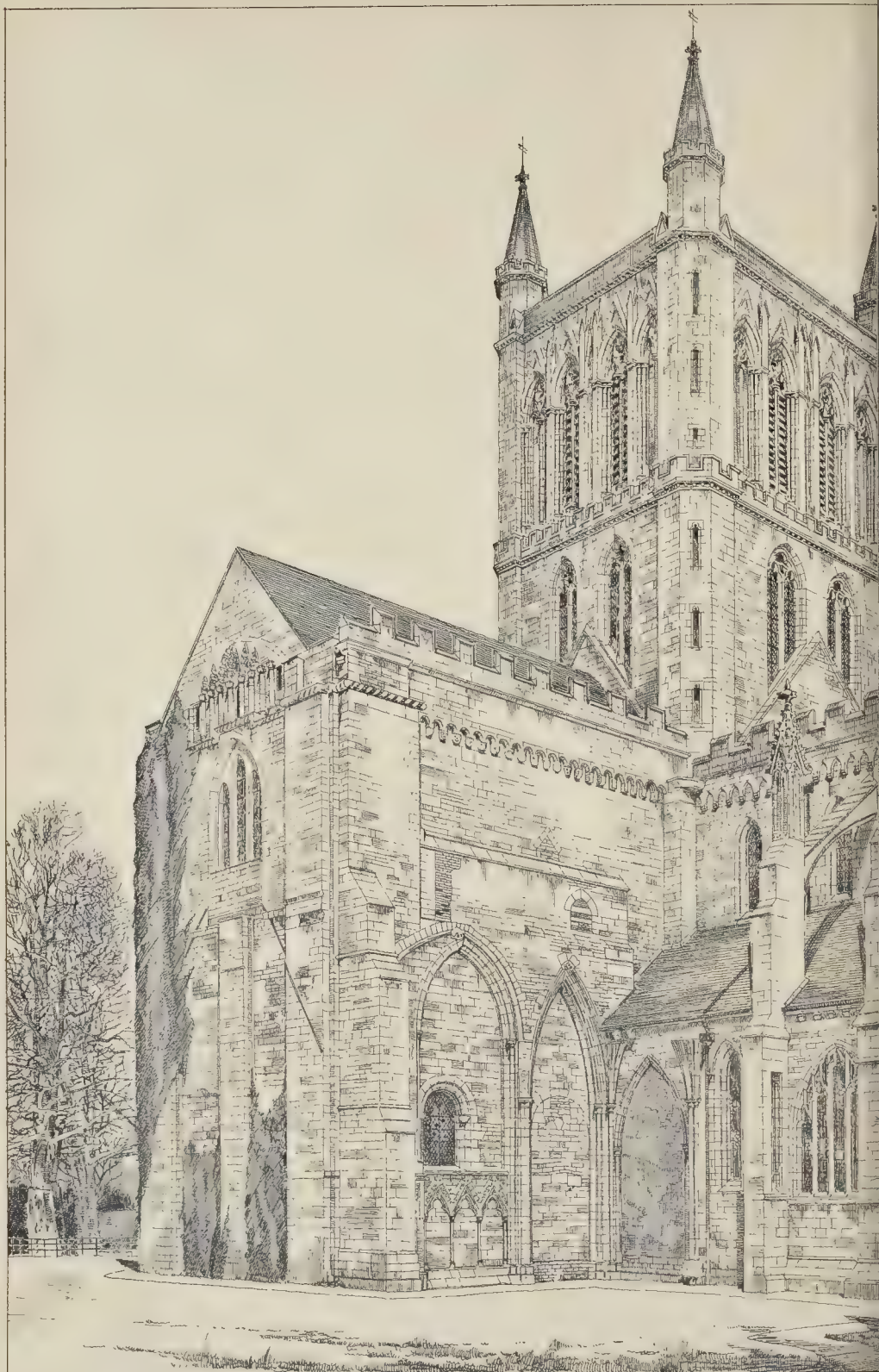
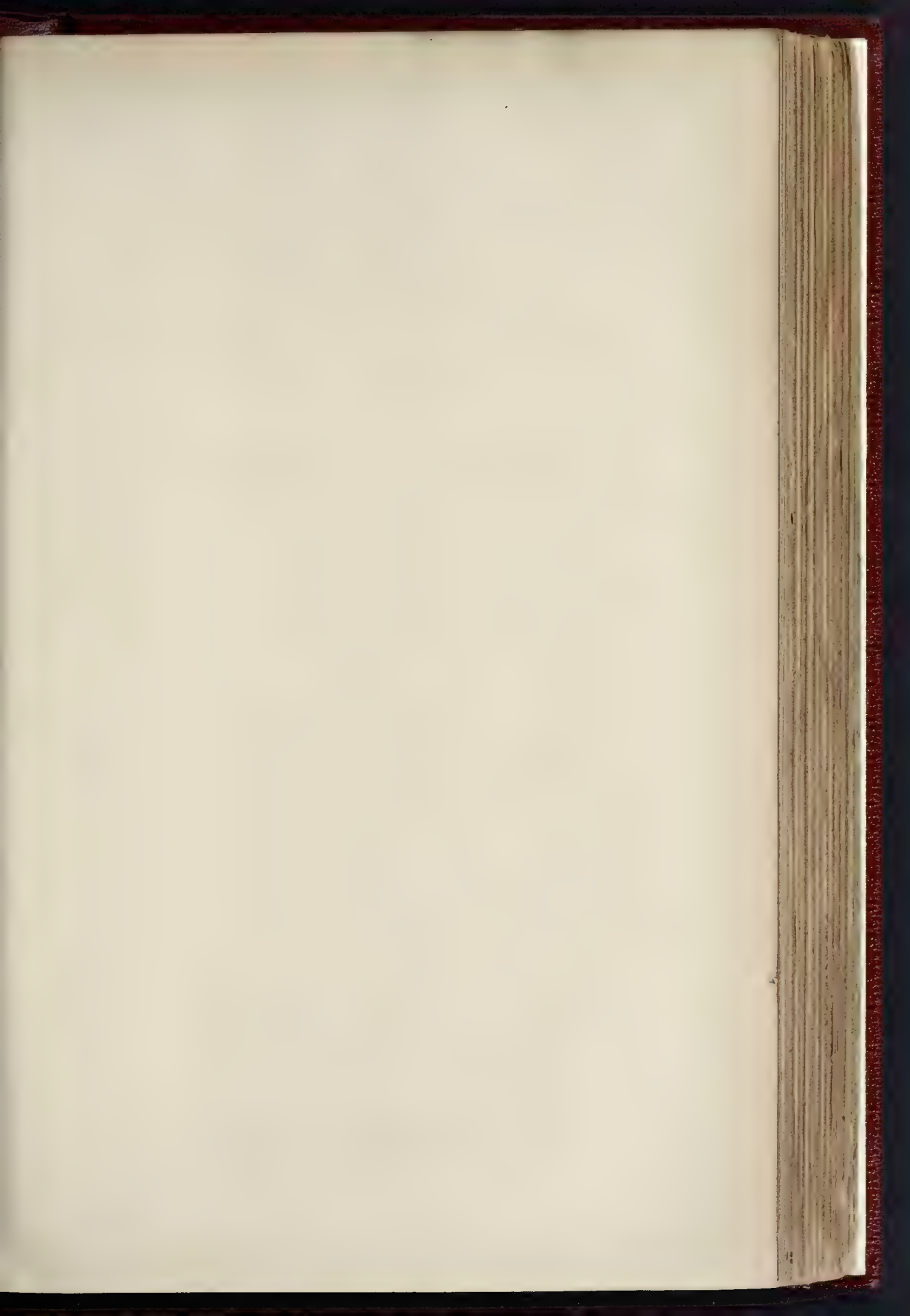


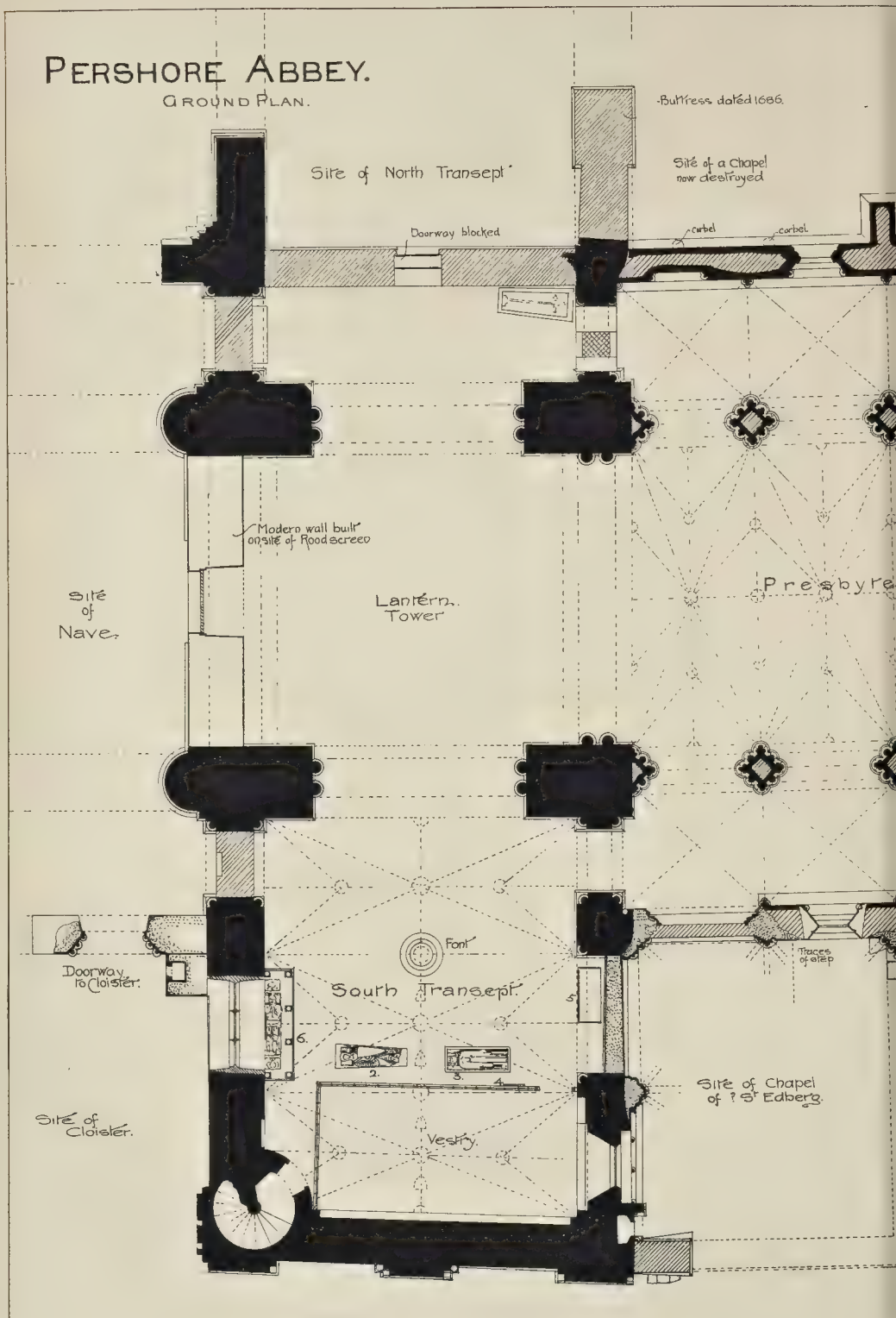


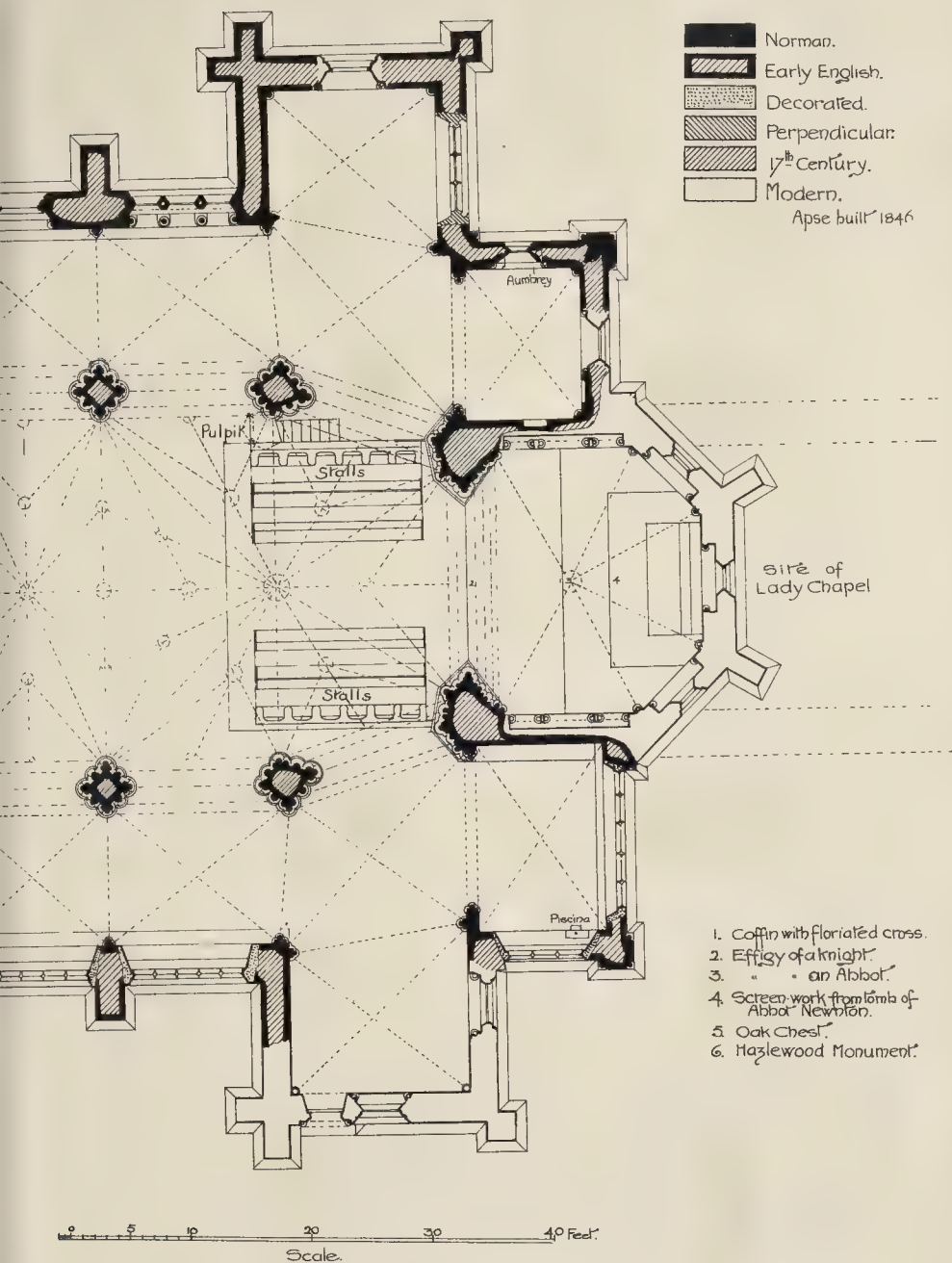
PHOTO LITHO SPRAGUE & CO. 135 EAST HANCOCK STREET FETTER LANE E.C.

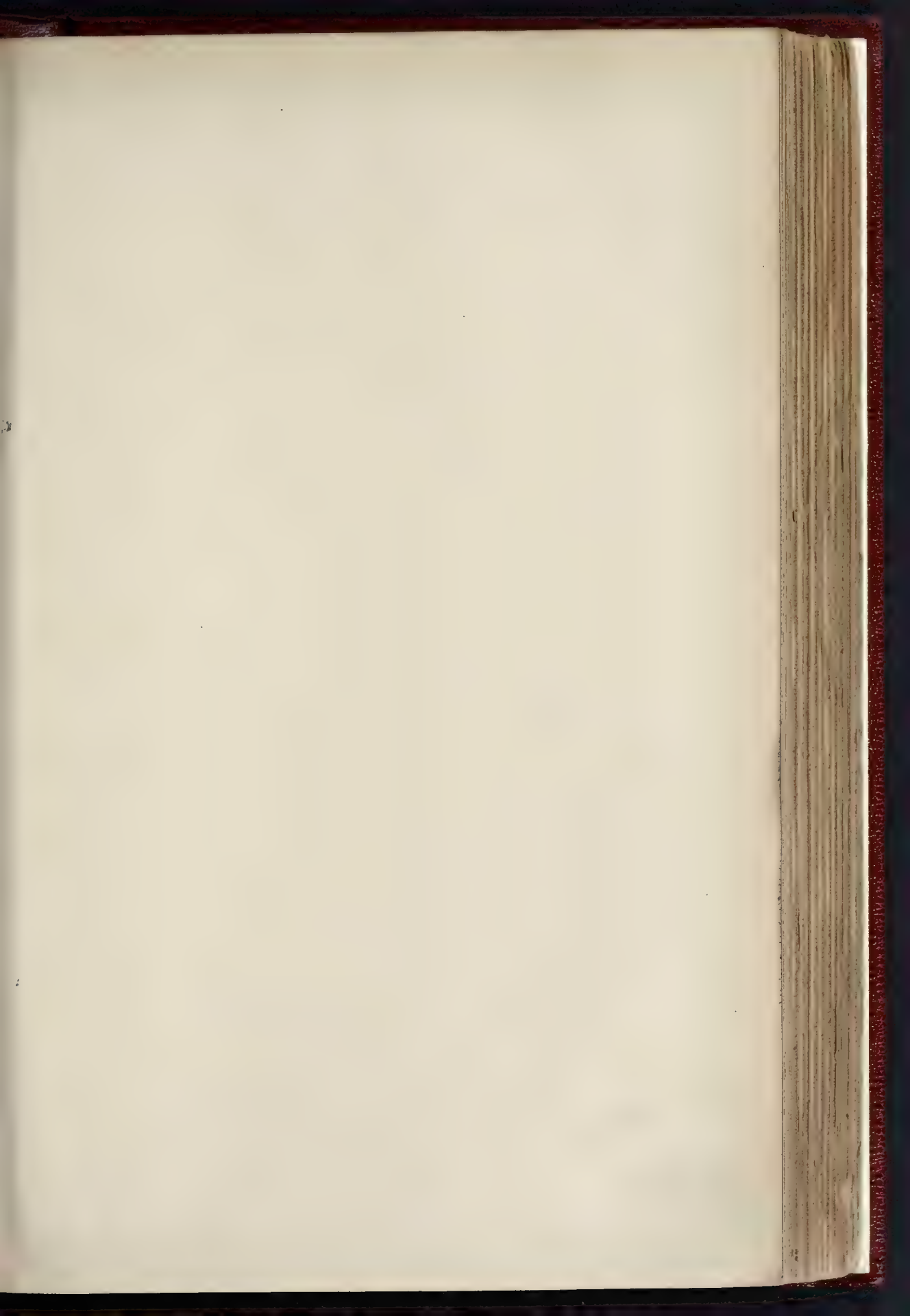


PERSHORE ABBEY.

GROUND PLAN.







THE BUILDER, OCTOBER 2, 1897.



EXTERIOR.

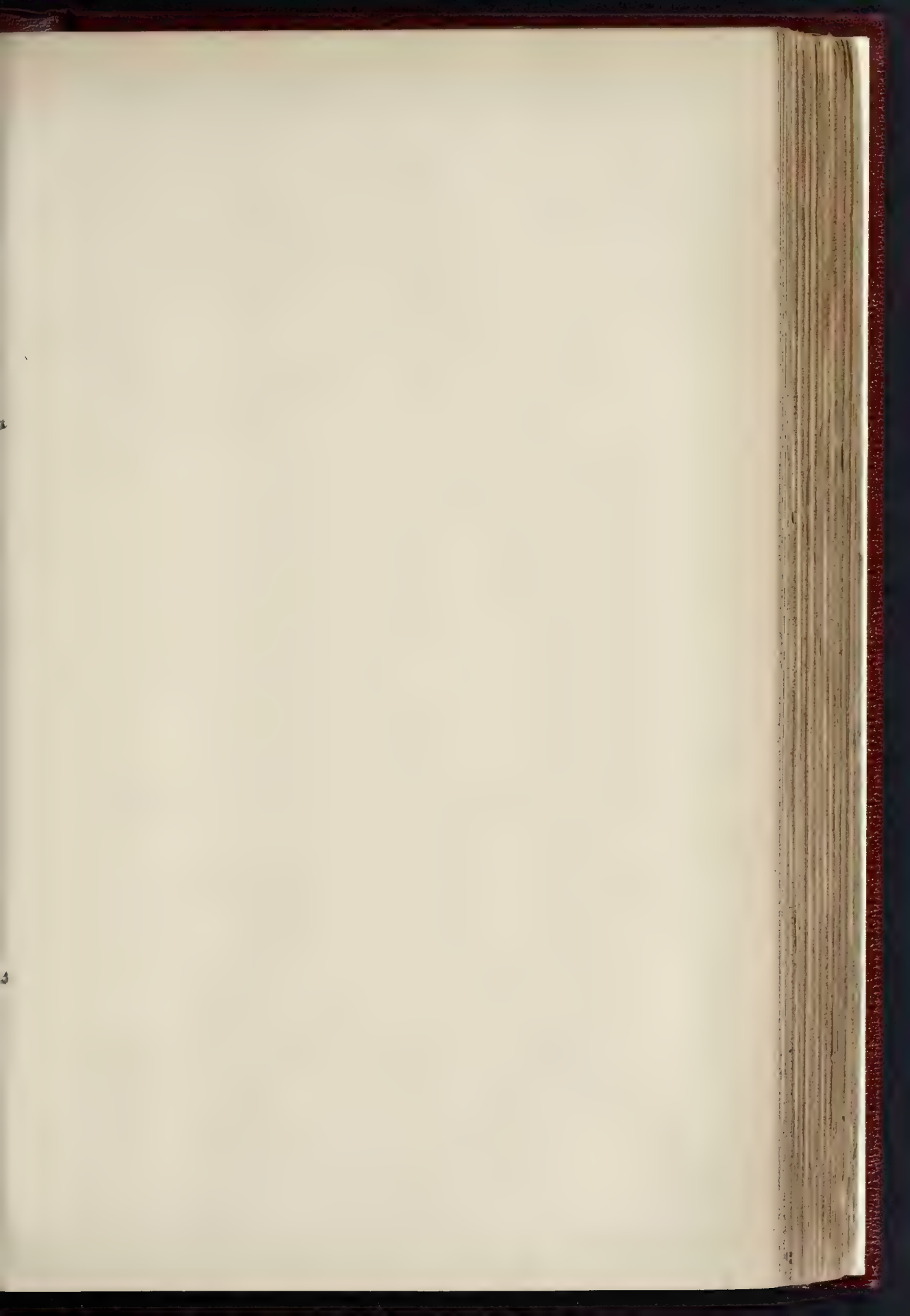
CHURCH OF ST. STEPHEN, NOTTINGHAM. -MR. W. D. CAROE F.R.I.B.A., ARCHITECT

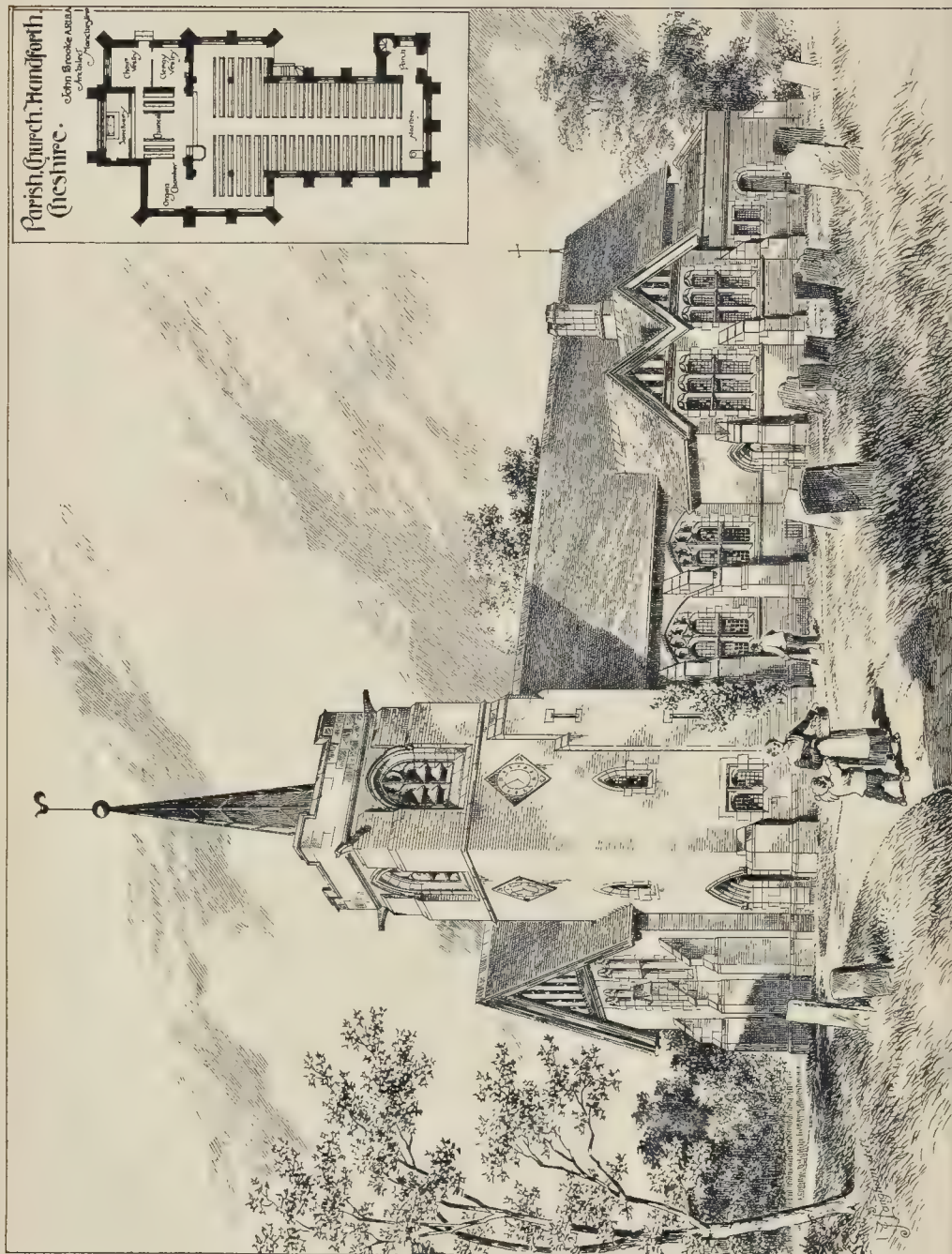


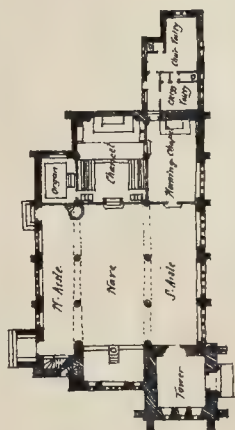
SKETCH BY MR. W. D. CAROE, F.R.I.B.A., ARCHT.

INTERIOR.

CHURCH OF ST. STEPHEN, NOTTINGHAM—MR. W. D. CAROE, F.R.I.B.A., ARCHT.



[illegible]



West-Country Church.

From Clermont Road

Scale: 0 10 20 30 40 Feet

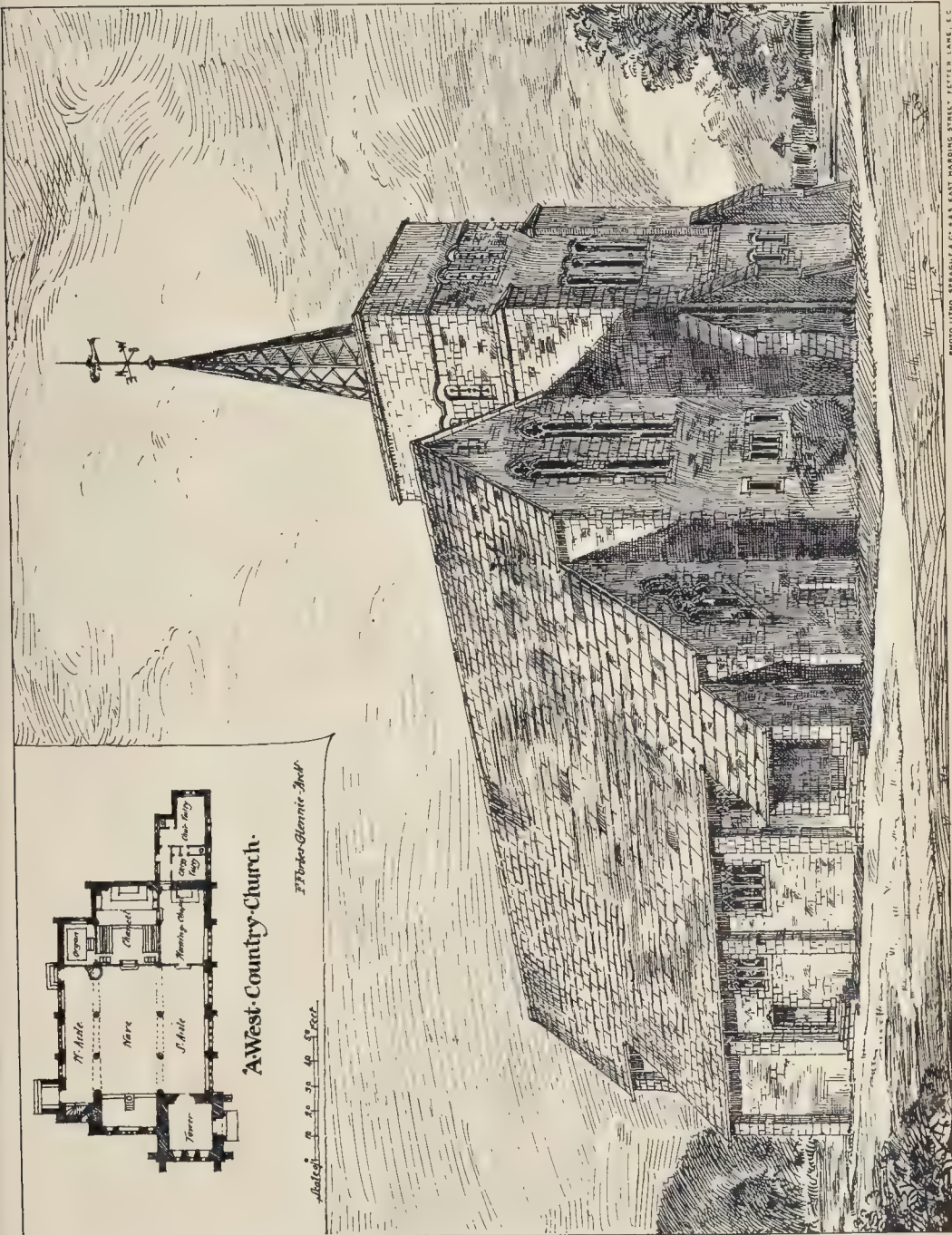
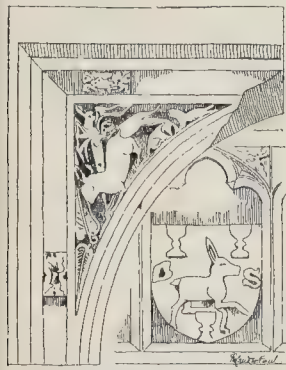


PHOTO LIND SPRAGUE & CO. 425 EAST HARDING STREET, FETTER LANE, E.C.



Pershore Abbey
Encaustic Tiles
now in the floor
of the Presbytery.

as then existing in the south aisle. This is not now visible. In the north transept is a coffin-shaped stone with traces of a cross fleury. Against its western wall is a Renaissance monument with good detail; a larger one to the Hazlewood family stands against the west wall



Pershore Abbey: Fragment of a
Decorated Norman window in vicarage garden.

of the south transept. In the centre of this transept are two interesting effigies. One is that of a knight in chain armour and surcoat, carrying a heater-shaped shield on his left arm, and holding a bugle horn in his right. The mail is turned back at the neck; the head rests on a pillow; the feet have been broken away. The date of the effigy is said by Mr. Bloxam to be about 1250. The second effigy is that of an Abbot—said to be Abbot Hervington (1304-1340). His head rests on a mitre, and the hands hold a book. The traces of a pastoral staff are to be seen at the foot and on the left shoulder. The effigy lies on a tomb panelled on one side with quatrefoils in circles, and partially panelled at the ends; it evidently stood under an arch and projected slightly from the wall.

Against the modern screen, which divides off the southern part of the transept as a vestry, is an elaborate piece of woodwork of Perpendicular date. To what it belongs is uncertain, but it bears an interesting inscription—*Anno Willms dni Newton fecit. Abbas M.C. bis bino triplex x addere quarto (i.e., 1534)*—showing it to have been the work of Abbot Newton. We illustrate this as well as the two effigies before described by measured drawings; also three of the four shields in the transept vaulting, including Newton's rebus, are given. The ancient woodwork in the church is scanty. Some portions of the stalls are old, and there is a good chest of apparently late fourteenth-century date in the

south transept. Behind the stalls on the south side in the floor are preserved some of the old encaustic paving tiles. Four or five are heraldic, others have good examples of roses and fleurs-de-lis, and there are also a number of tiles with conventional foliage apparently of the thirteenth and fourteenth century.

The arms of the Abbey were *sa*, three ant-hills, on a chevron *arg.*, three holly-leaves slipped, *vert.* There is no representation of these arms at present visible in any portion of the church. Of the monastery nothing remains visible. A modern house, now the residence of Major Hudson, stands on ancient cellarage, which may very possibly be part of the sub-structure of the buildings on the west side of the cloister. The premises of the Capital and Counties Bank also stand on old cellarage, and the discoveries made during the alterations were described in a "Note" in the *Builder* of November 29, 1890.

The beautiful Grange of the Abbots of Pershore, at Broadway, near Evesham, was also illustrated in the *Builder* of April 30, 1881.

The large view we give to-day has been taken from the grounds of Major Hudson's house, by his kind permission. It is undoubtedly the most interesting view of the church, although in reality the trees are considerably larger than those shown in the drawing. Some "artistic licence" has, in this respect, been taken, in order to show more clearly the architectural features of the building.

ST. STEPHEN'S, NOTTINGHAM.

THE Great Central Railway Company having taken powers to demolish the former Church of St. Stephen, Nottingham, the Ecclesiastical Commissioners are erecting, out of the accruing funds, the building illustrated, in the neighbourhood of Hyson-green, a new quarter which is rapidly springing up upon the outskirts of the town.

The church will accommodate 600 adults, and is of a simple and inexpensive character. The materials are freestone and rich red bricks, which form a contrast to the insipid bricks common to the neighbourhood. Messrs. Joseph Norris & Son are the contractors; and Messrs. Christian, Caroe, & Purday, the architects.

The drawing was exhibited (in the name of Mr. Caroe only) at the last Royal Academy.

PROPOSED PARISH CHURCH, HAND-FORTH, CHESHIRE.

This church is intended to take the place of the existing church of St. Chad, a building of an uninteresting and nondescript character, which is found to be unsuitable for present requirements.

The design illustrated was selected by the Bishop of Chester, acting as assessor, from plans submitted in a limited competition; each of the unsuccessful competitors receiving an honorarium towards their expenses.

The materials to be used are as follows: Red facing bricks for the exterior walls, the interior

being plastered and finished with a granulated face in Portland cement; Runcorn stone dressings throughout; the roofs generally to be covered with tiles upon boarding and roofing felt, and the exposed timbers of the roof to be of wrought pitch pine. The doors and half timber work in gables to be of oak. The floors of the chancel will be tiled, and the nave, transepts, and vestry floors to be finished with red deal block flooring upon cement concrete.

The architect is Mr. John Brooke of Manchester, and the drawing was exhibited at the last Royal Academy.

DESIGN FOR A WEST COUNTRY CHURCH.

THE first idea of this design was for the Exeter competition, and it was more or less worked out to suit the requirements of that competition, but it was afterward decided not to send it in, and the church was thought no more of till last autumn, when it was finished, with slight modifications, to be sent in, as a kind of testimony of work, to the Art Students Guild.

From the beginning I was working on a type of church I had very much admired in Cornwall and of which Launceston is perhaps the best example; nave and aisle running right through, from east to west, with no arch or break whatever, the transition from nave to chancel being simply marked by making the bay west of the screens wider than the rest.

The whole effect of this arrangement seems very good, affording plenty of light, while the great breadth renders it unnecessary to make the nave too long for preaching purposes.

The materials I had in my mind were Bury Hill and Heavytree dressings, with stone slates for the roof.

F. FORBES GLENNE.

Correspondence.

To the Editor of THE BUILDER.

ST. MARY'S, OXFORD.

SIR,—In your review of this book, referring to the single passage in which Mr. Jackson mentions me (p. 153), you speak of me with a contempt which gives me the right of reply. Because I am Professor of Moral and Metaphysical Philosophy at Oxford, and yet ventured to give an opinion on the rebuilding of the pinnacles on St. Mary's spire, you ask "What doth Moral Philosophy with finials?" But I am sure you would not have asked this question if you had known, what indeed you could not gather from Mr. Jackson's book, how instrumental I have been in ensuring the very result you approve. In mere justice, then, I beg that you will publish this letter.

Your point about the new pinnacles recently erected by Mr. Jackson is that they are an improvement on those erected by Buckler about 1850. Quite so, but to whom was this improvement due? To Mr. Jackson you suppose, because in his book he states only his final conclusions against Buckler's pinnacles (p. 146), and quotes only his final Report of November 28, 1895, to the University. But had you consulted his earlier Reports and known all that had happened in consequence, you would have been aware that Mr. Jackson, in his Report of November 25, 1892, approved Buckler's pinnacles, and submitted an estimate for their simple re-erection, which would have been carried out if I had not induced the University to pause. I contended that the pinnacles of the comparatively low spire of St. Mary's having been much lower before Buckler raised them, ought to be lowered again both for historical and for architectural reasons; and that the best plan was to return to the pinnacles as depicted in Loggan's print of 1675, but that otherwise a design with lowered pinnacles was possible on the analogy of the pinnacles on the spire of Salisbury and on the western spires of Lichfield. The upshot was that, after communications between the authorities here, and Mr. Jackson, he produced his first design for lowering the pinnacles dated "March 10, 1893," and on August 10, 1893, made a further report, in which for the first time he disapproved Buckler's pinnacles. To your question, then, "What doth Moral Philosophy with finials?" the answer is that the very improvement you praise was due in the first place to me, and in the second place to Mr. Jackson; for Mr. Jackson's pinnacles, as now erected, mainly differ from Buckler's in being lower, and the lowering was due to my exertions; while the mode of lowering, ultimately adopted, by shortening Buckler's "topmost shafts and pinnacles" was Mr. Jackson's.

In order to prove that I am not romancing, but really did prevent the re-erection of Buckler's pinnacles, I beg to quote an extract from a review of my book, "St. Mary's Cloisters;" it is a review all the more valuable because it was published here

in the *Oxford University Magazine*, in the midst of the controversy, on June 14, 1893, and was not altogether in my favour. It contains the following:—

"However, that in the most essential point Mr. Case has scored, will be clear on a comparison of Mr. Jackson's report of November 15, 1892, with his replies to Mr. Case, dated April 10, 1893. Take, for instance, the following passages. The italics are ours:—

"Mr. Buckler having to repair and, as it appears, shafts and pinnacles do not nearly to reconstruct these groups of pinnacles, made a design which most probably reproduced very fairly their original form. . . . The effect of his design. . . . is generally admitted to be satisfactory. (*University Gazette*), May 4, 1892, p. 437."

"When, Sir, you consider that, of these statements, which are so contradictory that the reviewer put them in parallel columns, Mr. Jackson wrote one on November 15, 1892, and the other on April 10, 1893, and that my efforts to bring him from the former to the latter were unremitting throughout the interval between them, you will no longer ask, 'What doth Moral Philosophy with finials?'

Oxford, September 27, 1897. THOMAS CASE, * * * We did not mean to "speak with contempt" of Professor Case at all; it only struck us, as it probably would strike other readers, that Moral Philosophy did not in itself qualify any one to give an opinion on the best design for the angle finials of a spire, and that the association of ideas was rather an odd one. The remark was a mere joke, in fact, but we are sorry it should have hurt Professor Case's feelings.—Ed.

THE MOSAIC DECORATION OF ST. PAUL'S.

SIR.—Those who have recently, in an evening paper, criticised severely the mosaic decorations now proceeding in St. Paul's, have urged their complaint chiefly in respect of its inadequacy of design, garishness of effects, and incoherency of style.

The more technical question referring to the material of mosaic, and its gain or injury to architecture in decoration, still remains for consideration.

In reference to its use in St. Paul's there has been much claim, and, perhaps, bold advertisement, in favour of a pronounced roughness in the manufacture of the tesserae employed, and also in a special aim in their use, in order, artificially, to produce great irregularities of surface and violent angles of refraction.

Here we are reminded that the best of good things in art processes becomes by mere exaggeration utterly bad and vicious.

The employment of mosaic is essentially dangerous in decorative effects. This for the reason that if not kept in subordination, the result, so fascinating in old mosaics, at once degenerates to tinsel glitter and mere meretriciousness, which is incompatible with serious art.

In old work when, in laying the tesserae, the aim of the mosaicist was to preserve a generally true surface, the unsought slight irregularities produced that soft sheeny refraction—or "palpitation," as Ruskin would have it, which is the special magic of the material.

This effect, as all ancient work shows, resulted from the great difficulty of making a series of cubes lie in order of absolute accuracy of surfaces. Tesserae, thus unaffectedly laid, produced gentle disagreement and tremor of refractions, with the results which, like many others in ancient work arising from accident, we now hold to be precious, and cheaply exaggerate while seeking to imitate.

In the St. Paul's mosaics the extreme of irregularity, both in production of the material and the use of it, has been intentionally and laboriously sought and then proclaimed as a merit.

By its own exaggeration it is self-condemned as an inartistic motive and a most commonplace vulgar result, which good architecture cannot endure. It may be safely assumed that no architect or artist who has studied the subject would hesitate to prefer St. Paul's as it was to St. Paul's as it is now and threatens to be.

It is to be remarked, too, that the second and third "saucer domes" of the choir have been treated in contradiction of the first (the easternmost) in order and date of execution. Here we have the work proclaiming its own failure of design, and thus its self-condemnation.

TORCELLO.

MEASURING LEAD LIGHT GLAZING.

SIR.—A maker of lead lights, after inspecting the architect's drawings showing sizes of openings, tenders to execute the work at so much per square foot. A number of the lights in question (to door panels) are only about 10 in. by 7 in., but in measuring up the maker counts these as a full square foot each. Is it usual to allow such a claim?

"QUANTITIES."

* * * The only element of doubt arises from the fact of the maker having seen the drawings before giving a quotation, and therefore having had an opportunity of seeing the sizes of the lights. It is, however,

a recognised custom of the trade to allow a full square foot for any lights measuring less than this, and as the maker would have no reason for supposing that any other system of measuring would be adopted, "Quantities," we are afraid, has no option but to allow him what he claims.—Ed.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XI.—MODES OF MEASUREMENT.

Founder and Smith's Work.

Cast Iron.

RAIN WATER PIPES, per foot run.—Give size, and state whether round, square, or otherwise, and if of any special make, give the maker's name and number in catalogue, or p.c. or l.p. if possible; state if "heavy" make, how jointed, i.e., whether simply in red lead, caulked in red lead and tow, or otherwise, whether ears cast on or ornamental loose bands, also if fixed projecting from face of wall with blocks, projecting plugs, or holder-bats, and the kind of spikes, and also description of facing to which pipes are fixed, i.e., brick, stone, or weather lining. If the bands are ornamental, give maker's name and number in catalogue, or p.c. or l.p., and do the same with the holder-bats. If of very elaborate or costly description, these had better be numbered separately. Measure rain-water pipes *net* and state this, and also that the quantity includes all short lengths. Number swan-necks, bends over string courses, knees over plinths (stating projections in each case), shoes, bends, junctions, &c. (If of unusual shape, these should be described as "purpose made," and to include patterns). Heads unless quite plain are usually billed at p.c. or l.p., or catalogue number and maker's name given.

Eaves Gutters, per foot run.—Give size and shape and, if possible, maker's name and number in catalogue. State how jointed—i.e., whether clip, countersunk, or otherwise, and if bedded on brick or stone or otherwise, to fascia or fixed on brackets. In the latter case, give description of brackets and the distance apart and how fixed—i.e., whether to rafters' feet, to fascia, or plugged to wall. If brackets are of elaborate description, give sketch and description and keep separate as *numbers*. Circular gutters must be kept separate, stating the radii and including the patterns. Measure eaves gutters *net*, and state this, and also that the quantity includes all short lengths.

Number stopped ends, returned ends, outlets, angles (external and internal), keeping those other than right angles separate, and if not to an angle of 135 deg., take a pattern for each variation, stating that the angles are purpose made. Small breaks around plasters and other similar items must also be *numbered* complete.

Railings, per foot run.—These are usually taken from a catalogue, and if so it is then merely necessary to give the number in catalogue and maker's name, or the p.c. or l.p., numbering gates and (if separately listed) the standards. The ends let in and leaded, and cut, and pinned, are *numbered* and billed with the mason's or bricklayer's work as the case may be. In the event of loose cast iron railing bars with wrought iron rails being specified, the former are *numbered* with catalogue number and maker's name, or p.c. or l.p. given, and the wrought iron rails measured at *per foot run* including the perforations.

If railings are to special design they must be fully described with a sketch, if necessary, and patterns taken.

Gratings.—If covering large areas, at *per foot superficial*; if in narrow widths and long lengths as to heating trenches, at *per foot run*; and if small, *numbered*. In either case give catalogue number and maker's name, or p.c. or l.p., at *per foot superficial*, *per foot run*, or each, as the case may be, but if no maker is specified then a full description with the thickness and the weight if possible, and take patterns.

Ventilators.—Number these, giving sizes and full description, or give catalogue number and maker's name, or p.c. or l.p. It is well in taking these to inquire whether anything has to be provided by the builder, such as lines, weights, &c. Also, in the case of roof ventilators, whether a wood base is required, or any other incidental work.

Stoves, &c.—Number these, giving width of

opening, catalogue number and maker's name, or p.c. or l.p. These are frequently put in at a provisional sum. In this case make it perfectly clear whether this sum includes package and carriage, i.e., whether the builder is to add this to the amount of the provision. In the latter case mention where the price is, and also state the number of stoves included in this provisional amount, to enable the builder to make a proper allowance for carriage.

Number all sundry items, such as coal plate shelf brackets, &c., giving full descriptions and sizes, or the catalogue numbers, &c., as previously described.

Wrought Iron.

Chimney bars, per cwt.—Measure these at *per foot run* and afterwards weight out (on the abstract). Allow in the lengths for the ends built in.

Gratings, per cwt.—Measure the bars and frame at *per foot run*, and afterwards weight out and describe as "framed." This will include all ordinary labour in making, but if any portion is made to open take this as an "extra" (giving the size of the opening portion, with any fittings required), and also any holes, &c., for pipes to pass through. It is advisable in the bill to state the sizes of the bars and frame.

Railings, per cwt.—If plain, follow generally the system noted for gratings, but take as "extra" any forgings to shape, pointed or forged heads, &c. If the railing is ornamental it is better billed at a p.c. sum *per foot run*, or, if this is not possible, give a sketch, with sizes of bars marked on and the height, and work out the weight *per foot run*, and state this in the bill.

Gates, if not given at a p.c., are frequently *numbered*, giving a sketch and the weight, with the locks, hinges, bolts, &c., taken separately.

The ends of railing let in and leaded, &c., are taken separately, as described to "Cast Iron" railing.

Balusters and Handrails, per cwt.—Measure these at *per foot run*, and afterwards weight out, keeping handrail (if rounded) separate, describe as "framed." This includes all ordinary labours. Take forgings to ramps, wreaths, mitres, newel caps, &c., as "extras." Rounded handrails are frequently measured at *per foot run*, still describing as "framed," keeping ramped and wreathed portions separate if of considerable length, but if short, number these as "extra," as last described.

Bolts and Straps, per cwt., if more than 12 in. long. Measure at *per foot run* and afterwards weight out, keeping bolts and straps separate. Include with the bolts the weight of heads, nuts, and washers, and with the straps the holes for bolts. Add to the latter the weight of gibs and cottars to straps to king or queen posts, or *number* separately, giving the weight. Number as extra any ornamental washers and also any ornamental forging to straps. Bolts under 12 in. long and lewis bolts are *numbered* complete, giving diameter and length, and including the heads, nuts, and washers with the items. King and queen rods are measured at *per foot run* and afterwards weighted as noted for bolts.

Number small items, such as plate corbels, &c., giving the size, or weight, and description.

Note.—The weights for bar iron (round, square, and rectangular), also bolt heads, &c., will be found in most books of reference.

Constructional Steel and Ironwork.

Rolled joists, per cwt.—Measure at *per foot run* and afterwards weight out. If much variation in size of joists keep each size separate, stating the number of joists, and the size, and the heights (either in floors, or the heights above ground) to which they are hoisted. If of exceptional length, entailing difficulty in "getting in," keep these also separate. State if cut to dead lengths, and if so, the fact that they are "measured net."

Number holes for bolts, stating thickness of metal, and the sizes of the bolts, and whether punched or bored, and if the latter, whether "done in position." Number also forgings to shapes, giving full particulars, sizes of joists operated on, &c., and include the wood templates for these. Also connexions, stating whether flanges (one or both) are notched, and giving the sizes of angle-plates, the number and sizes of bolts and holes to each, and if to anything but a right angle (horizontally or vertically) mention this also.

Riveted Girder, per cwt., keeping separate and giving in the bill the full description and

on the 22nd ult., which has been built at Herons Ghyll. The church, which is on the Herons Ghyll estate, has been built of Sussex sandstone, marble and Bath stone being largely used in the interior. The building is in the Early English style. It consists of nave, chancel, two side chapels, and tower. The high altar is of alabaster and marble, and much of the work in the chancel is also of marble and carved stone. The roof is of pitch pine, and the floor is of pitch pine blocks. The organ chamber occupies the first stage of the tower, and the windows are filled with stained glass. The three east windows represent the Resurrection, St. Peter, and St. John the Evangelist (to whom the church is dedicated); and the subjects of the west windows are from the lives of St. Philip Neri and St. Theresa. The choir stalls are of oak. Mr. F. A. Walters, of Westminster, was the architect.

BUILDING OPERATIONS, KILLIN, PERTH.—The building trade here has been fairly brisk during the past two months. A block consisting of six dwellings is being erected by Mr. Duncan Campbell, Dundurrough. The contractors are: masons, Messrs MacPherson & McLean, Fernan; joiners, M. & J. Campbell, Killin. A large block, consisting of dwellings and shops, is being erected at the corner of Hotel Park by Mr. Alex. McNab, Bovain; masons, McDonald & Blairie, Aberfeldy; joiners, Stothard, Crief; carting contractors, McWilliam & McRae, Killin. The architect in both cases is Mr. Bell, Aberfeldy.

PARISH CHURCH HALLS CAMBUSLANG, GLASGOW.—The foundation stones have just been laid of the new halls which are being built in the vicinity of the Parish Church at Kirkhill. The halls, which are of Gothic style, are divided into three rooms—one capable of seating 500 persons, the second 100, and the third 50. The frontage extends for 70 ft. in length, and contains two triple and two single windows. Above the triple windows are the corbels and pediments rising—one to a height of 30 ft., and the other 25 ft. The erection has cost upwards of 1,800l., and was designed by Mr. A. Lindsay Miller, architect, Cambuslang and Glasgow. The contractors were:—Messrs. J. & J. Train, builders; Messrs. Watson & Aird, joiners; Mr. Robert Clark, slater; Mr. George Rankine, plumber; and Messrs. John Murray & Co., plasterers, all of Cambuslang.

WESLEYAN CHAPEL, CANTON, CARDIFF.—The foundation stone has just been laid of a new Wesleyan Chapel for Canton. The building will be in the Gothic style, one of the principal features being a tower, with a turret, at the north-west corner of the church. The materials to be used are Newbridge stone and Bath stone dressings, and the internal woodwork will be of pitch pine. The church will seat about 650 people, and the amount of the contract is 2,300l. Messrs. Cox & Bardo, of Cardiff, are the builders; and the architects are Messrs. Habershon & Fawcner, of Newport and Cardiff.

UNDERGROUND CONVENIENCES, HIGH HOLBORN.—For some months past, under the direction of the Board of Works for the St. Giles's District, a public lavatory has been in course of construction at High Holborn, near the Royal Music Hall. It was opened for public use on the 22nd ult. The work was designed and executed, at an estimated cost of 3,597l., in accordance with the drawings and specifications of Mr. George Wallace, Engineer to the Board, the contractors being Messrs. Killingback & Co., of Camden Town. The sanitary arrangements have been carried out by Mr. G. Jennings, of Lambeth. Considerable difficulty was experienced in making the necessary excavations beneath the public way owing to the presence of a cast-iron and a cast-iron and a half feet in diameter, embedded in solid brickwork. This is part of the tube constructed some thirty years ago for the purpose of conveying parcels between the General Post Office at St. Martin's-le-Grand and Euston. The removal of the obstruction involved some delay in the construction of the lavatory.

CHURCH, BELFAST.—The first step towards the erection of a new church for All Saints' parish, Belfast, took place recently, when the foundation stone of the new building was laid by Mrs. Dunbar Buller. The church is situated on the north side of University-street. The present building operations have not yet included the chancel walls, which will extend another 35 ft. northwards. The church is designed in the Early English style, and consists of a nave divided from the aisles by columns and arches, which carry the clearstory. At the end of the nave is a portion reserved for a baptistery, and at the ends of the aisles are placed the entrance porches, four in number. The chancel extends from the nave 35 ft. by 25 ft. 6 in. wide, and on one side is the organ chamber, which opens both to the chancel and to the aisles. On the opposite side of the chancel is placed the vestry, with its communications both to the aisles and the chancel. The extreme internal length of the church is 131 ft. 8 in. by 69 ft. 8 in. wide; while the centre of the nave ceiling rises to 45 ft. from the floor, and the aisle walls to 14 ft., and from the floor to the top of the clearstory is 30 ft. All the internal fittings of the church, and the exposed timber of the roof will be of pitch pine. The exterior of the church is finished in red compressed brick, and red Dumfries sandstone dressings to the doors and windows. At the south-west angle is the tower, which will be carried up to a height of 108 ft., where it will terminate with a parapet and four pinnacles; on

the angle of this tower is an octagon turret stair tower, which gives communication to the bell-ringers' chamber, the belfry, and the tower roof. The buildings were designed by Mr. William J. Fennell, architect, under whose supervision they are being carried out by Mr. Robert Corry, builder.

ST. GEORGE'S CHURCH, NOTTINGHAM.—On the 23rd ult. a memorial stone was laid by Colonel Sir Charles Seely, Bart., to commemorate the commencement of the last section of this church, viz., the chancel, vestries, organ place, and chancel aisle. It is proposed to eventually add a new Lady Chapel upon the south side of the chancel. The architect is Mr. G. F. Bodley, and the builders are Messrs. Rudd & Son, of Grantham. The building will be faced with Hollington masonry, and will be surmounted with plain tiles.

POST OFFICE, READING.—A new post-office has been erected at Reading, in Blagrove-street. The new building is carried out in local red brick, with Bath stone dressings, and rough grey granite bases for the main columns; and glazed bricks running shoulder high. The ground floor is occupied by the large rooms required by parcels and the letter offices, and by the Postmaster's private office. The basement includes a storage room, fitted with a lift; other store-rooms, kitchens for clerks and also for letter-carriers, and lavatories. The work has been carried out, from plans prepared by the Office of Works, by Mr. Tucker, of Reading, the contractor, under the supervision of Mr. Askew, of the Office of Works.

HOUSES, PONTLOTTON, VIA CARDIFF.—The tender of Messrs. Griffiths Bros., of Trealew, for building sixty-five or more houses at Pontlutton, has been accepted at 139l. 10s. per house. Mr. W. Davies is the architect.

BANK, HACKNEY.—Bank buildings for the Directors of the London and Lancashire Bank have just been erected at Hackney, at the corner of Mare-street and King Edward's-road. The bank has a frontage of 80 ft., and is in the Renaissance style. It consists of three floors, the top ornamented by dormer windows. The electric light fittings throughout the premises are by Messrs. Moody Bros. Mr. William Saint, of Cambridge, is the builder, and the contract price is about 4,000l. The fittings in the general office, as well as the dado, are of polished mahogany; the floor is composed of wood blocks and mosaic. The strong-room is fireproof throughout, the shelves being of slate. The architects are Messrs. Bouchier & Galsworthy, of Westminster. The whole of the work has been carried out under the direction of Mr. Flower, clerk of the works.

CHURCH, STENHOUSEMUR, STIRLING.—The ceremony of cutting the first sod in connection with the erection of a church in Stenhousemur, to be built as a memorial of Dr. McLaure's jubilee, has just been performed. Messrs. John Burnett & Son, Glasgow, are the architects of the building.

PREYNT, SCHOOL, HOLY TRINITY, TANTON.—The Hon. Mrs. Portman laid the foundation stone recently of a new infant school, which is to be erected at Holy Trinity. The new building will give accommodation for 250 children. It will cost about 1,000l. Mr. G. C. Strawbridge is the architect, and Mr. W. Rendell the builder.

HOLY TRINITY, BIRMINGHAM.—This building is in course of erection for Mr. A. Shurey, to the west of the Coastguard Station. Mr. Percy Jenkins is the contractor, Mr. Banks is the foreman of works, and Mr. J. B. Wall is the architect.

CO-OPERATIVE PREMISES, DEWSBURY.—The new show-rooms which have been erected by the Dewsbury Co-operative Society at Halifax-road are now almost completed. The new building is three stories high. The floor of the basement is of concrete, and the walls are tiled from top to bottom. The room on the ground floor is 43 ft. 6 in. by 47 ft. 6 in., the same size as the room underneath. Besides show-rooms, there will be a packing room and an office. The room on the second floor will be 58 ft. by 48 ft. The top room will be the same size as the room on the first floor. The rooms will be lighted throughout with electric light. There is a wide staircase running from top to bottom, and a hoist has been fixed. The new rooms will be heated by hot water on the low-pressure system. Each floor is supported by steel girders, which are carried by cast-iron columns. The cost, it is expected, will be about 4,000l. Messrs. Holton & Fox are the architects; and the various works have been carried out by the following:—Messrs. W. Scott & Son, Dewsbury, masons; Messrs. Fothergill & Schofield, Batley Carr, joiners; Messrs. Bagshaw & Co., Batley, ironfounders; Mr. F. Newsome, Dewsbury, plumber; Mr. W. R. Thompson, Dewsbury, slater; Mr. W. Parker, Heckmondwike, plasterer; Mr. N. Ramsden, Dewsbury, painter; Messrs. Calvert & Co., Huddersfield, heating apparatus; and Mr. Charles Field, Dewsbury, ventilating apparatus.

NEW WING, COUNTY HOSPITAL, YORK.—The Duke of Cambridge laid the foundation stone on the 23rd ult. of the new Victoria ward at the York County Hospital. The new wing will occupy a piece of the garden on the south side of the institution, and will be approached from a corridor which connects the Watt ward with the main block. It is to be a one-story building, and will comprise a children's ward for eighteen beds, 70 ft. long by 24 ft. wide, an inspection ward for two beds, a day room, a ward kitchen, and the usual offices, together

with separate and detached lavatory blocks. Open to the south will be a sun-room, with glazed roof, in which the beds of the patients can be wheeled. The buildings are to be fire-proof throughout, the walls lined with tiles, and the floors laid with teak. The roof will form a flat, which will be laid with asphalt, and to this the patients from the upper rooms of the main building may have access. The architects for the extension are Messrs. Demaine & Brinkley.

BIRMINGHAM MEAT MARKET.—The new Corporation Meat Market and Slaughterhouse building, Birmingham, is to be opened on the 27th inst. by the Lord Mayor of Birmingham. Messrs. Essex & Nicol are the architects. The building, which covers an extensive site bounded by Bradford-street, Sherlock-street East, and Cheap-side, has been erected by Mr. John Bowen. The elevations to the thoroughfares, and the water tower, are of buff terra-cotta, with picked red facings.

CATHOLIC SCHOOL, CARDIFF.—On the 25th ult. the Earl of Dumfries opened St. Cuthbert's School, Pomeroy-street, Butte Dock. The building has been made to serve the double purpose of a church and school, the altar and accessories being raised off when secular instruction is being given. The structure is Gothic in style. The architect is Mr. W. N. Gardner (Newport), and the builder Mr. John Gibson (Cardiff).

MUNICIPAL SCHOOL OF SCIENCE, BRIGHTON.—The new Municipal School of Science and Technical Education, erected in Richmond-terrace, on the east side of the Level, Brighton, was opened recently. It is designed for future extensions, when occasion demands. Mr. F. J. C. May, the Borough Engineer, designed the building, and the work has been carried out by Mr. W. A. Field, of Brighton. The school is a frontage of nearly 77 ft. long, and the depth to the final line of the central gable is nearly 74 ft. It is constructed of red brick, with terra-cotta dressings. The entrance to the building is through a pair of wrought iron gates, leading into a vestibule, with, on the right hand, a marble staircase conducting to the top of the building. The flooring of the vestibule is of mosaic, the central device being a reproduction of the new Borough arms. The walls of the vestibule, as well as of the stairways and landings to the top of the building, are covered with majolica tiles. A working staircase for the use of the students exists on the other side of the building, giving access to the basement and the three floors. On each stage the building is planned with a corridor extending right through the establishment from front to back, for a depth of 162 ft.; and from these corridors the workshops, class-rooms, lecture theatres, and laboratories open out on each side. Like the vestibule, all the corridors on the ground and upper floors are laid with mosaic pavement, and they have tiled dados. In the basement the heavier trades are provided for. At one end is the smithy. Here, too, are a couple of boilers, one for the heating of the entire institution by a system of hot-water coils and for the supply of hot water for use, and the other a high-pressure boiler for the supply of hot water and steam for the laboratories. Elsewhere in the basement are an electric-light apparatus, and winding; a carpenter's shop, and besides various offices and lockers, a room for instruction in brickwork and masonry. Near the vestibule on the ground floor are a waiting-room and rooms set apart for the use of the Principal, the Committee of Management, and the Secretary. On either side of the corridor are a mechanical engineering lecture theatre, 42 ft. square; a machine drawing room, almost as large; an engineer's room and professors' room; two general class-rooms; a mechanical engineering laboratory; an engineering workshop; a metallurgical furnace room, and a printing room. A feature of the machine drawing room is that it is illuminated by inverted naked arc lights, the illumination from which is reflected from the white walls and ceilings.

The first floor is largely given up to chemistry and physics. The lecture theatres in both departments have open hammer-beam roof and timber trusses of ornamental design. In the chemical laboratory every stand is illuminated with a separate electric light, and each stand has a fume closet, from which the fumes are carried away into a central ventilation shaft that extends right through the building for the purposes of ventilation. Besides class-rooms and preparation rooms for each subject, the accommodation on this floor also comprises a photometric room, a room for advanced physics, a doctor's private research room; professors' and teachers' rooms; a dark room for photography; and a student reading-room and reference-room, and library. The lecture theatre and suite of rooms for the study of biology are located on the top floor, the front part of which is given up to rooms for the teaching of dressmaking and cookery, with a cookery demonstration room. The remainder of the space is taken up with store-rooms and a caretaker's set of apartments. Accommodation is provided in the various class-rooms for a commercial training in languages, shorthand, type-writing, and book-keeping, whilst the lecture theatres will serve for science lectures.

ADDITION TO CHURCH OF ST. ANDREW, PORTLAND, WOLSTANTON.—The foundation stone of additions which are to be made to the Church of St. Andrew, Portlith, Wolstanton, was laid on the 25th ult. by Mrs. R. L. Johnston. The extension will consist of a south aisle, transept, vestry, south

entrance, and porch. The new building will be of stone, to correspond with the existing structure, and the contract has been let to Messrs. Yorke & Goodwin, of Tunstall. Messrs. Wood & Hutchings, architects of the present church, have prepared the plans for the extensions.

HIGH SCHOOL FOR GIRLS, TRURO.—The building which has been erected at the top of Lemon-street, Truro, for the accommodation of the High School for Girls, has just been opened. The architect was Mr. E. R. Robson, F.S.A., under whose direction the work was supervised by Mr. Silvanus Trevail, and executed by Mr. J. Colliver.

RESTORATION OF ST. ALKMOND'S CHURCH, SHREWSBURY.—The restoration of St. Alkmund's Church, Shrewsbury, has just been completed. The alterations include the erection of pinnacles at the base of the spire, which were demolished some years ago. The west gallery, which was found to be in a very unsafe condition, has been removed, and the old-fashioned seats have been reduced to a lower form; new flooring has been put in; and, by means of a projection into the nave, a chancel has been provided, including stalls for the clergy and choir. Oak screens have also been erected for the purpose of providing galleries and an organ chamber, while the organ, previously situated in the west gallery, has been removed and reconstructed, and is now placed in the chancel. A new porch has been erected on the south side of the west-end of the church, which enabled the old porch at the east-end to be built in, and will now be used as a vestry for the choir. Other works are contemplated, part of which will include the reopening of the old tower arch, which at present is bricked up. The structural work has been carried out by Mr. R. Price, builder, Shrewsbury, under the directions of Mr. A. E. Lloyd Oswell, architect, of Shrewsbury, while Mr. Ebrall, of Shrewsbury, has done the work of removing and reconstructing the organ.

GRAND HOTEL, SHERINGHAM, NORFOLK.—A Grand Hotel is being erected at Sheringham, with a frontage to the sea of 305 ft. Sufficient space has been reserved on the site for the building of an annex. The hotel is being built by Messrs. Youngs, of Norwich, from plans by Mr. H. J. Green, of the same city.

CHURCH RESTORATION, WALPOLE ST. ANDREW.—The church of this parish, which has been closed for restoration purposes, was reopened on the 10th ult. The architect was Mr. H. C. M. Hurst, of Bristol, and the contractors were Messrs. Davis Bros., Wisbech, and Mr. J. W. Wilkinson, Elm.

NEW WING, WEST NORFOLK AND LYNN HOSPITAL.—The memorial stone has just been laid of an addition to the West Norfolk and Lynn Hospital. The new wing, which is an extension of the existing building towards the east, has a length of 44 ft. and a depth of 40 ft.; it is being built of white brick. In the front part of the ground floor is to be a ward measuring 44 ft. by 20 ft., intended for the accommodation of children; in the rear of this a corridor in continuation of the existing one, and on the other side of that will be, to the east, lavatories, bathroom, &c., and to the west a kitchen and store-room, with an annex for a staircase between. The kitchen will be a lean-to with no upper story, but the sanitary offices and the corridor will have duplicates above them. The remaining portion of the upper floor will be occupied by four bedrooms and a linen-room. The plans were prepared by Mr. H. J. Green, of Norwich and Lynn, and the builder is Mr. H. G. Rudrum, of Lynn, the amount of whose contract is a little over 1,000l.

PROPOSED WORKING MEN'S CLUB, GATESHEAD.—A special effort is being made to raise money in support of a scheme for providing new premises for the Ven. Bede's Working Men's Club. The scheme, which has now been matured, embraces a parish hall for Sunday-school and other purposes, as well as an enlargement of the men's club rooms. Plans have been prepared by Messrs. Oliver & Leeson, architects, Newcastle. The total cost of the work is estimated at about 1,700l.

CHANCEL, CHOBHAM CHURCH, SURREY.—The chancel of Chobham Parish Church is being rebuilt. The work has been undertaken by Messrs. Norris & Co. of Sunningdale, Mr. J. T. Lee being the architect.

CATHOLIC CHURCH, MOUNTAIN ASH, GLAMORGANSHIRE.—The foundation stone of a new Roman Catholic Church was laid recently at Mountain Ash by the Earl of Dumfries. The new church is situated upon land forming part of the Gwern Ivor Estate. The buildings are to cost 3,000l., and the contract has been entrusted to Mr. Collins, of Tewkesbury. The architect is Mr. Bernard Smith, of London.

SCHOOLS, KNOWLES-ROAD, ECCLESTON, ST. HELENS.—In a competition for new schools and mission church to be built in connexion with Eccleston Church, designs were submitted by a limited number of architects in the district including Liverpool and Southport, and the plans of Mr. F. S. Biram, of St. Helens, have been selected. The building is to be used for day and Sunday school purposes and as a mission church. Accommodation will be provided in the day schools for 250 children.

THE STAFFORDSHIRE BUILDING TRADE.—The building trade still continues good, great activity being apparent in all branches. Bricklayers are moderately busy, and full time is general. Car-

penters and joiners are working well, with none out of work. Plumbers and painters are very busy. Bricklayers' labourers report employment as plentiful, with only a few on the out-of-work list. Brick and tilemakers in all the yards of the Potteries are very busy, and in some cases they have quite as many orders on the books as at the spring of the year. At Leek all branches in the trade are very busy, particularly the joiners and plasterers. At Crewe great activity exists in all branches. The labourers here find employment as plentiful on account of the great alterations the London and North-Western Railway Company are making at the station. At Stafford trade is remarkably good in all branches of the trade, there being not one out of work in any branch.—*Staffordshire Sentinel.*

SANITARY AND ENGINEERING NEWS.

THE SEWERS OF BIRMINGHAM.—The first meeting of the Public Works Committee of the City Council since the vacation was held on the 20th ult., at the Council House. The question of the sewers was mentioned, and the City Surveyor (Mr. J. Price) reported that the work of inspection was making good progress. Contracts which had been arranged during the recess were entered into for the construction of the sewers in Greenfield-crescent, Edgbaston, and Golden Hill-road, Small Heath, and also for the construction of new sewers in Washwood Heath-road, Alum Rock-road, and Ardmore-road, Salford.

SALFORD AND THE SEWAGE CULVERT SCHEME.—Representatives of the Salford Corporation met certain members of the Rivers Committee of the Manchester Corporation on the 24th ult., and discussed with them the question of Salford joining the city in the scheme for conveying the sewage effluent to the tidal waters of the river Mersey. It was, of course, impossible to come to any definite decision on the matter. There are difficulties in the way of a joint scheme, but the members of the Manchester Committee are disposed to look favourably upon Salford's proposal. One of the most important questions to be decided will be as to whether the sewage from Salford should be taken for treatment to Davyhulme, or whether it should be treated on the same plan and the effluent then conveyed to the Manchester culvert. At present the two systems of precipitation are different, and, although the effluent might be satisfactory as it came from each farm, it is feared it would not be so when the two chemically-charged liquids were mixed. This difficulty is further increased by the proposal that Eccles and Stretford, as well as other neighbouring places through which the culvert would pass, should all join in the scheme. Uniformity of treatment would remove these obstacles, and to this end the various Local Authorities may possibly direct their efforts.—*Manchester Guardian.*

DRAINAGE, BARROW-ON-SOAR DISTRICT.—The Barrow-on-Soar District Council have instructed Messrs. Simpson & Harvey, architects, surveyors, and sanitary engineers, of Leicester, to prepare an entirely new system of drainage for the parish of Birstall, and another for that of Barkby, and also to report on the drainage scheme recently carried out at Syston, and to submit their proposals for re-modelling it.

PROPOSED NEW LOCK BELOW PUTNEY BRIDGE.—The combined committee representing the districts of Hammersmith, Fulham, Chiswick, Brentford, and Isleworth, on the Middlesex side of the river, and of Putney, Barnes, and Mortlake on the Surrey side, having early in the year commissioned Mr. E. Pritchard, C.E., to report on the best position for a new lock below Putney Bridge, are now considering the details of the report which has been submitted to them. Mr. Pritchard is of opinion that the best position for the proposed sluices is a point by the river on the Middlesex shore from the Broomhouse, Dock-lane, to land directly opposite on the Wandsworth side, and about five miles below Putney Bridge. The cost of the works is approximately estimated at 250,000l., and four years would be occupied in the construction.

WATERWORKS, CULLEN.—The new water supply to Cullen House and the burgh of Cullen was opened on the 22nd ult. The contractor was Mr. William Beveridge, Cullen; Mr. Alex. Smith was architect; and Messrs. George Ross and John Dunbar, Burgh Surveyors.

BRIDGE, CAPE COLONY.—The design and estimate of Mr. Louis Harper, engineer, Aberdeen, have been accepted by the Government of Cape Colony for the supply of a steel rope suspension bridge to be erected over a river there. The bridge will have a clear span of 300 ft. and a roadway 8 ft. wide, and is to be used for the transit of foot passenger and light vehicle traffic.—*Aberdeen Free Press.*

BRIDGE, ASKHAM, WESTMORELAND.—A new bridge over the river Lowther has just been completed at Askham. The new bridge, which has been built by Mr. W. Grisenthwaite, Penrith, is a single arch with a 54-ft. span. The width of the roadway is 18 ft. The bridge is built of stone given by Lord Lonsdale from the Stanley quarry, High Field, on the Lowther estate. The total cost will be about 2,000l. Mr. Bintley is the County Surveyor.

SANITARY EXHIBITION, LEEDS.—Messrs. Adams & Co. write, under date September 20:—"At the exhibition held in connexion with the Sanitary Con-

gress, which met last week in this city, neither our sanitary work nor our patent sewage lift were submitted to the judges for competition. We departed from our custom on this occasion and exhibited our specialities, but we always feel the best and highest award is the good opinion of those who have the appliances in actual use."

ELECTRIC LIGHTING NEWS.

ELECTRIC LIGHT IN DUBLIN.—The Lighting Committee of the Dublin Corporation met on the 20th ult. to consider a special report from their Electrical Engineer in reference to the recent breakdown in the street mains, resulting in the interruption of the electric light to private customers and in the public thoroughfares. It is understood, the report stated, that the cables were worn out, and that the whole system would require to be renewed. This will involve an expenditure of about 20,000l. It is only about five years, it is stated, since the present cables were laid.

ELECTRIC LIGHTING OF EDINBURGH.—At a meeting of the Electric Lighting Committee of the Edinburgh Town Council, on the 21st ult., it was agreed to remit to Professor Kennedy, Chief Electrical Engineer, for a full report on a new electric station near the east end of the city. Since August 30 the number of applications for light has been equal to 3,608 eight candle-power lamps. Since May 20 the applications have been equal to 28,000 eight candle-power lamps.

ELECTRIC LIGHT, BOSTON DOCK.—The formal opening of the electric light installation erected at Boston Dock took place on the 22nd ult. The work has been carried out by Messrs. J. E. Spagnoletti & Crookes, electrical and mechanical engineers, London, whose contract was 1,082l. 13s. 11d. Mr. Adrian Collins, of London, was the engineer.

ELECTRIC LIGHT, &C., CHESTER.—Col. W. L. Coke, M.Inst.C.E., an Inspector of the Local Government Board, held an inquiry at the Town Hall, Chester, recently, as to an application by the Chester Corporation for sanction to borrow 20,000l. for electric lighting purposes, 4,000l. for the purchase of land for sewage disposal, and 2,300l. for the completion of the Foregate-street improvement. There was a further application for approval of the appropriation of sums amounting to 4,770l. to be received upon the sale of corporate lands or consolidated stock towards the cost of erecting buildings at the Cross, and of purchasing the Dee Mills. With reference to the extension of the electric light, the Town Clerk (Mr. S. Smith) said the Corporation obtained 25,000l. at the commencement of the works, but they soon found it was absolutely necessary to make extensions.—Professor Kennedy gave evidence explaining the extensions which had been found necessary, and pointing out other directions in which the extensions would soon be required.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, TRINITY PRESBYTERIAN CHURCH, NEWCASTLE.—At the Trinity Presbyterian Church, Northumberland-road, Newcastle, the Sanderson memorial window was unveiled on the 22nd ult. The window occupies the entire north gable of the church. The work has been carried out by Messrs. Atkinson Brothers, of Newcastle.

WINDOW, ST. PHILIP'S CHURCH, BIRMINGHAM.—A new west window, to be placed in St. Philip's Church, Birmingham, will be in memory of the late Bishop Bowley. It has been forwarded to Birmingham in sections by Messrs. Morris & Co., the firm engaged in carrying out the work from the designs of Sir Edward Burne-Jones.

ST. IVES PARISH CHURCH, LINCOLN.—The east window, of five lights, in this church has just been filled with stained glass representing "Our Lord on a Rainbow Surrounded by Saints," typifying the various epochs of the Christian Church. They were designed and executed by Messrs. Percy Bacon & Brothers, of London, from suggestions by Mr. G. H. Fellowes Prynn.

MEMORIAL WINDOW, LUNDIE PARISH CHURCH, N.B.—There has just been placed in the Parish Church, Lundie, a stained glass window, presented by Mr. Alexander Hunter, of Bellevue, St. Andrews. The window, which measures 14 ft. by 3 ft., bears a figure of the Evangelist John in the attitude of enforcing the doctrine contained in the opening words of his Gospel. The figure is surmounted by an eagle; below the figure is the name St. Johannes, and at the base is the inscription. The design is by Sir Edward Burne-Jones, and the work was executed by Messrs. Morris & Co., Merton Abbey, Surrey.

MEMORIAL WINDOW, THEYDON BOIS CHURCH, ESSEX.—A window was unveiled on the 23rd ult. in the church at Theydon Bois to the memory of the late Miss Buss, founder of the North London Collegiate School for Girls. It illustrates the words from "The Pilgrim's Progress," "The Interpreter called a servant of his called Greathheart, 'Take these my daughters,' said he, 'and conduct them to the House called Beautiful.' The window is by Messrs. Clayton & Bell.

WINDOW, HINTS CHURCH, STAFFORDSHIRE.—The west window of this church has recently been filled by Mr. C. E. Kemp, with representations in

stained glass of angels and archangels. The window, given to the church by Mrs. Chadwick, in memory of the late Mr. James Chadwick, of Hints Hall, was dedicated recently.

FOREIGN.

FRANCE.—The demolition of the "Palais des Beaux-Arts," in preparation for the 1900 exhibition at Paris, will be commenced in a few days. One must feel some regret at the loss of a building which included an exceedingly effective range of picture galleries, with a good deal of clever architectural treatment on the exterior.—The "Société Nationale des Architectes Français" has just organised its sixteenth competition, the programme being "Un Projet d'Hôtel pour Sociétés Savantes ou Artistiques dans une ville de moyenne importance." Thirteen architects have taken part in the competition, and their designs are now on view at the Hôtel des Chambres Syndicales, Rue de Lutèce.—Electric lighting has just been introduced into the Palais de Justice at Paris.—A bust of Sainte-Beuve, by M. Maillat, has just been placed in the Casino at Hesdigne-sur-Mer.

Several new monuments have just been inaugurated, one (on Sunday last) to M. Viette (a former Minister of Agriculture), at Blamont. This is the design of M. Lucien Bloch, and is composed of a pyramid of granite 5 metres high, surmounted by a bust of Viette surrounded by symbolical attributes, while two figures at the base represent "Travaux Publics" and "Agriculture," there are also some decorative bas-reliefs at the sides. On the same day a monument was inaugurated at Aigues-Vives to the memory of Emile Jannet, a former Under-Secretary of State for the Colonies; a bronze statue, on a pedestal, with an accompanying figure representing "Le Génie Colonial." A monument in honour of the soldiers of Saint-Etienne who have died in defence of their country is to be erected shortly in that town. This is the work of M. Varinard (architect) and M. André Vermau (sculptor); it includes a principal group representing Fame raising the French flag and holding out a palm to a dying soldier. The group is placed on a semicircular pedestal decorated with the arms of Saint-Etienne, of Roanne, and of Montbrison. At the back of the monument is an allegorical relief in bronze.—A commencement has been made of two new railway lines of considerable importance to the inhabitants of suburban Paris. The first is to start from Enghien for Soisy, Eaubonne, and Margency, thence to the picturesque district of Montmorency, and finally to Andilly, Montlignon, and St. Prix. The second is to unite Chars to Bray-et-Lu by way of Magny. This line will unite with that from Gisors to Vernon, so as to connect the Nord railway system with Evreux and Rouen.—The death is announced of M. Henri Perrin, architect, of Paris.

GERMANY.—The large building at Munich, which belongs to the Court Brewery, and is of considerable local and historical interest, has just had 30,000l. spent on it in improvements.—Among the recent excursions of the German Architectural Society, we notice a visit to the new cathedral, and another to the large military works at Tempelhof. These excursions, which are well attended by the senior members of the profession, are being arranged in a very practical manner. There are always several guides, and the parties are divided into small sections.—The Town Hall at Aix-la-Chapelle is to be extended, and 30,000l. have already been voted for the addition of a new wing. Though the municipal authorities have at their disposal such an able architect as Professor Franzen, who is entrusted with the restoration of the old Town Hall, there is to be a competition. It is considered in Germany that the number of these competitions is becoming excessive. To what extent candidates, however, participate in the German competitions will be seen from the fact that there were forty-one designs sent in for some business premises at Chemnitz, and forty-five for a small museum and memorial hall at Goerlitz.—Nuremberg is now to have a monument to the late Emperor William; 10,000l. is to be expended, and there is to be the usual competition for the design.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Frank Baggallay, architect, has removed his offices from 66, Conduit-street, to 50, Berners-street, Oxford-street.—The firm of Messrs. Hibberd Bros., joinery manufacturers and timber merchants, South Lambeth, has been incorporated as a limited liability company, and will carry on the business under the style of Hibberd Brothers, Limited, from October 1. The company has purchased a large piece of land near Vauxhall Station, where new plant and buildings are in course of construction.

EXCAVATIONS AT CARDIFF.—According to the *Western Mail*, the excavations on the site of the Grey Friars' Monastery, within the grounds of Cardiff Castle, undertaken at the instance of the Marquis of Bute and under the direction of Mr. C. B. Fowler, have resulted in the discovery of the floor of the ancient church (beneath four feet of modern debris), and the stone foundation of a tomb in the north aisle, which contained the skeletons of two persons. These are assumed to be the remains of Sir William Fleming and Llewelyn Bren, on the ground that it

is known that these two persons were buried in the church, and that no other tomb has been found. The unusual circumstance of their being buried in the same tomb was the result of an act of justice or vengeance on the part of Edward II., who hanged Sir W. Fleming on the spot where he had hanged Bren, and ordered that he should be buried by the side of his victim. Such is the legend, which at all events affords an explanation of the occurrence of two skeletons (if they are both those of men) being found in the same tomb.

NATIONAL REGISTRATION OF PLUMBERS.—The eighth annual congress of the Scottish Councils of the National Registration of Plumbers was held in the city of Perth on the 24th ult. The chief speaker was Dr. Farquharson, M.P. for West Aberdeenshire, who held that the Plumbers' Registration Bill would create no monopoly, but tend to raise the general tone and status of plumbers. Professor Hay, Medical Officer of Health for the City of Aberdeen, also supported the Bill.

KING'S COLLEGE, LONDON.—We have received the annual syllabus of architectural studies and lectures at King's College, where the term commences on October 4. We may recall to the attention of students that in addition to the day classes there are evening classes established by the Carpenters' Company acting in conjunction with the Council of King's College, in which the subjects of building construction, constructional drawing, quantity surveying, and architectural history are taught.

COLLAPSE OF HOUSE IN THE WEST END.—The inhabitants of that part of Great Titchfield-street, Oxford-street, which lies between Foley-street and Upper Marylebone-street were startled on Friday last week by a sudden crash followed by a dense cloud of dust. When the atmosphere cleared, it was found that the side wall of a house of 12 rooms, leaving the whole of the house in a wrecked condition. Many of the residences in this portion of Great Titchfield-street are very old. Within the last two months Nos. 90 and 88 have been pulled down. It appears that the occupants of No. 92 had noticed that the side wall had been cracking, while for some days none of the doors would open. All those who were in the house escaped, while the men employed in the building operations ceased work.—*Daily Graphic*.

CHANCEL SCREEN, ST. ALBAN'S CHURCH, BIRMINGHAM.—Messrs. White & Sons, of London, have erected in St. Alban's Church, Birmingham, an iron chancel screen from the designs of Mr. J. L. Pearson, R.A. The screen consists of five arches resting upon a chancel wall. The central gate is surmounted by a large iron cross. The ornamentation throughout is in wrought iron ribbon scroll work.

THE "INDUSTRIAL" LAMP.—The lamp here illustrated, and which is called by the above title, has a mica window, and the burner, as less liable to breakage than glass, and the flame is absolutely sheltered from the most violent wind. It is intended especially, of course, for open air operations. The frame carrying the protected burner is pivoted at the top of the lantern when required. It is made by Messrs. A. C. Wells & Co.

SHOOT-UP HILL, CRICKLEWOOD.—The four mills that stand as a conspicuous object on the summit of the hill of Cricklewood, the Edgware-road from Kilburn, are, we understand, to be pulled down, and the site to be taken for a block of flats, to be erected with a return frontage to Mapesbury-road, after the designs of Messrs. P. Palgrave & Co., of Westminster, at an estimated cost of 12,000l. The mills replaced a wooden windmill that remained there until about thirty years ago, and was, we believe, the last of its kind so near to London. The Shuttup Hill estate consisted of about 70 acres of wood, parcel of Lilliston (Lisson) Manor, belonging to the Knights Templar, temp. Edward I., and seems to coincide with the wood cited in a piece of land made before Justices Itinerant, 3rd Edward I., and given to them by Otho, of Lilliston, 21st and 22nd Henry III. The property passed from the Templars to the Knights of St. John, and from them to the Crown on the dissolution of the latter. It then passed to Sir Roger Chomeley, who was Lord Chief Justice in Edward VI.'s reign, and founded the Grammar School, Highgate. For the above-cited reference to Lilliston, and Otho, see s. tit. "Lilliston Hampteste" in the bound Register (begun 1442) of possessions, &c., of the Knights of St. John of Jerusalem: Cotton MSS. Nero. E. VI.

THE OUTCOME OF SANITATION.—This was the title of a lecture delivered on the 27th ult. by Dr. Louis Parkes, the Medical Officer of Health for Chelsea, at the Parkes Museum, Margaret-street, W. The lecturer made special reference to the progress of medical and sanitary science during the Queen's reign. There was a time when the individual was a law unto himself. He did practically what he liked, and rarely cared about his neighbour. To-day it was the duty of medical officers to look after the health and sanitary surroundings of rich and poor, and the greatest care was taken to ensure the good



health of the community at large. Smallpox had rapidly diminished, judging from a comparison of the statistics made in 1838-42, and 1891-95, and typhus had almost ceased to exist. During the two periods mentioned there had been a decrease of 40 per cent. in the deaths due to consumption, and ague was unknown. It was generally supposed that during years of prosperity there were more marriages, but nowadays the working classes had a higher standard of comfort than had their predecessors, and they were less inclined to make improvident marriages. Indeed there had been an alteration in the manners and customs of the country. The decline in the number of marriages had brought about a great reduction in the number of births, and the death rate was shown to be rapidly declining, that, of course, being due to improvement in the health and sanitation of towns.

TYPHOID AT MAIDSTONE.—Typhoid fever has broken out at Maidstone, and a large number of cases are reported. At a meeting of the Town Council on the 20th ult. a resolution was submitted that the Local Government Board should be requested to hold a public inquiry into the cause of the outbreak. The great majority of the ratepayers are anxious to know whether the water company is more to blame than the Council for the present serious position of affairs. It is stated that the custom of the company has been to have analysed only the water of any new springs it desired to utilise, and that it has had no independent examination of the tainted Fairleigh water for upwards of twelve months. The Company's Act of Parliament says it must supply the people of Maidstone with pure water, but does not enjoin upon it the necessity of having the supply tested at regular periods. Dr. Theodore Thompson, of the Local Government Board, made an inspection on Wednesday of the Tutsham springs. Much more accommodation is required for the proper treatment of patients. The permanent and temporary hospitals, as well as the workhouse infirmary, are full, and it will be necessary to hire several additional buildings.

CAPITAL AND LABOUR.

STRIKE OF PLUMBERS AT NELSON.—On the 24th ult., at Nelson, the six months' notice expired which was given by the operative plumbers of the district to the Master Plumbers' Association for an advance in wages from 8d. to 9d. per hour. The working week of the operatives is fifty-four hours. The Masters' Association have considered the application and have unanimously decided not to grant it. The operative plumbers in the district—which comprises Nelson, Brierfield, and Barrowford—have therefore come out on strike.

LEGAL.

ALLEGED BUILDING TRESPASS IN CURSIOR-STREET. CONFLICTING STATEMENTS.

CASE IN THE VACATION COURT.

THE case of Glover v. Walke came before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 23rd ultimo, it being a motion by the plaintiff for an interim injunction to restrain the defendant until the trial from interfering with the staircase and entrance of No. 9, Cursitor-street, Chancery-square, occupied by the plaintiff under an agreement from the defendant for three years from last July.

Council for the plaintiff said that the defendant was the owner of the whole block of buildings of which the plaintiff's premises formed part. The learned counsel further stated that the defendant now appeared in person, but inasmuch as he had not entered an appearance in the action he could not be heard on the motion then before the Court.

His Lordship (to the defendant): Will you undertake to enter an appearance?

The defendant: Undoubtedly, my lord.

Counsel for the plaintiff asked the defendant if he would undertake to restore the premises.

The defendant: Certainly not.

Counsel for the plaintiff: What is your defence to the action?

His Lordship (to plaintiff's counsel): I think you are rather premature now.

The learned counsel stated that he had a very strong case. The action was for breach of covenant. The plaintiff had a lease of the premises from July of the present year, which gave him the right to use the staircase in question, and the defendant had come without any notice and stopped a door and proposed to give the plaintiff an entrance 20 ft. further down, and in those circumstances his entrance would be a great distance from the door communicating with the staircase.

His Lordship: You will get damages, then, for it. It might be that to grant an injunction in such a case as this would be a very severe order. It may be necessary to close this door and make a better entrance to the shop.

The learned counsel said that as the defendant had interfered with his own grant, his submission was that the plaintiff had made out a case for an injunction.

His Lordship: I do not think so. It may be that

the defendant is going to do something which will be an improvement to the shop. I do not think it is a *prima facie* case at all.

The learned counsel stated in answer to his Lordship that he had an affidavit which had been made by the plaintiff in support of the motion. The effect of what the defendant had done might be to ruin the plaintiff's business, which was that of a law stationer.

His Lordship: There is nothing to contradict that affidavit as yet. The defendant has got very near a dangerous line when he may have an order made against him.

Counsel for the plaintiff: I submit the defendant is not entitled to be heard, not having entered an appearance.

His Lordship: No, I do not think he is. I decline to hear him.

The defendant: The case is as bad as any case which has appeared in this Court.

Counsel for the plaintiff: Would your Lordship give me an injunction over next Wednesday, when the defendant can put in any affidavits he may like?

The defendant said that he did not propose to alter the door in question, nor the staircase. He did not propose to interfere with anything which the plaintiff rented from him.

Counsel for the plaintiff: The defendant has already done so. He has actually stopped our door and declined to allow us to use the staircase.

His Lordship, in giving judgment, said that it was impossible for him to arrive at any clear idea as to what was being done by the defendant, and whether the plaintiff was entitled to the order he asked for. As, however, the defendant had said that he was not interfering with the plaintiff's portion of the premises, the better course would be for the plaintiff to take an injunction to prevent him from interfering with the plaintiff's portion of the premises. That order could not prejudice the defendant, as he had said that he was not interfering with the plaintiff's premises at all. The costs would be reserved.

The case again came before Mr. Justice Ridley on the 20th ult., when Mr. S. Smith, who now appeared for the plaintiff, suggested that the order which his Lordship made on the last occasion when the case was before the Court should be continued until the trial. He did not think that anything had happened during the week which would prevent his Lordship from continuing the order on the same terms.

The defendant: Oh, no. I offer no undertaking, my lord. It is a very trumpcy case.

His Lordship: That is no reason why I should not hear it.

Mr. Stewart Smith said that the defendant had stated that he had no intention of interfering with the premises occupied by the plaintiff or the access thereto, and he could not see how the defendant could be prejudiced by giving an undertaking, or being restrained in those terms. As the defendant had now said that he was not ready to give that undertaking, he would ask his Lordship to grant an injunction in the terms of the notice of motion.

The defendant said that he had no intention of interfering with any part of the premises the plaintiff occupied, but he did not wish to have an injunction granted against him, or to give an undertaking, as he was advised he might be held liable in costs.

His Lordship said that he should make the costs costs in the cause.

After some further discussion, on the defendant undertaking not to interfere with the staircase in question or the access to the premises occupied by the plaintiff until the trial, his Lordship made no order on the motion except that the costs should be costs in the action.

The learned Judge told the defendant that if at the trial it turned out the action was unfounded he would get his costs.

MEETINGS.

SATURDAY, OCTOBER 2.

Sanitary Inspectors' Association.—Annual General Meeting, Carpenters' Hall, London Wall, E.C. 6 p.m.

British Institute of Certified Carpenters.—Visit to the baths, &c., Shorechurch, at 3 p.m. Meeting at Carpenters' Hall at 6 p.m.

Geometry Applied to Carpentry.—By Mr. J. Clark on "Geometry Applied to Carpentry."

Northern Architectural Association.—Visit to Jesmond Parochial Hall, St. Jude's Church (Portland-road), and Shieldfield Board School (Portland-road).

MONDAY, OCTOBER 4.

Liverpool Architectural Society.—Opening Address by the President, Mr. W. E. Willink, M.A., 6 p.m.

Society of Engineers.—Mr. James Groll on "Filter Presses for Sewage Sludge," 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wynter Blyth on "The Law Relating to the Supervision of Food Supply," 8 p.m.

WEDNESDAY, OCTOBER 6.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting, W. E. Willink, M.A., 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection in the Parish of St. George's, Hanover-square, 2 p.m.

Edinburgh Sanitary Society.—Address by the President, Mr. J. A. Williamson, 8 p.m.

THURSDAY, OCTOBER 7.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wynter Blyth on "Sanitary Laws and Regulations Governing the Metropolis," 8 p.m.

FRIDAY, OCTOBER 8.

Architectural Association.—Annual General Meeting, Address by the President, Mr. Hampden W. Pratt, and distribution of prizes, 7.30 p.m.

SATURDAY, OCTOBER 9.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Wimbledon Sewage Works, 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

18,622.—ARTIFICIAL AND OTHER STONE ROOFING, Tiles, &c. *AG. F. Thomson.*—This invention consists in (1) the manufacture of artificial stone from blast furnace slag, or other waste matters, such as ashes, clay, &c., by treating same with dilute sulphuric acid, and with a solution of silicate of soda, or caustic, or carbonate, and moulding and drying; and (2) the whitening and hardening exterior of such artificial stone, as in a dry building stone, by treatment with sulphuric acid, and then with a solution of silicate or carbonate of soda. Also the manufacture of artificial marble on similar lines.

19,099.—FILLERS FOR SASH WINDOWS: *F. H. Collins.*—The inventor claims the combination of a ring wheel with rollers and axle, the rollers decreasing the friction. Applicable to windows, sliding doors, &c.

23,750.—AIR INLET TO DRAIN: *J. J. Elliott.*—The invention consists in a square or other shaped box with a grid front, and an elongated outlet for connecting the drain or pipe. The upper part of box, with grid, is fixed above ground level; the lower, with outlet, below surface sufficient to allow of flagging, &c.

7,099.—CONTROLLING DISCHARGE FROM WASH BASINS, &c.: *C. L. Riker.*—The inventor claims a method of supporting liquid in a wash-basin, &c., and controlling the overflow therefrom (when the outlet of liquid delivered to the vessel is sufficient to carry the upper surface of the same above a certain point) consisting in providing a second layer of liquid, and the pressure of the weight of the liquid in the vessel assists in emptying the basin.

13,319.—CEILINGS AND WALLS: *H. Hansen.*—Inventor forms the wall or ceiling of a piece of woven or plated fabric, held and supported by iron bands, and serving to receive and hold the plaster.

17,689.—CASEMENT STAYS FOR WINDOW AND PAN LIGHT FASTENERS: *T. R. Leigh.*—Inventor adapts for window or light fasteners in which casement stays are used a stay-bar formed with holes, slots, or notches, and guided by a guiding-piece swivelling on a fixture, such swivelled piece being formed with a projection piece for engaging with the holes, slots, or notches in the stay-bar.

NEW APPLICATIONS FOR LETTERS PATENT.

September 13.—20,069, A. Wynn, Window Openers, &c.; 20,080, N. Collier, Apparatus for Pressing Brick, Tiles, &c.; 21,093, A. Barnett, Repairing Gas, Water, and other Pipes at Mains.

September 14.—21,048, J. Green, Pans of Waste Water closets, &c.; 21,050, A. Barber, Fastener for Window Sashes, Casements, Doors, &c.; 21,079, A. Priest, Valve for Regulating the Supply of Water to Automatic Flushing Cisterns, &c.; 21,082, W. Bingham, Hears for the Brazing of Band Saws, &c.; 21,124, T. Plowman, Conveyors for use with Brick-making Machines.

September 15.—21,141, J. Jones, Plaster for Walls, Ceilings, &c.; 21,149, E. Fense, Details of Construction relating to Walls, Roofs, &c.; 21,146, W. Pearce, Vitreous Decoration of Walls, Panels, and other Surfaces, &c.; 21,169, E. Ashcroft, Ball Gully for the prevention of back pressure in drains.

September 16.—21,240, D. France, Extracting and Consuming Fuel Air, Gases, and Vapour from Sewers, Drains, &c.; 21,245, F. J. Elliott, Door Catch to prevent the shutting of a door until required when once the door is opened; 21,253, T. Hitchen, Construction of Continuous Bakers' Ovens; 21,264, J. Jenson, Slates for Roofing; 21,266, B. Turner, Door Springs; 21,281, C. Husted, Tool for holding and guiding nails during the insertion of same into any material; 21,303, D. Hill, Syphon Pipes for Water-closet cisterns.

September 17.—21,373, J. Kenser and P. Weber, Mortice Locks, &c.; 21,386, J. Hayton, Window Sashes.

September 18.—21,446, J. Hicks, Levels; 21,456, C. Heap and T. Oddy, Manufacture of Cement, Artificial Portland, Silent Action Water Valve with independent float.

PROVISIONAL SPECIFICATIONS ACCEPTED.

14,296.—J. Peers, Chimney or Ventilating Top; 15,374, D. Sullivan, Weightless Window Lifts; 17,774 and 17,775, J. J. Noel, Whitened; 18,753, E. Podmore and Others, Glazing; 18,829, W. Bingham, Casement or Window Fastener; 19,266, W. Mitchell, Chimney Cows and Ventilators; 19,407, P. Van der Gucht and A. Kreps, Fire Grates; 19,950, J. Leigh and J. Ripley, Bricks, &c.; 20,121, W. Cockroft, Door Locks or Latches; 20,162, G. Burrows, Rim Locks and Latches; 20,177, B. Pitt, Bolt for Doors, Casements, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

21,437, H. Sheaf, Appliance for Use with Burst-pipes, &c.; 20,710, J. Harrison, Bolt Joints for Gas Pendants; 15,463, F. Dossogne, Automatic Door Closing Apparatus; 16,416, H. Beien, Door Latches; 19,072, E. Cousins, Joint or Connection Between Lengths of Pipes for Drainage or Other Purposes.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 13.—By W. DEW & SON (at Barnmouth). Aberdovey (near), Merioneth.—"Pant Eidal Estate," 182 a. 2 r. 36 p. f. £3,175

Aberdovey, Merioneth.—A perpetual rent charge of 11d. 20s. 290

September 15.—By F. JOLLY & CO. Bow—6 and 65, St. Stephen's-st., and 10 to 18 (even), Ford-st., ut. 102 yds., g.r. 45f. 335

g and 10, Weston-st., ut. 19 yds., g.r. 41f. 300

Chatham, Kent—20, Richard-st., ut. 888 yds., g.r. 18, 2nd. 100

Clapton—74, Crickfield-rd., l. r. 36f. 560

By PROTHORPE & MORRIS.

Wanborough, Surrey.—"The Manor Nurseries," 41 a. 3 r. 39 p. f. £3,750
Three enclosures of land, to a. 3 r. 39 p. f. 500
"Lower Nurseries," to a. 1 r. 39 p. f. 650
An enclosure of land, 5 a. 3 r. 16 p. f. 1,400
A freehold farm, comprising 53 a. 3 r. 17 p. f.

By G. TINKER & SON (at Holmfrith).
Scholes, Yorks.—Seven enclosures, 12 a. 1 r. 24 p. f. 745
Three building plots, area 1,653 yds., f. 277
Holme, Yorks.—Freehold farmhouse and 6 a. 1 r. 2 p. f. 200

Enclosures of land, 24 a. 0 r. 13 p. f. 252
Hinchliffe Mill, Yorks.—A freehold house and 0 a. 0 r. 7 p. f. 300

Cartworth, Yorks.—Various enclosures and two houses, 8 a. 2 r. 16 p. f. 422
Five freehold farms, 80 a. 3 r. 14 p. f. 2,895

By J. P. SELDON (at Holworthy).
Bradworthy, Devon.—"Berridon Hall Estate," 287 a. 3 r. 11 p. f. 1,575
"Wooden," and 69 a. 1 r. 31 p. f. 1,030

By W. J. PEIRCE & THORPE (at Northampton).
Kislingbury, Northants.—A freehold house and premises 200

Milton, Northants.—A freehold farm, area 31 a. 1 r. 16 p. f. 1,300
Great Houghton, Northants.—An enclosure of garden ground, 1 a. f. 810

Long Buckby, Northants.—Two enclosures, 15 a. 3 r. 20 p. f. 820
Northampton.—14, Princess-st., l. r. 19f. 350

Wootton, Northants.—Two enclosures, 6 a. 3 r. 26 p. f. 930
September 16.—By HARRIS & BRADLY.

Caftord.—19, Westdown-rd., ut. 76 yds., g.r. 8f. 390
Crofton.—42, Park-lane, ut. 47 yds., g.r. 6f. 800

By C. C. & T. MOORE.
Mile End, g.r. Bancroft-rd., f. r. 37f. 470
Stepney—3, 7, 9, 11, and 17, Dempsey-st., 21, Chelveston, and 69 and 73, Clark-st., ut. 345 yds., g.r. 54f. 745

17, Devonport-st., and 1 and 3, Brixton-rd., f. r. 94f. 1,470
Limehouse.—2, Aston-st., ut. 29 yds., g.r. 3f. 58f. 220

Poplar.—77, Kersey-st., ut. 56 yds., g.r. 4f. 170
46, 48, and 50, Bygrove-st., ut. 3f. yds., g.r. 74f. 205

Bow.—66 and 68, British-st., ut. 39 yds., g.r. 8f. 450
Finchley.—5 and 6, Carnarvon-ter., ut. 83 yds., g.r. 114f. r. 50f. 505

12 and 13, Elm Pl.-rd., ut. 83 yds., g.r. 114f. r. 46f. 390
By FRICKER & SON.

Regent's Pl.—3, Chalco-cres., f. r. 46f. 660
By Messrs. SHELTON (on the Estate).

Overstrand, Norfolk.—Fifty-six freehold building sites (in lots), area 6 a. 1,304
September 17.—By COOKE BROS. (at Llanbister).
Llanbister, Radnor.—"Dole Farm," 116 a. 2 r. 12 p. f. 1,200

September 17.—By HIGGINS & SON.
Hamstead.—149, Adelaide-rd., ut. 48 yds., g.r. 10f. 105f. r. 80f. 650

1, Eton-ways, ut. 55 yds., g.r. 11f. r. 25f. 380
St. John's Wood.—18, New-st., ut. 30 yds., g.r. 44f. r. 35f. 380

By A. J. SHEPHERD.
Poplar.—6 and 8, Culloden-st., f. r. 57f. 48f. 665
Limehouse.—13, Birchfield-st., f. r. 28f. 18f. 390

1, Church-path, c. r. 16f. 18f. 355
St. George's East.—2, Wells-st., f. r. 30f. 510
Mile End.—7, Grove-rd., f. r. 45f. 615

Poplar.—64, 66, and 68, Edin-st., ut. 345 yds., g.r. 9f. 495
Bow.—3, Avenue-rd., ut. 345 yds., g.r. 3f. 105f. r. 20f. 340

Poplar.—45, Well-st., f. r. 37f. 48f. 280
6 to 10, Goodfield-pl., ut. 46 yds., g.r. 12f. 28f. 415

Limehouse.—3 to 9, Salmon-st., ut. 71 yds., g.r. 3f. 340
September 18.—By BRUTON, KNOWLES, & CO. (at Gloucester).

Innsworth, Glos.—"Innsworth House" and 82 a. 2 r. 17 p. f. 4,800
"Innsworth Gardens" and 10 a. 3 r. 0 p. f. 950

"Hatherley Meadow," 14 a. 3 r. 1 p. f. 860
Barnwood, Glos.—"Elmbridge Farm," 26 a. 0 r. 1,825

Sandhurst, Glos.—"Mussell End Farm," 102 a. 3 r. 14 p. f. 3,350
September 20.—By EASTER & WRIGHT (at Eastbourne).

Eastbourne, Sussex.—Sea Sided, "The Elms Nurseries," area 30,681 ft. f. r. 100f. 10,250
Bourne-st., enclosure of building land, 5 a. 0 r. 21 p. f. 5,810

Whitely-cres., enclosure of building land, 1 a. 2 r. 35 p. f. 1,270
Carlisle-rd., "Leicester Lodge," f. r. 2,835

September 21.—By CHANCELLOR & SONS.
Twickenham.—Sandycroft-rd., "Sandycroft Lodge" (Turner's House), f. r. 1,200

King's Cross.—150, 152, and 154, King's Cross-rd., c. r. 63f. 760
By E. SIMPSON.

New Cross.—12, St. James's, ut. 44 yds., g.r. 6f. r. 48f. 330
Peckham.—55, Lugard-rd., ut. 78 yds., g.r. 6f. r. 40f. 350

Homerton.—Churchill-rd., f. g. r. 4f. reversion in 69 yds. 145
Wandsworth.—1 to 5, The Retreat, ut. 834 and 7 37y., g.r. 16f. 105f. 145

Stoke Newington.—6, Cowper-rd., ut. 61 yds., g.r. 6f. 68f. 350
By H. DONALDSON & SON.

Dalston.—20, 22, and 24, Mayfield-rd., with a plot of land in rear, ut. 60 yds., g.r. 10f. r. 97f. 880
Stoke Newington.—16, Winston-rd., ut. 63 yds., g.r. 5f. 54f. 305

51 to 61 (odd), Spenser-rd., ut. 61 yds., g.r. 21f. 1,300
By WATERS & RAWLENC (at Salisbury).
Durrington, Wilts.—"Durrington House" and 10 a. 3 r. 25 p. f. and c. 3,500

Enclosures of land, &c., 17 a. 0 r. 33 p. f. and c. 500

Enclosure of land, <i>ac.</i> 29. 1. 38 p.	£1,120	By FOLEY, SOLS & MUNDY (at Melksham).	Old Ford—54 and 56, Auckland-rd., u.t. 68 yrs., g.t. 87. 8.	£460
By PRICKETT & ELLIS.			Holloway—22 and 23, Hatley-rd., u.t. 68 yrs., g.t. 104, r. 482.	450
Highgate—127, North Hill, f., e.t. 74.	80s	Melksham, Wilts.—"Beauncare Farm," 66 a. o. r. 29 p. f.	£3,500	450
September 22.—By E. W. RICHARDSON & CO.		Enclosure of land, 8 a. 2 r. 33 p. f.	500	450
		Two plots of building land, 2 a. 1 r. 39 p. f.	270	450
Pimlico—48, Cambridge-st., u.t. 31½ yrs., g.t. 47. r. 801.	60s	Enclosures of land, 24 a. 2 r. 18 p. f.	1,600	450
20, St. George's-place, f., e.t. 74.	1,000	By MERRY COFFEY & HALL, f.	600	450
12, Lillingston-st., u.t. 30 yrs., g.t. 56, r. 494.	35s	Four freehold cottages, r. 262.	36	450
Battersea—22 and 24, Anhall-rd., u.t. 81 yrs., g.t. 97, r. 76.	78s	35 Broughton Gifford, Wilts.—Two enclosures, 4 a. 2 r. 31 p. f.	170	450
Sydenham—Crystal Palace Park-rd., "Park lands," u.t. 73 yrs., g.t. 2101.	500	By FAREBROTHER, ELLIS & CO. (at Leeds)—Victoria-av., eight plots of building land, area 6,800 sq. yds.	70	450
By WILKINSON & VYLLIE.		September 23.—	By HLAIR, SON, & REEVE.	
Anley—27 and 29, Lullingdon-rd., f., e.t. 74½.	700	70 Bletchley, Bucks.—"Water Eaton-rd.," "Brooklands Nursery" and about 2 a.	1,225	450
By FAREBROTHER, ELLIS & CO. (at W. Worthing).		By R. W. DENVER.		450
Durrington, Sussex.—House, three cottages, and enclosures of land, 3 a. 1 r. 17 p. f. and c.	940	Cowden, Ck., Kent, and "The Woodside," with three cottages adjoining, and o. a. 3 r. 28 p. f.	860	450
By MORRIS, SOSN, & PEARD (at Bridge).		By NIXON, EDWARDS, & CO.		450
Stogursey, Somerset—"Steyning Manor" and 123 a. 1 r. 14 p. f.	1,625	Stoke Newington—and Boueverie-rd., u.t. 74 and 78 yrs., g.t. 121, r. 621.	640	450
Enclosures of land, 34 a. 2 r. 33 p. f.	14	Gospel Oak—51 and 11, Elaine-grove, u.t. 63½ yrs., g.t. 102, r. 10.	455	450
By MORRIS, SOSN, & PEARD (at Bridge).		By HOLWAY—127, Sussex-rd., u.t. 55 yrs., g.t. 71. 7s.	31	450
31, 14 p. f.	1,971			450

SOUTHALL.—For erecting houses and shops, for Mr. T. Talbot. Mr. T. Newell, architect, Southall. —
Chamberlin Bros. £1,444 Jamieson £1,997
Executors of T. Nye 1,313 A. & B. Hanson 1,244
Kearley 1,310 W. Brown 1,196

SOUTHALL.—For erection of houses and shops, for Mr. C. Culland. Mr. T. Newell, architect, Southall. —
Chamberlin Bros. £1,444 Jamieson £1,997
Executors of T. Nye 1,313 A. & B. Hanson 1,244
Kearley 1,310 W. Brown 1,196

SOUTHGATE.—For the erection of two villas at Southgate. Mr. Geo. E. Deakin, architect, 110, Strand, W.C. Quantities supplied. —
C. Newby £1,275 Brown & Sweetland £1,370
S. Goodall 1,430 J. Pocock 1,397
W. Wheeler 1,389

STAINTON-IN-CLEVELAND.—For pulling down and rebuilding the "Blacksmith's Arms" inn, for Messrs. Cameron & Co., Limited, West Hartlepool. Mr. W. R. Linton, architect and surveyor, Stockton-on-Tees. Quantities by architect. —
W. A. King £1,142 J. J. Davison £1,400
S. Coates 1,442 H. A. J. Cooke 1,200
J. Coates 1,420 H. F. Linton & Son 1,200
A. Atkinson & Co. 1,418 J. C. Stockton-on-Tees 1,231

WAKEFIELD.—For erecting two villas, Bradford-road, for Mr. C. W. Whitehead, College-grove, Wakefield. Mr. Willie Wigley, architect, 6, Westgate, Wakefield. Quantities by architect. —
Building. — B. Lockwood, Horthury-road, Wakefield. £150 0 0
Tiling. — J. H. Ingworth, Bank-street, Wakefield. 85 5 0
Plastering. — J. H. Ingworth, Bank-street, Wakefield. 6 3 0
Carpeting and Polishing. — H. Blackburn, Albion-court, Wakefield. 225 10 0
Plumbing. — G. F. Wild, Kirkgate, Wakefield. 137 10 6
Painting. — Turner & Sons, Wood-street, Wakefield. 73 6 0
..... £151 14 6

WALKERN.—For the erection of a detached house, Walkern, Herts. Mr. J. Randall Young, architect and surveyor, 89, Chancery-lane, W.C. —
W. French £1,100 F. J. Bailey £1,050
J. Redhouse 1,100 J. H. Aldridge (accepted) 945
F. Newton 1,050

WESTBURY SEVERN (Gloucestershire).—For the erection of a police-station, for the Standing Joint Committee, Mr. M. Medland, County Architect, 15, Clarence-street, Gloucester. —
H. A. Force £1,050 J. J. Coleman £1,050
A. King & Sons 1,077 W. Jones, Gloucester 1,050

WEST HUMBERSTONE.—For the construction of St. Barnabas-road, for Mr. J. H. Cropper, Messrs. Simpson & Harvey, architects and surveyors, Alliance Chambers, Leicester. —
Simpson & Kelton £1,050 12 4 Thomas Piddick, £1,050 14 2

WESTON-SUPER-MARE.—For the erection of laundry building, Moorland-road, Weston-super-Mare, for the Weston Sanitary Steam Laundry Company. Mr. Sydney J. Wilde, architect, Boulevard-chambers, Weston-super-Mare. Quantities by Mr. Maynard Froud, Bristol. —
Wm. Church £1,040 Charles Taylor £1,082
John Perkins 1,040 R. Wilkins & Sons 1,079
Edward Waters 1,030 Love & Waite 1,050
C. & E. S. Stradling 1,000 Keen & Keen, Weston 1,085
Elijah Love 1,085 Weston-super-Mare (accepted) 1,374

WINWICK.—For the erection of a County Asylum, Winwick, near Warrington, for the Lancashire Asylums Board. Messrs. Henry Crisp & Dalley, and W. S. Skinner, architects, Bristol. Quantities by Messrs. Hurrell & Taylor, Manchester. —
R. Neill & Sons, Manchester £151,000

WRENTHAM.—For the construction of a new road across the Belvoir Estate, Wrentham, for Mr. E. A. Hughes, Mr. J. Swanson, C.E., surveyor. —
A. Hulse £255 0 0 W. E. Samuels £350 0 0
J. Hughes 47 1 0 Davies Bros., Hill-street, Wrentham 312 5 0
W. Owen 432 0 0

C.B.N. SNEWIN
MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, BACK HILL,
HATTON GARDEN, and 22, BAY STREET,
FARRINGTON ROAD, E.C.
HE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 66, 74 Holborn. Tele. Address, "SNEWIN, London."

YORK.—For erecting stores, offices, warehouses, and public hall, Railway-street, for the Equitable Industrial Society. Messrs. Astors & Beck, architects, Marketplace, Doncaster. Quantities by architects. —
T. S. Uththam £2,000 12 0 Jackson Bros. 25,995 0 0
John Goffen 20,501 14 0 H. Arnold & Son,
Barker & Sharp 25,252 2 5 Printing Office
Wm. Bailey 17,014 0 0 Street, Doncaster 14,550 0 0
John Kiswick &
Sons 27,128 0 0
* Accepted for the whole of the work.

LONDON SCHOOL BOARD TENDERS.

The following lists of tenders were submitted by the Works Committee at a recent meeting of the London School Board:—

MONNOW ROAD.—Adapting house for schoolkeeper. —
G. Brittain £250 0 0 W. Hales & Son £191 14 0
J. F. Ford 234 0 0 Johnson & Co. 150 0 0
C. Chalder 195 0 0 J. & A. Oldman 251 0 0
H. J. Williams 199 0 0
* Accepted.

TOOTING GRAVEY.—Exterior painting. —
R. E. Williams & Sons £189 10 0 J. Garrett & Son £126 10 0
Holdway Bros. 165 10 0 Lilly & Lilly 107 10 0
Rice & Son 25 10 0

TO CORRESPONDENTS.

J. M. (Below our limit.—A. W. T. (Too late next week).
NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.
We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 12s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances payable to DOUGLAS FOURDRINER should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS IN LONDON AND THE SUBURBS. (By prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER and TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.
BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
The Doulting Stone Co.).
Chief Office:—Norton, Stoke-under-Ham,
Somerset.
London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

Asphalte.—The Seysse and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO'S
INK-PHOTO PROCESS,
4 & 5, East Harding-street,
Fetter-Lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.
METCHIM & SON 8, PRINCE STREET,
ST. GEORGE'S, WESTMINSTER.
"QUANTITY SURVEYORS' TABLES,"
For 1897, price 6d. post 7d. In leather 1/- Post 1/4 [ADVT.]

SZERELMEY STONE LIQUID.
THE TEST OF TIME.

OVER FORTY YEARS' GENERAL EXPERIENCE
HAS PROVED THAT

SZERELMEY STONE LIQUID
ABSOLUTELY WATERPROOFS AND PRESERVES
BRICKS, STONE, CEMENT, FLASERS, STUCCO, &c.
Adopted by Governments and Public Bodies
throughout the world.

SZERELMEY & CO., Rotherhithe New-road, S.E.

THE
French Asphalte
COMPANY.

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND
WORKMANSHIP FOR BUILDINGS,
DAMP COURSES, AREAS, ROOFS,
WASHHOUSE AND DAIRY FLOORS,
&c., &c.

This Asphalte was chosen to be
laid at Sandringham, on the new
General Post Office, and other
important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

Particulars on application.

CYLINDERS FOR HOT-WATER CIRCULATION.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL:

GLASGOW:

BRISTOL:

6 and 8, HATTON GARDEN.

47 and 49, ST. ENOCH-SQUARE.

ASHTON GATE WORKS, CORONATION-RD.

ILLUSTRATIONS.

Sheffield Architecture:—

The Mappin Art Gallery. (Messrs. Flockton & Gibbs)	Single-Page Photo-Litho.
Premises in High-street (Mr. Chas. Hadfield), and the Independent Offices. (Messrs. Flockton & Gibbs)	Single-Page Photo-Litho.
The Corn Exchange. (The late Mr. M. E. Hadfield and Mr. Charles Hadfield)	Single-Page Ink-Photo.
The Interior of the Mappin Art Gallery. (Messrs. Flockton & Gibbs)	Single-Page Ink-Photo.
The Yorkshire Penny Bank and the Albany Hotel. (Messrs. Perkin & Bulmer)	Double-Page Ink-Photo.
Victoria Buildings. (The late Mr. Wm. Flockton)	
Cairn Buildings. (Mr. Chas. Hadfield)	
The Sheffield Savings Bank. (Mr. T. J. Flockton)	
The Cemetery: Entrance Gateway and Buildings. (Mr. Chas. Hadfield)	
Business Premises. (Messrs. Flockton & Abbott)	
Royal Insurance Buildings. (Messrs. Flockton & Gibbs)	
Business Premises. (Messrs. Flockton, Gibbs & Flockton)	
Wesley College. (The late Mr. Wm. Flockton)	Double-Page Ink-Photo.
Firth College and General Schools. (Mr. E. R. Robson and Messrs. Flockton & Abbott)	
Business Premises. (Messrs. Flockton & Gibbs)	

Blocks in Text.

Sheffield Architecture:—

Auction Mart. (Messrs. Flockton & Gibbs)	Page 274
Municipal Buildings: Surrey-street Front. (Mr. Mountford)	" 275
Municipal Buildings: Fireplace in Mayor's Reception Rooms	" 276
St. Paul's Church, Sheffield	" 277

Sheffield Architecture (continued).—

St. Marie's Church, Sheffield	Page 277
Nurses Home, Sheffield. (Mr. Chas. Hadfield)	" 278
Pye Bank Board School—Messrs. Innocent & Brown, Architects	" 279
Springfield Board School—Messrs. Innocent & Brown, Architects	" 279

CONTENTS.

The Architecture of our Large Provincial Towns	273	Maidstone	277	Stained Glass and Decoration	281
Notes	281	Tottenham School Board Offices Competition	287	Foreign	287
Magazines and Reviews	281	Form of Contract	287	Miscellaneous	287
Architectural Societies	284	The Open Channel in Sanitary Drainage	287	Capital and Labour	293
Engineering Societies	284	The Tabernacle, Milton Abbas	288	Legal	293
Architecture of Sheffield	284	A West Country Church	288	Metallurgy	293
Liverpool Architectural Society	284	Student's Column: Quantities and Quantity-Taking. XII.	288	Recent Patents	293
The Sanitary Inspectors' Association	288	General Building News	293	Some Recent Sales	295
The London County Council	288	Sanitary and Engineering News	293	Prices Current	295
Competitions	287	Electric Lighting News	294	Tenants	295

The Architecture of our Large Provincial Towns.

X.—SHEFFIELD.



SHEFFIELD is a city built upon three hills, and—more especially, perhaps—in the valleys between them. The little river Don flows in the bottoms of two of the val-

leys, changing its course from south-east to north-east at the point where the still smaller Sheaf, coming from the south, joins it. The hill-sides are steep in places, especially on the north and east, and, though the main thoroughfares generally manage to find fairly easy gradients, many of the side streets are precipitous. The site must have been one of great natural beauty when, at some unknown period before the Roman invasion, the first settlement was formed, and until modern methods of trade, mining, and manufacture converted it into one of the grimmest of human ant-heaps.

The first-recorded step in the progress of the town was taken in the reign of Henry I., when a member of the family of De Lovetot, Barons of Huntingdon, became Lord of Hallamshire and owner of Sheffield Castle, which stood on the mound at the junction of the rivers and may have been an old Saxon "Aula." This noble, or his immediate successor, is said to have built the bridge over the Don now called Lady Bridge, the parish church (St. Peter's), and a hospital, if he did not also rebuild the castle. In his day the "town" probably consisted of two straggling streets, beginning at the bridge and ending at the church gate and the "far" gate, near the new municipal buildings, respectively. In 1615 the population was but 2,207 persons; but about a hundred years later it was estimated at nearly 10,000, and the

town had spread considerably and contained some thirty-five streets and lanes.

A writer in 1835 described Sheffield as being "nearly a mile in length from north to south, and three-quarters of a mile wide." At the present time the length of the town proper from north to south is over three miles, and the width at the north end about two, and there are many square miles of suburbs, extending chiefly on the west side. Roughly speaking, the outline of the plan is an isosceles triangle with its base towards the north, and its sides concave owing to the tendency of building to spread chiefly along the bottoms of the valleys. The streets of the older part are, with a few exceptions, narrow and irregular. The main thoroughfares may be said to radiate generally from the region round the old Haymarket, at the base of the western hill, where the markets, the old Town Hall, the Corn Exchange, Post Office, Police Offices, &c., occupy and surround the site of the old Norman castle. The principal street is still the High-street, with its continuation, Fargate, and it may properly claim to be first described.

It commences at a small open space called Fitzalan-square, at one corner of which is the Post Office, an uninteresting but solid block in the modern Renaissance style, with fairly good detail. It has the appearance of being very small for the work of a place like Sheffield. Opposite to it is the more pretentious but, on the whole, less satisfactory Birmingham District and Counties Bank, a "Palladian" structure with an order of three-quarter composite columns, surmounted by a balustrade and a weak little octagonal lantern at the corner. The order is correctly detailed and better than the rest; but the frontages are too short for such a treatment, and the building has an unfortunate appearance of being a mere section of a much larger one which has never been completed. Between these two, looking down Commercial-street,

is a view of the Gas Company's offices, another Renaissance design applied to a much larger building and much better conceived, somewhat after the manner of the Roman palaces. The quiet effect is spoiled by the shiny red granite shafts of the columns on the front, and by the little pedimented structure breaking the parapet; without these it would rank as a first-rate example of its class. The north side of the square is occupied by the "shambles," really the dead meat market, the ends of which are pretty little simple stone structures of two stories, reminding one of small theatres or assembly rooms. The stone gateways at the sides are also well designed, and it is a pity to have flanked them with shabby brick curtain walls. Passing out of the square one comes, on the left, to the new King's Head Hotel, in course of erection, the red brick and stone walls of which seem to be merely the clothing of an iron and steel skeleton, after the American manner, which is apparently obtaining a footing in Sheffield, for a little further up on the same side of the street a similar skeleton is being erected. On the same side, at the corner of George-street, there is a neat little stone front with François I. details and dormers, and further on a rather gaudy gable of orange terracotta. A long new stone front of mixed Gothic character (Messrs. Flockton, Gibbs, & Flockton) connects this with two small unfinished buildings facing the churchyard. Both of these have gabled stone fronts, and rather small features; indeed, it may be questioned whether the rustications of the first are not a good deal too small for effect. The second and smaller building looks as if it might turn out to be exceptionally interesting; the two lower stories form a flat bay projecting in front of the upper ones, and are richly detailed in contrast with a considerable flat wall space above; the second-floor windows are interesting, and the gable is a pretty one. The right side of the street, from the shambles almost to the churchyard,

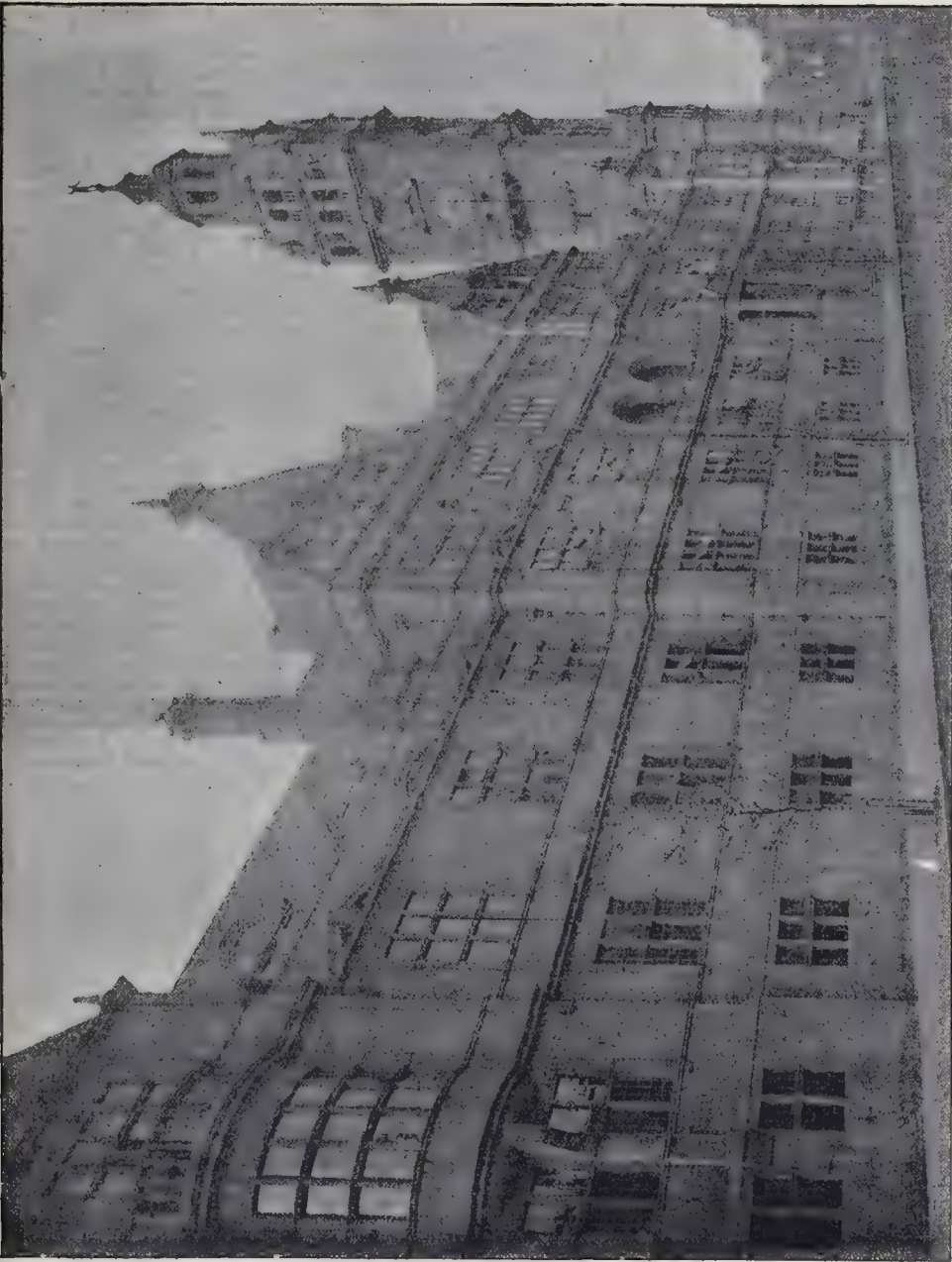


Auction Mart. (Messrs. Flockton & Gibbs.)

chiefly consists of old red brick buildings, but just at the end are two modern ones of some interest. The first, the little London and Midland Bank, is a rich example of modern Elizabethan, and the long side of it in York-street is very successful; but the main front and corner are overloaded with detail, and the curved lines of the gable are quite disagreeable. It is, however, entirely

overshadowed by its gigantic neighbour, a six-story block of offices designed by Mr. Chas. Hadfield and faced with red bricks, which (by the late Mr. William Flockton), with stone dressings in the Late Gothic style which he favours. It is correctly detailed and judiciously grouped—if only the two little spikes, which quarrel with the gables, were removed from the turrets. Continuing round the bend into Fargate,

this side of the street consists of a series of stone fronts, of varying design, the first of which (by the late Mr. William Flockton), standing at the corner of Church-street, we illustrate. They are none of them particularly noticeable, but they have an air of substantial well-being. On the other side, next to the unfinished buildings before described, is the auction mart, designed by Messrs.



Municipal Buildings: Surrey-street. (Mr. Mountford.)

Flockton and Gibbs, which is also illustrated. The front is rather too equally divided up and too full of window space to be very interesting, but the detail is excellent. Next to it is a tall, narrow, gabled building by the same architects, which owes its very satisfactory appearance to the careful grouping and excellent proportioning of its parts. Another of the same architects' works, the office of the *Independent*, higher up the street, has been made effective by recessing nearly the whole front between small turrets and further recessing the entrance on the

ground and mezzanine stories; the detail of this building is poor and unworthy of the architects. Next to it are the "Victoria Buildings," a block of shops designed in the style of the Florentine palaces with a good crowning cornice; unfortunately, it is all in stucco. The only other noticeable buildings in the street are those of the Young Men's Christian Association, and the Yorkshire Penny Bank and Albany Hotel. These form one huge block of somewhat similar Gothic character though differing in detail. The first-named is rather thin and flat, with

large window openings, and the other, though of heavy aspect, has the better effect, especially on the ground story which consists of a series of deeply recessed pointed arches overshadowed by a small—too small, we think—balcony; the architects of this building are Messrs. Perkin & Bulmer.

At the top of Fargate is the Jubilee memorial, a plain monolithic granite obelisk, of by no means imposing size, and opposite to it, at the corner of Pinestone-street and Surrey-street, are Mr. Mountford's new municipal buildings, which naturally chal-



Municipal Buildings: Fireplace in Mayor's Reception Rooms.

lenge attention and criticism. We have already published so many illustrations of this building* that we have not included it among our lithograph plates, but we give a view here from a point from which we have not before illustrated it, and also an illustration of the fireplace in the Mayor's parlour. The first thing that strikes one is that much of the detail of the building has not the thin and weak appearance which the published drawings would lead one to expect. It is true that this defect is seen in parts of the Surrey-street front, especially in the oddly

* The following illustrations of the Sheffield Town Hall have appeared in the *Builder*:—Perspective view and plans, June 23, 1890; Principal Entrance, June 30, 1891; extra large perspective view, July 11, 1891; Grand Staircase and two exterior views, May 21, 1892; south-west angle, February 17, 1894; Wrought-iron Gates, February 13, 1897; and the Vestibule and the Council Chamber, August 7, 1897.

weak lines of the main gables, but the tower and the gables of the principal front, especially the central gable, have unusual vigour and are eminently satisfactory. A little more material at the corners of the crowning arcade of the tower seems desirable, but it is an unimportant defect. The lapses into perfect Gothic detail here and there are curious, and show a daring spirit; one cannot say that they produce any glaring discord in this instance, but the experiment is one that can hardly be recommended for frequent repetition. The least satisfactory thing about the exterior of the building is the carving and sculpture, the scale and relief of which varies so much that the more delicate looks poor, and the more vigorous coarse, by contrast. We are not sure either that its distribution is in all cases judicious; there are sculptured parts which we think

might be better plain, and bare parts that seem to crave some ornament.

The interior is handsomely finished and the fittings have been designed by the architect in harmony with the building. The walls of the main entrance and staircase and the principal first-floor corridor, are lined with alabaster and Devonshire marbles in bands, broken rouge marble pilasters. The staircase is flooded with light from an enormous skylight, and there seems little reason for having introduced one little window in a corner that would certainly have looked better without it. The suite of reception rooms, with their high oak dado and panelled ceilings have a very fine effect, especially when the sliding doors dividing them are thrown open, but we think it is a pity to have hidden the architectural framework of the windows with heavy curtains hung from ugly curtain poles,* and it may be questioned whether the little architectural niches, with their rather weak-looking curved pediments, which break the panelling here and there, are really desirable. The fireplaces, electroliers, door furniture, and so on, in all the best rooms have been the subject, evidently, of a good deal of thought, and some of them are very successful. The joinery throughout the building, except on the top floor, is of oak, and one notices with satisfaction, as an evidence of thought in small matters, the rounding of the door linings leading into the various offices. The office corridors are paved with glass mosaic in large pieces, and the effect of the rich colour is good in those cases in which the tints have been carefully chosen.

Adjoining the municipal buildings is St. Paul's Church, a relic of the Renaissance, built in 1720. It is of plain design and black with age, but its parts are large and symmetrically arranged, and the details passably good, and it is certainly an ornament to the town. The interior is somewhat bare and uninteresting. Just behind the churchyard, in Norfolk-street, are Messrs. Mapping & Webb's premises, the centre block of which has a lofty and well proportioned gable of Jacobean character. In the lower part of Surrey-street is the Free Library and old Council Hall, a massive square three-story block, in the Italian Palace style, the best feature of which is its heavy cornice. Next to it is the Music Hall (1824), with an effectively grouped and pleasing stone front, the purity of the Greek detail of which is, however, impaired by an incongruous rusticated basement and a balustrade under the attic windows. The office of the Government Inspector of Steel, at the bottom of the street, is another quasi-Greek building, probably of about the same date, or a little earlier, with an Ionic order; the antæ, however, have column capitals! The School of Art in Arundel-street inclines one to ask why schools of art should so seldom be good examples of the art of Architecture. At the corner of Eyre-street is a not ineffective stone structure, which, from the symbols decorating the tympana of the windows and the mysterious absence of any visible entrance, is clearly a Freemason's hall. In Tudor-street, facing each other, are the old Theatre Royal, and the still unfinished Lyceum Theatre, the latter a building of some architectural pretension. Returning up Surrey-street and turning to the right, one passes, in Norfolk-street, the Hallamshire Savings

* For this, we believe, the architect was not responsible.

ST PAUL'S CHURCH
SHEFFIELD.ST MARIE'S CHURCH
SHEFFIELD.

Bank, an admirable little stone building, erected in 1859-60. The centre consists of a comparatively lofty recessed block of three bays, with columns of the composite order flanking the windows which are surmounted by lunettes above the cornice. The wings, containing the doorways are low and break forward, and the whole makes a most effective and dignified little front. A little further on is the corner of Norfolk-row, in which is situated the Catholic church of St. Marie, erected by the late Mr. M. E. Hadfield, with its mission buildings. It is an admirably executed piece of modern Gothic work, in the flowing Decorated style, and is a much larger building than one would suppose from what is seen from the street. There is a nave of five bays, broad aisles, short transepts, a chancel, also with aisles, and a small chapel over what is probably the sacristy. There are several rich and well-designed altars, and the pulpit is also a very rich piece of work, but not so satisfactory. The stained glass in the windows is above the average. The church has a lofty tower and spire at the end of the south aisle, over the baptistry.

Returning down Fargate, it is but a few steps to the old parish church of Sheffield, which has been so nearly rebuilt in the last and present centuries that it can hardly be called an ancient building at all. It is cruciform in plan, with a tower and well-proportioned spire over the crossing that give a little elegance to an otherwise squat-looking and uninteresting edifice. It is possible that this tower and spire date from the fifteenth century, but the pinnacles and other ornamental details must have shared the fate of the body of the building. The nave is said to have been rebuilt early in this century, but the stonework of the clearstory windows and the roof timbers are probably old, and

were merely raised to a higher level after the arcades had been rebuilt. The transepts and nave were lengthened in 1881, and these fronts are a little better than the older restored portions. There are some good monuments in the Shrewsbury chapel at the east end of the south choir aisle; one of them, of the seventeenth century, is exceedingly elaborate.

Opposite the churchyard, in Church-street, are three noticeable buildings—the Sheffield and Rotherham Bank, the Cutlers' Hall, and the Sheffield and Hallamshire Bank. The first, which looks more modern than the others, does not compare favourably with them, but is, nevertheless, well grouped and detailed. The smallness of the parts arising from the use of two orders superimposed, instead of one running through the whole height, and the inharmonious red granite shafts probably account for the comparative want of dignity. The Cutlers' Hall, which was originally five bays wide, with the middle ones recessed, has been rather spoiled by the addition of three more recessed bays which entirely upset the symmetry of the front. The great banquet hall reminds one of some of the City of London Livery Companies' halls and is a handsome room. One noticeable point about it is that it is exceedingly well lighted by merely a row of comparatively small lunettes above the cornice. The smaller hall is, architecturally, even more satisfactory than the other, the segmentally-curved ceiling, broken in the middle by a dome, looks particularly well. The front of the Sheffield and Hallamshire Bank is a row of eight Grecian Ionic three-quarter columns between antæ, separating the windows and supporting an entablature and attic. The design is certainly naive, but it is very well

carried out and exceedingly effective. Next door is a little block of offices with a neat little stone front, also inspired by Greek models; and further on, on the other side are "Cairns Chambers"—another of Mr. Hadfield's favourite and effective Late Gothic designs—with broad gables and shallow oriels; very quiet and self-restrained, and much pleasanter than the great block at the other end of the churchyard by the same architect. There is a daring use in this building of a very coarse brown stone pitted with holes, which is nevertheless very pleasant in effect. This architect's detail is always markedly good, particularly in the matter of scale. In St. James'-street, behind the Royal Insurance offices* and a new block of shops and chambers, is St. James' Church, an eighteenth-century edifice of little interest, with a curious little piled-up western tower or turret. At the top of Church-street, in Leopold-street and Bow-street, is an important block of buildings, consisting of the Firth College, School Board offices, and Central Board schools. The buildings are modern, and treated in a free manner with small Renaissance details and shallow pilasters, but show great skill, especially in the grouping. The long front to Leopold-street, with its principal masses connected by lower blocks, is especially good; the architect, too, has had some happy ideas in the treatment of his chimneys. The other side of Leopold-street is taken up with a series of rather ordinary stone fronts.

The largest and most remarkable building in the lower part of the town is the Corn Exchange, a lofty red brick and stone structure erected on the site of the old Shrewsbury hospital by the late Mr. M. E. Hadfield and his son, Mr. Chas. Hadfield, in the

* See illustration.



Nurses' Home, Sheffield. (Mr. Chas. Hadfield.)

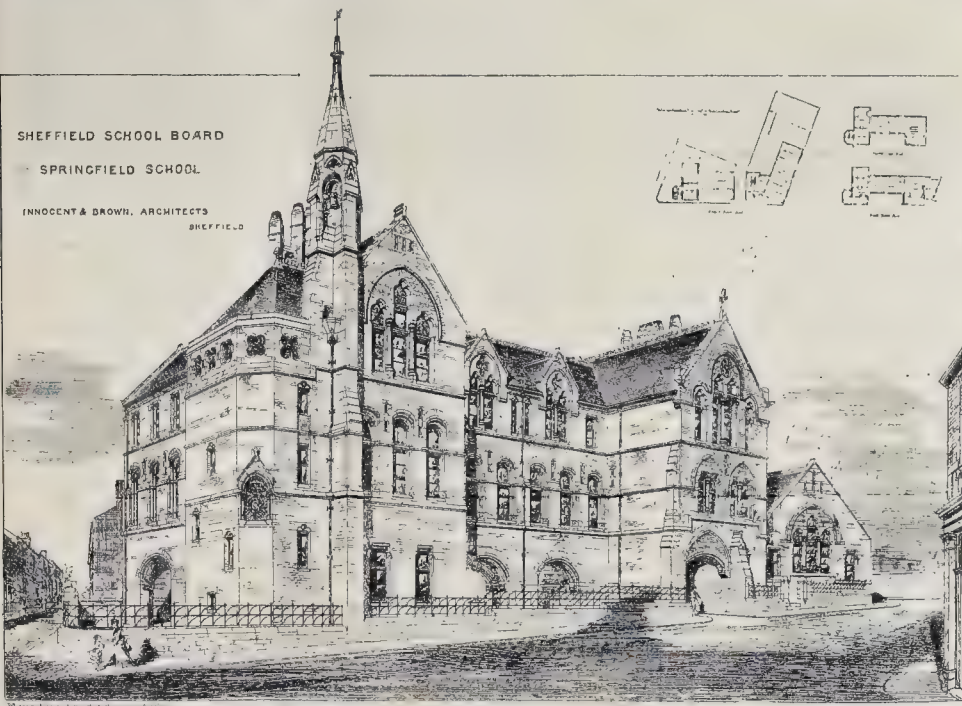
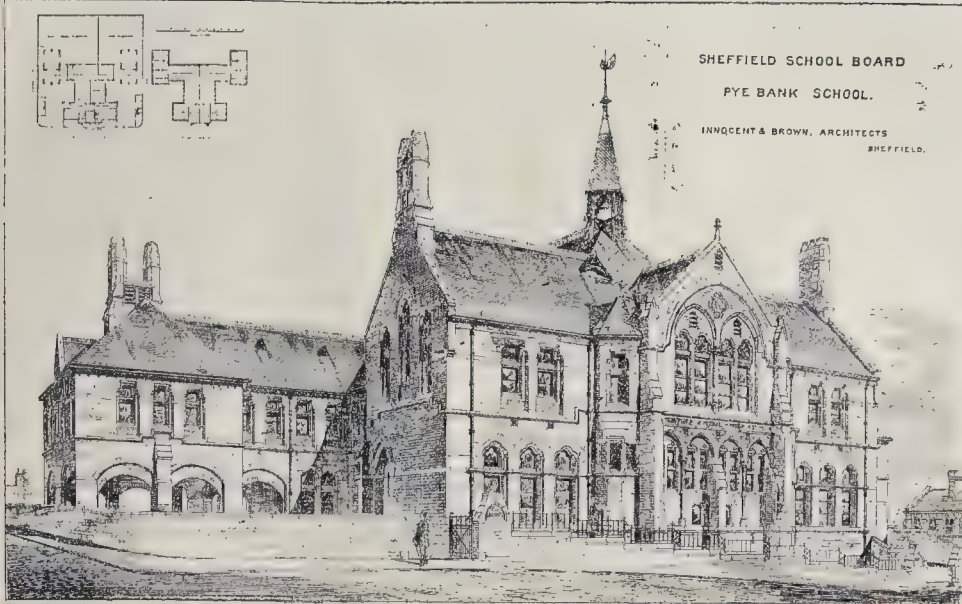
Gothic style of the fifteenth century. Its chief feature is a good entrance tower successfully imitated from a college gateway. The Corn Exchange proper is a handsome hall of five aisles, separated by stone shafts carrying polygonal wooden ceilings, all elaborately and carefully moulded and carved with appropriate detail. The hall is surrounded on three sides by three-story buildings, arched on the ground story and containing shops, offices, and an hotel. Above this, and between it and the Haymarket, are the markets, the principal building of which is a curiously inconsistent blend of a handsome rusticated stone basement and doorways with cheap and tawdry brick walls and a light iron roof. In Waingate, the continuation of the Haymarket, is the old Town Hall, a plain stone building with a simple rusticated basement and an ugly little square lantern tower. It is now used entirely as a Police and Quarter Sessions Court, and considerable additions, including a handsome new court and a large magistrates' room, have recently been made to it by Messrs. Flockton & Gibbs, in a style consistent with that of the old building: unfortunately they have allowed the nice oak fittings of the court to be polished. Behind the old Town Hall is the central police station, a heavy stone building with classic detail except for a band of would-be Gothic foliage. At the bottom of Waingate is Lady Bridge, on the site of De Lovetot's original work, and supposed to be, in part, the bridge that super-



seded his in the fifteenth century; but it is now wholly uninteresting, and is surmounted by a cast-iron railing without even any pretence of being ornamental. At the top of Castle-street, and corner of Angel-street, is a

new red brick block, thin and poor in detail, but not wholly without merit. A little higher up Angel-street is an old narrow stone front, over an india-rubber shop, worth passing notice and very superior to the more pretentious modern buildings higher up on the other side of the way. In Bank-street the Sheffield Union Bank and "Wharnccliffe Chambers," almost opposite, have some pretensions to architectural character, and the County Court House is a simple, well-grouped, and quite satisfactory building. Some little dark-red brick buildings on the south side of Queen-street are also pleasing. The Sheffield Union and Vestry Offices in West Bar are a handsome and satisfactory modern Renaissance edifice, having five bays on the front separated by Ionic columns, with rather cleverly managed and original capitals, and set upon rusticated piers between the ground-floor windows. The red brick gabled building next door is also good. Returning up Paradise-street, and turning into Pinfold-street, one finds a very neat little front to the Gas Light Company's Office, with the windows well grouped in the middle, and flanked by well-designed pilasters.

In West-street one passes nothing of architectural interest before reaching the Public Hospital and Dispensary, in connexion with which Mr. Hadfield has recently erected a new nurses' home and laundry, designed in a simple, but very happy, manner. The building is of red plastic bricks of good



colour, with a very little stonework introduced, chiefly the rough brown stone before mentioned. The end facing Eldon-street, the only part demanding much architectural treatment, is especially good, with its broad wall surfaces, scarcely broken, except by a shallow bay projecting over the main feature, a richly ornamented doorway, and surmounted by a broad, well-designed gable.

The side facing the courtyard is also well thought out. The older part of the building, if more elaborated, and in parts, perhaps, over-ornamented, is also excellent; the front to Westfield-terrace, with its one-story range of building, projecting and forming a terrace between two pretty little turrets, and broken by a broadly designed and dignified entrance, forms a most

satisfactory group. The portico of the chapel behind the hospital is, perhaps, worthy of notice. Returning by Division-street, the next building of any architectural value is St. Matthew's Church, Carver-street, built in 1855 in the later Gothic manner, and in very good style considering the date. It has a pretty little octagonal tower and spire at the west end. The house next door, no doubt

the vicarage and evidently recently built, is even better and very pleasing with its broad gable and centre oriel window. The Waterworks Offices in Division-street is a broad, low building with a well-proportioned cornice, and indifferent Renaissance details; effect has been sought by arcading the ground story, but polished granite shafts once more strike a jarring note, and a weak crowning balustrade bearing florid urns helps to spoil what might have been at least a passable front. The Albert Hall in Barker Pool is an extraordinarily vulgar mass, with heavy Gothic foliage ornament, and a Classical cornice. At the bottom corner of the street a curious building, with heavy and unsympathetic Greek features, but not without some merit, faces the new Municipal buildings. At the end of the churchyard in Pinstone-street is the Prudential Assurance Company's lofty building, faced mainly with red terra-cotta, and designed in a peculiar style, hard to describe, and unlike most of Mr. Waterhouse's work. One of the main features is a gable, the curves of which seem to be elliptical, and are certainly not beautiful. On the other hand, the other gable, the doorways, and some of the details of the window dressings are pretty and quaint, and suggest that a good deal of thought has been expended on the design. The other buildings in the street are not striking; they are mostly large new blocks of business premises, faced with red brick, with stone dressings, treated in various, but generally commonplace, ways; the best is, perhaps, the one opposite the churchyard, containing the Wentworth Café. The Empire Palace, in Upper Charles-street, deserves to be noticed for its bizarre originality. As it was evidently not intended to follow any recognised canon of architecture, it would not be fair to judge it by ordinary standards; but one may point out that the Oriental effect apparently aimed at might have been as easily, and more effectually, obtained by other means. At the top of the same street is the really charming little Deaf and Dumb Institution, a Dutch design, with narrow piers of triangular section between the windows, running up through crows-foot gables into square pinnacles with flat tops; it is a pity the window heads were not more appropriately treated instead of being made plain semi-circles. There is a very delicately designed little turret on the hip of the roof. Lastly, before leaving the central districts, there is the Crimea Monument, a red stone shaft with a very heavy capital, apparently of bronze, the exaggerated Early Gothic foliage of which projects far beyond the abacus, on which is seated a crowned female figure holding a sword and attenuated wreath.

From the eastern hill, behind the Midland Railway station, bird's-eye views of practically the whole town may be obtained, and one notes how the tall chimneys congregate in the valleys, particularly on the north-east. There is not, however, much of architectural interest in the district. The two churches, St. John's and the Sale Memorial Church, represent lost opportunities; each has a spire which stands up against the sky, and catches the eye from many parts of the city, but their outlines are weak and trivial. St. John's is a Gothic Revival church, built in 1836 in the lancet style; the other is a more modern rendering of the same period of work, and much better architecturally, but not an important building. The Shrewsbury

Hospital, on the Norfolk-road, is a group of one-story almshouses surrounding a green forecourt, and having the chapel in the middle and two-storied lodges at the ends. It was built in a bad period, architecturally speaking, but the grey stonework and the green grass are pleasant in the sunlight, and the place looks peaceful and homely.

Far out in the same direction is the new cemetery, the entrance-gate and buildings of which were designed by Mr. Hadfield. They are built of thin courses of the rough local stone, with ashlar dressings, and are admirable in design; the high gable on the left, facing the road, and not shown in the illustration, is particularly happy. The grass and flower-beds in the grounds are well-kept, but the monuments are of the usual commonplace type. Close to one corner of the cemetery is one of the few relics of old buildings to be found in or very near the town, the ruins and restored lodge of Sheffield manor house. The lodge is a little square, two-storied building, with plain, mullioned windows, and strings over them, and battlemented parapets broken by a little circular turret at one end. The chimneys are square shafts set angle-wise, but are probably all restorations. The small part of the house of which any trace remains above ground is apparently of similar date and style—say the reign of Henry VII.—but it has been much patched and altered, apparently for use as farm buildings or labourers' cottages, and is now in a hopeless state of ruin; one sturdy chimney-stalk, with a rich crenellated capping, alone stands in a state at all approaching "good preservation."

In the southern district, east of the London-road, the principal public building is St. Mary's Church, another of the Early Gothic Revival churches which are only too plentiful, from an architectural point of view that is, in Sheffield. It was built in 1826-30 in what was then supposed to be the Perpendicular style. It has a square tower of thin proportions, with tall pinnacles at the corners, and stands in a neglected and untidy churchyard. St. Simon's, nearer the middle of the town, is a more modern church, built of red brick. It has a saddle-back tower of fair proportions. The Brunswick Chapel on the London-road is a commanding stone building, standing back behind a spacious forecourt, with a heavy tetrastyle Doric portico. Opposite to it is a new branch of the Sheffield Union Bank, a satisfactory stone building, with an order of Ionic pilasters running through the upper stories, and a semicircular projecting porch. Nearer to the railway there is the drill hall, another of Mr. Hadfield's buildings, with his favourite square entrance tower, this time crowned with heavy machicolations connecting the angle turrets. Close to it is a nicely designed Catholic school building with simple, well-understood Gothic details; and opposite this is a Board school, built, like most of the Sheffield Board schools, of rough local stone in quasi-Gothic style. St. Wilfred's Catholic Schools, further south, are also worthy of notice as a very charming, well-designed group, with good detail; and the Girls' Charity School on the London-road attracts attention as a good example of an old square red-brick Georgian mansion. Christ Church, in the suburb of Heeley, is a very good piece of work for its period (1848), and its stone-roofed porch is interesting.

In the south-western district, lying between Weston Park and Sheffield Moor, the most prominent building is again a church dating from the early part of the century, St. George's, built in 1821. It has a better proportioned tower than St. Mary's, and is altogether, though very bad in detail, a better designed, and more dignified building. The nave and chancel are under one roof, and there are aisles and a south porch. The gravestones in the large churchyard are laid flat, a peculiarity of several of the Sheffield churches, which seems to give the edifices themselves a cold and isolated appearance. Opposite the east end of the church is the Technical School, a building of apparently about the same period. In a street near is the Jessop Hospital, a lofty and important building in a florid Gothic style, built in red brick and stone with high-pitched slate roofs. Hanover Chapel, in Upper Hanover-street, is a large, and, for a place of worship, extraordinary looking structure. At first sight it would appear to be a building of three rather lofty stories, with a pilaster order running through the two upper ones, but the grouping shows that it is a hall of cruciform plan with, no doubt, schools or a secondary hall beneath. Its height and mass render it impressive, and its proportions on the whole are good; but in the architectural details it fails, and the domestic character of the windows seems, in some way, to verge on the humorous. In the same neighbourhood are also the Springfield Board Schools, by Messrs. Innocent & Brown, which we illustrate (page 274). They are in the same quasi-Gothic style as most, if not all, the Sheffield Board Schools, and have the features and details which, combined in various ways, occur again and again in the other buildings. The best of them are the grouped chimneys and ventilators—which, by the way, show better in the illustration of the Pye Bank Schools. St. Silas' Church is only remarkable for the fact that one has to pass through five successive pairs of doors to enter, so sensitive, it seems, is the congregation to draughts.

At this point commences suddenly the principal residential suburb, comprising the districts of Broom Hill and Ranmoor, thickly sprinkled with villas and larger houses, surrounded by gardens. They are almost all built of the pleasant rough local stone, similar to, but apparently not so hard as, the stone used in Bradford, and generally thicker in the bed. It is a pity that most of the buildings are roofed with blue Welsh slates, the colour of which does not harmonise with the stone in the least; and that ornate barge-boards, high-pitched gables, and general restlessness are so often the chief features in the design. There is no space to point out individual examples; we can only mention the well-known old half-timbered house, Broom Hall, now all stuccoed over with the exception of one rich but much decayed gable. On a steep slope to the south is the Old Cemetery, very neglected-looking and untidy, having a heavy Greek Doric entrance gateway, and a large chapel with a well-proportioned tower and spire, and good Gothic detail of the Decorated period. The Wesley College on Broom Hill (see lithograph) is a composition of the kind which the Gothic revivalists succeeded for a time in inducing us to despise, but the breadth and dignity of which we are now again able to appreciate. It is

a pity that the little turrets on the end blocks should be suffered to remain. The High School for Girls, in a side road just beyond the College, is a pleasing piece of design, and St. Mark's Church behind it is a good example of a modern Gothic church. The tower and spire especially are well proportioned and of pleasing outline, and the mouldings and other details, excepting the window tracery, are well designed. St. John's Church, Ranmoor, is a building of similar character, but not so good in design, the tower and spire being markedly inferior in their proportions and wanting in visible stability, owing to the excessive number and size of the openings in the tower walls.

To the north-east and nearer the middle of the City is the Mappin Art Gallery in Weston Park, of which we give interior and exterior views. It was built in 1886-7 by Messrs. Flockton & Gibbs, in the Classic Greek style which, externally at least, has been unusually carefully and successfully carried through. We are disposed to doubt the wisdom of putting the little lion on the apex of the main pediment; its small scale, compared with the other ornament, deprives it of dignity if it does not render it ridiculous. The carving in the tympanum is also not quite right; it is too crowded. But the building as a whole is without question a very great success, including especially the lighting of the central gallery. The modelling of the panels in the terra-cotta gate posts at the north-east entrance to the park is worth going a long way to see.

There is little to note in the more northern parts of the town. The Infirmary is perhaps the most important building, but is not marked by much architectural character. St. Bartholomew's Church is a slight departure from the style of most of the churches in the town, but is very simple, which, however, may be the reason why it seems a little more successful than some. There is a small quietly designed school with some pleasing originality opposite St. Joseph's Home on Howard Hill; and St. Catherine's Presbytery in Andover-street is worthy of mention for its restful simplicity; but the only other object we have discovered that could be conscientiously praised for artistic excellence is the reredos in St. Michael's Church.

For its size and importance Sheffield does not seem to be very well supplied generally with buildings of good architectural character. It is true that a great part of the area, in fact the whole, except a few streets in the centre, the western suburb, and small districts on the north and north-west, is taken up by factories and workmen's dwellings; but the number of churches, chapels, and schools is enormous, and they, at least, give the architect a chance which might often have been turned to better account. There are architects in Sheffield who have shown that they are capable of doing good work, but either they are apt to fail when they take in hand a church or chapel, or the various religious bodies, excepting, perhaps, the Roman Catholics, do not succeed in securing their services.*

* "THE ANCIENT ARCHITECTURE OF IRELAND."—No. 4 of Professor Baldwin Brown's papers on this subject will appear in our next issue.

PERSHORE ABBEY.—On page 263 *ante* (first column) there is a misprint in the date of a piece of Newton's work, which is given as "1534." It should be "1434."

* The next of this series of articles, on the architecture of Birmingham, will be given in our issue of November 20

NOTES.

Manchester
Drainage
Scheme.

WE learn that at a meeting of the Manchester City Council, held on Wednesday morning, the scheme of the City Surveyor for conveying the effluent from the Corporation Sewage Works, Davyhulme, to a point in the Mersey estuary about twenty miles from the City of Manchester, was considered, and it was resolved, by a majority of sixty-eight—viz., seventy-one for, three against—to apply to Parliament for power to construct the proposed works. For Manchester interests alone this is no doubt an excellent scheme, but it appears to us to be an exceedingly selfish one as regards its effect on towns lower down on the estuary, and the Port of Liverpool in particular, and we shall be surprised if Parliament grants the powers asked for.

WE suppose it is quite wrong to believe that at Government offices structures' and machinery are in good order. At any rate, it is certain that there is mismanagement at the General Post Office. A sorter was recently killed there by falling from a lift. This, it appeared, was insecure for men but was habitually used by them. At the inquest the jury found that the lift was "totally unfit for passenger traffic," which, however, seems to have been habitual. But, in addition, there was a misleading notice as to the use of a lever, and a speaking-tube for the use of the attendant had been broken and useless for twelve months. If such an accident had occurred in a private building we should have never heard enough of the culpability of employers. We hope that when Parliament meets attention will be drawn to this case, and that it may lead to a thorough investigation of the lift and other machinery not only at the Post Office but in other Government buildings.

Excavations
at Lycosura.

THE Athenian Πρακτικά for 1897 is almost wholly devoted to the publication of the architectural results of the excavations by the Greek Government at Lycosura. Four plates are devoted to detailed plans; first, a general plan of the site, including the peribolos wall, the stoa, a Byzantine church, as well as the great temple of Despoina; second, a detailed plan of the great temple with the mosaic and the bathron which supported the cultus images; fourth, a series of sections, and fifth, a restored front elevation. The disputed date of the remarkable sculptures discovered is, of course, involved in the architectural question. The sculptures were published some time ago in the "Fouilles de Lycosura" of M. Kabbadias, so that now the public are in possession of full material for criticism.

Casts of Delphi
Sculptures.

PENDING the publication too long delayed of the Delphi discoveries, we are glad to learn that M. Homolle has sent casts of some important specimens to the Louvre Museum. These include the famous bronze charioteer and specimens of the curious archaic frieze and metopes that adorned the "treasuries" of the Siphnians and Athenians. We trust the authorities of the South Kensington Museum may be able and willing to secure duplicates of these casts, as any discussion

of archaic Greek sculpture is now incomplete without these remarkable works. The metopes of the Athenian Treasury are of great beauty as well as historical interest.

Holy Trinity
Church, Strat-
ford-on-Avon.

A FUND is opened for restoration of the parish church, together with the re-seating of the nave and re-modelling of the organ, after Mr. G. F. Bodley's designs. It is supposed that the church occupies the site, and embodies materials, of the monastery which, with 3,000 acres of land, was acquired under a charter of Ethelred, King of Mercia, by the see of Worcester, owner of the manor until its exchange with the Duke of Northumberland, temp. Edward VI. In Edward II.'s reign it was enlarged by John de Stratford, appointed Bishop of Winchester in 1323, thrice Lord-Chancellor to Edward III., and Archbishop of Canterbury, 1333-48. He widened the north aisle, and built a chapel to the Virgin, re-built the south aisle, adding at its east end St. Thomas à Becket's chapel, renewed the tower, and, it is said, erected the wooden spire that existed in Shakespeare's day: the stone spire, octagonal on plan, was built in 1764. In the following reign the St. Thomas chapel was converted into a chantry of five priests, for whom Ralph, John's uncle, built a house by the churchyard, which, twenty years later became the College, whence the church took the title of Collegiate. The College subsequently became a private residence, and passed from John Combe, the poet's friend, to the Cloptons; it was pulled down in 1799. Thomas Balshall, warden, built the choir, circa 1470; the north and south transepts, temp. Henry VII., were built by Sir Hugh Clopton's executors. Sir Hugh, elected Lord Mayor in 1491, died in London, and was buried, it seems, at St. Margaret's, Lothbury, to which church he "bequeathed" his body; an altar tomb beneath an arch carved in freestone, and with his arms above, on the north side of the church at Stratford, is believed to be his cenotaph. He rebuilt the bridge (1490) of stone, having fourteen pointed arches (and widened in 1814), and the nave of the Chapel of the Guild of Holy Cross. His will mentions the "great house," afterwards New Place, bought for 60*l.* of William Underhill by Shakespeare in 1597. Close by are the tombs, with effigies, of George Carew, Earl of Totnes and Baron Carew of Clopton, his wife, Joice, and her parents, William Clopton (1592), and Anne, his wife (1596). In the chancel are Balshall's tomb and, with an alabaster effigy, that of John Combe (1614). The charnel-house, demolished in 1800, is said to have been part of the church in Edward the Confessor's time. Shakespeare's grave is next but one to the chancel north wall and next to his, against the wall, is his wife's.

Mr. RICHARDSON EVANS, the Disfigurement by Hon. Secretary of the "Society for Checking the Abuses of Public Advertising," wrote an excellent letter in the *Standard* a few days ago drawing attention especially to the disfigurement of street buildings by the large lettering of labels and tradesmen's names affixed to them. Public criticism has been successful in getting some big lettering removed from the shot-tower opposite the Victoria Embankment, and Mr. Evans suggests that the campaign against such

lettering should be pushed further before this bit of success is forgotten. The question is really an important one in regard to the appearance of cities. Our street architecture is improving by degrees, but as far as the general aspect of a city is concerned it is very little use improving the architectural design of the buildings if as soon as they are erected they are to be bedizened with immense letters distracting the eye and destroying all the scale of the architecture. Mr. Evans suggests that many owners who put up these huge notice boards or letters really have no particular wish to do so themselves, but think they must do it because others do; a general legislation against it would really be a benefit to tradesmen in saving them, all alike, from an expenditure which each feels bound to undertake because the others do. Mr. Evans says in conclusion:—

"I agree that regulation can hardly be a matter of æsthetic discretion. We must have a plain rule that depends only on the measuring tape; and the rule must be a flexible one, permitting of variation in accordance with the special circumstances of the localities in which it is to be enforced. I must not, then, be understood to lay down a hard and fast criterion, if I submit that a simple regulation prescribing a maximum size for letters, and forbidding any display of 'speaking emblems' at more than a given height from the ground, would not be resented by traders, and would place an effective restraint on the grosser sorts of advertising. Observation will, I think, prove that what most offend are the displays on roofs, parapets, and the higher stories. The agglomeration of eye-catching devices below would be tolerable, if there were a clear space above on which the sight could rest."

This is a reasonable and practical suggestion, and we hope it will have some attention.

A Carillon in Paris. AN official architect of the 1st arrondissement of Paris, M. Gion, has initiated the work of re-instating the carillon in the tower of the Church of St. Germain l'Auxerrois, which was put up in 1861, under the direction of Ballu. It contains thirty-eight bells, worked by a keyboard. The whole mechanism is now undergoing repairs, under the direction of a committee of architects, musicians, and specialists in bell-work.

A Defence against Vandalism. A CORRESPONDENT suggests that an expedient against the vandalism of writing names on antiquarian or other monuments, which has been tried on Dartston Head, near Swanage, should be repeated in other places. At the entrance to the enclosure, which contains the great stone globe, are placed two stone slabs. These bear the inscription, "Persons who are anxious to write their names will please do so on this stone." The mere notice would be sufficient to prevent reasonable-minded persons from writing their names anywhere, but, strange to say, the invitation is accepted, and persons—mostly of an ill-educated class, as is seen from the handwriting—place their names on the stone. A kindly rain or a watchful keeper presently erases these autographs, and more lovers and trippers find a clear space for their epistolary efforts. These slabs are, in fact, like the bottles which gardeners place in fruit trees to entice the wasps. But, as to write down a name appears to be the desire of many a picnicking Briton, obviously a harmless stone should be provided for his accommodation.

Sunday Opening of the National Gallery. THE Sunday Society is circulating for signature a memorial to the directors of the National Gallery, objecting to the abandonment of the Sunday opening during the winter months, and urging that winter is just the time to have the Gallery open, when the parks and outdoor resorts lose their attraction. The reason originally given for closing the Galleries during winter was the short amount of daylight left after 3 p.m.; but the directors so far gave way as to keep the Galleries open after 2 p.m. till dusk up to October 15. Why not go a step further and open them at 1 p.m.? There would then always be a sufficient amount of time to see the Galleries before dark. The Sunday opening has been greatly appreciated by the public, and it seems a great pity to discontinue it for five out of seven months in the year.

A New Architectural Society. WE have received information of the formation, last week, of the "Perth Architectural Association," the list of officers of which is given under our usual heading in the "Architectural Societies" column. The Association is at present only formally constituted; but it is intended, when it is fully in operation, to have classes in design and construction for the students, and monthly lectures on important architectural subjects. We wish the Perth Architectural Association every success.

The "T-Square" Club. WE have received from Mr. Albert Kelsey a copy of a paper, in French, read by him at the recent congress of architects at Brussels, as delegate of the "T-Square" Club at Philadelphia, and giving some account of the formation, and objects of the club. As may be surmised from its name, it is an architectural society, founded at Philadelphia in 1883; it is incorporated as a society under the laws of the State of Pennsylvania, and is in connexion with the University of that State. In the course of the paper referred to, Mr. Kelsey, who is one of the colony of American architects resident or studying in Paris, comments on the great attention now paid to architecture in the centre of education in the United States, and also alludes to the efforts of his club towards the development of a purely American school of architecture. That is no doubt an attainment to be much desired, but it will not be brought about by the wholesale adoption or imitation of Ecole des Beaux-Arts methods, and even phraseology, of which we see so much at present among American architects. The latest action of the "T-Square" Club, and one of a more practical nature, has been to issue a vigorous protest against what they aver to be an unfair setting aside of the terms of the competition in the case of the State Capitol competition.

Norwegian Marbles. A FURTHER attempt is now being made to introduce into England the sale of Norwegian marbles, consequent on the transfer of some of the principal quarries from private hands to a limited company, under the style of "Den Ankerske Marmorforretning." Norwegian marbles are said to have been used in London at the Junior Constitutional Club, and samples are now being shown at the company's temporary offices, where they

may be seen to possess considerable range of colour from pure white to black. The purely white are principally dolomite marbles, and therefore of considerable hardness. The greatest range of colour is found in the calcareous marbles which, although some are dark grey and black, are generally delicate in tint and, for the most part, combinations of white, pink, and blue. There is also a dark green serpentine, and a Labrador with considerable play of colour in its shade and crystallisation. Experiments have been made by the Royal Laboratory for Testing Building Material, Berlin, and the results which the company publish seem to show very satisfactory qualities in the marble both for crushing strength and durability.

The Late Sir John Gilbert. THE death of Sir John Gilbert, at the age of 80, removes from among us one who, if he was not a great artist, for his range was a narrow one, had very powerful qualities within that range. He was a mannerist, painting almost always a certain class of subject in a certain very recognisable manner; his pictures remind one of what Carlyle said about Scott's novels, that "he went in for the buff-jerkin business;" and unquestionably one got rather tired of the constant repetition of mediæval warriors on cart-horses. Yet in the composition of these scenes, considering the similarity of the main elements in all of them, there was really a remarkable variety of grouping and of landscape effect; and each picture was a pictorial whole, the interest of figures and landscape being thoroughly blended so that the one element could not be considered apart from the other. The artist's style, both in oil and water-colour (which he handled with equal ease), was broad and free, and the continued and unflinching vigour of his works, even in his latest years, was remarkable; there was no difference in this respect between the works of his younger days, and those painted when he was verging on eighty, except, perhaps, in favour of the latter. On the few occasions when Sir John Gilbert departed from his habitual line of subjects, and gave his best efforts to an important historical painting, the result indicated that, had he given more time to such works and less to "the buff-jerkin business," he might have taken a higher place than he did. We remember thinking, the year that his picture of Wolsey arriving at Leicester was exhibited at the Academy, that the head of Wolsey was the finest and most expressive thing in that year's exhibition.

The Photographic Salon. THE exhibits at the Photographic Salon, now open at the Dudley Gallery, are less numerous than on some former occasions, perhaps because there has been a desire to limit it to productions of special interest. The theory that photography can be used so as to express what a painter would express receives more support in regard to landscape than we have seen before. Mr. A. Horsley Hinton especially, in photographs of landscape effect, seems really to have made a kind of style of his own; his photographs are recognisable as possessing a special quality of sentiment; though we see even in these how realism is less effective than artificial composition, as in "Homeward Loiter-

ings" (7), where the sheep make a straight line across the centre of the picture in a manner that no painter would have allowed. In "Dreamy Marshland" (187) another photographer, Mr. Karl Greger, has managed to catch his sheep in a more picturesque and effective grouping. Again, in the subject by Mr. Craig Annan, "All in a Garden Fair" (125), where we look out through a garden-entrance door at the figure of a lady on the lawn, one is immediately struck with the commonplace look of the figure compared with that which a painter would probably have given us. Two or three nude studies of figures partially veiled in foliage, with classical names, convey the same lesson; the real nude is seldom equal to the idealised nude. Among landscapes in which there is a decided effect of artistic sentiment are (besides those by Mr. Hinton already referred to) "Castaway" (6) by Mr. Bucquet, an old shaft on a desolate beach; and "Evening on Maggiore" (102) by Mr. Tuke Tylor. We have several of the attempts to get artistic effect by photographing on to prepared blotting-paper (such at least is the appearance). In some figure studies an original effect has been attained, as in Mr. Eickemeyer's "Michael" (80), a child photographed through a window; Mr. Robinson's "A Strange Bird" (87), a child in a wood; Zaida Ben Yusuf's "Study of Head and Back" (164); Mr. W. Crooke's life-size head of a very beautiful girl (179); Mr. R. W. Robinson's piquant and expressive "Portrait of a Lady" (183); and Mr. Hollinger's pretty bust portrait (210). Many of the figure studies are however commonplace and uninteresting, and some downright vulgar, among which latter see Mr. Demack's "Idea for a Poster" (119) is disagreeably conspicuous. As usual, architecture, which is so suited for making photographic pictures from, is nearly neglected.

MAGAZINES AND REVIEWS.*

In the *Contemporary Review* "Vernon Lee" and Mr. Anstruther Thomson commence a very serious essay indeed, which, under the title of "Beauty and Ugliness," is nothing less than a fresh attempt to inquire into the reasons why some forms (or they confine the inquiry, for reasons given, to Form) are felt as beautiful and others as the reverse. The attempt is made to connect perception of form, and the sensations derived from it, with its agreement or not with our corporeal mechanism; but in the course of the consideration the authors assume that the influence of form on bodily mechanism which they experience (or think they do) is conformable to general experience, which we very much question. The essay deals at the close with the question of architectural beauty, in the course of which various assumptions are made in regard to mediæval architecture and the reason why it affects us differently from "its soulless modern imitations," some of which appear to us entirely gratuitous assumptions and some contrary to fact. The reader may gauge the nature of the criticism by the following sentence:—

"We take but little interest in a modern pointed arch with exactly equal sides, for the pressure of the two seems comparatively passive, and we feel as if nothing were taking place. But a slightly uneven-sided arch, like those of good Gothic work, affects us as extremely interesting, for we see the two sides of the arch actively pressing against each other, and this at once calls up in us active sensations of equilibrium."

The conclusion from this would be that the authors believe that "good Gothic work" is generally set out carelessly or wrong, and that

herein lies its charm. This was a charm, at all events, unknown to the builders of it, for we may depend upon it they meant to set it out right. And does Greek architecture also owe its charm to faulty setting out? Or has it no charm? This seems to be one of the most foolish paradoxes in architectural criticism that we have come across. There is a great difference, undoubtedly, between the effect on the mind of genuine ancient architecture and a modern imitation of it, but the secret lies in something much more intangible than the bad setting out of the former, which the authors apparently assume as always existing. The aesthetic of architecture will hardly be much advanced by such paradoxes as this.

In the *Art Journal* Mr. Bartlett's "Summer-time at St. Ives" is illustrated by some charming sketches of the place. Mr. Claude Phillips continues his series of articles on the Longford pictures, and Mr. Scott Morton, in "Art in the Home," devotes his attention in this number to "The Drawing-room." The frontispiece is a reproduction of Mr. Whistler's portrait of himself.

The *Magazine of Art* includes an article on Sir E. Poynter's studies, the illustrations of which, especially those for "Atalanta's Race" (one of the finest works he ever produced) are of great interest. An article is devoted to the works of that fine modern landscape painter Mr. C. E. Johnson. A short article on antique embroideries contains illustrations of some very beautiful work. Major Arthur Griffiths contributes some personal reminiscences of that great and early lost artist and noble man, Regnault, whose death in battle at the age of twenty-five may be said to be one of the greatest losses the French sustained in their *année terrible*. The frontispiece to the number is an etching of Ely Cathedral by M. F. S. Walker; not an architectural subject in the usual sense; a landscape with the cathedral forming a centre object in the middle distance. It is a fine and effective composition.

The *Architectural Review* (Boston) devotes the chief part of its illustrative plates to Messrs. Peabody & Stearns' City Hall, Worcester, Mass., a building of which the central campanile looks a little too much as if it had been transplanted from Italy, but which in the main is a fine, broad, simple design set off by some very delicate and charming detail, which is well shown in the detail elevations; it is a pity the plan is not given, so as to make a complete illustration of the building. There are also two sheets of geometrical drawings of a staircase in a large private house, by Messrs. Shepley, Rutan, & Coolidge; a good piece of work, but the archway through which the stairs start seems too low in headway (as far as proportion goes) for a staircase of such otherwise dignified design. It is observable that, though all the illustrations in the number are geometrical drawings, not one has a scale, an omission which we suspect arises from that passion for doing everything in the same way as the French which seems to possess American architects at present. It is one of the bad practices of French architects never to put scales on their drawings, and so the Americans will not either.

In the *Century* Mr. Cole's series of engravings of "Old English Masters" deals this month with the great name of Reynolds, to whom a longer notice than usual is assigned, written in rather a grudging spirit, though the general view taken of Reynolds's powers and limitations is on the whole sound, and the writer (Mr. Van Dyke) sums up by admitting that in taste, intelligence, and breadth of accomplishment he excelled all his eminent rivals of his own day. This is followed by an illustrated paper by Mr. Pennell in praise of Charles Keene, whom no one admires more than we do; but when Mr. Pennell calls him "the greatest English artist since Reynolds," and when he takes the opportunity of informing his American readers, because Ruskin did not appreciate Keene, that "English art and art-criticism are a laughing-stock to the whole world," one can only say that were all English art-criticism like Mr. Pennell's, in regard to either judgment or literary style, it might well be regarded as a laughing-stock.

Harper includes an article on "The Century's Progress in Chemistry," by Dr. H. Smith Williams.

Scribner devotes an illustrated article to an American lady portrait-painter with a French name, Miss Cecilia Beaux, the illustrations from whose works confirm the praise given to them more fully than is sometimes the

case, but it is amusing to find quoted the opinion of an American painter, Mr. Chase, to the effect that his countrywoman, Miss Beaux is "the greatest living woman painter," in the face of the existence of Rosa Bonheur and Mme. Demont-Breton. The advance of American art and artists is a subject of the greatest interest, but it is a pity that the Americans will spoil the effect of it by blowing their own trumpet so continually in their own publications. Sculptors will find some interest in the article on and photographs of a supposed antique statue of Venus existing in a private collection at New York, as to which there is a controversy whether it is a genuine antique or a very clever forgery. We can only say here that the full-length photograph of the statue has a very genuine appearance.

To the *Fortnightly* "Vernon Lee" contributes a short and (for her) rather exuberant article on "Imagination in Modern Art," as illustrated in certain works by Whistler, Sargent, and Besnard. There is, of course, something in the article, the most original suggestion being that there is a field for a highly imaginative and at the same time decorative treatment of nature which may form the special achievement of modern art. Decoration in future is to be rather of colour than of line, "as in the fairest moss and leaf veinings, the liquid forestreakings of precious marbles," &c.

"Once painters have learned the necessary craft, and beholders have felt the emotion attaching to things not human, as much as they already feel the emotion of human things; shall we not see walls and ceilings covered with patterns like these river reflections—silver-on-silver scalloping, dark trees on pale sky, ripple of current over weeds, circles of jumping fish, flaming in and out of willow boughs turned to green and gold in the water? And will this not, far better than ten thousand landscape views, satisfy the sense of poetry that lies in nature?"

Well, on the whole we think not, and that landscape painting in the usual sense of the word is a far more intellectual form of art than any of the decorative treatment described so picturesquely in the above quotation. And it would be a question whether we should not tire of that sort of decoration in time, and long for quiet walls again. We sympathise entirely with Vernon Lee's praise of Besnard for his imaginative perception in decorating the walls of the Ecole de Pharmacie, not with pictures of chemical operations, but with representations of the great events of life with which medical chemistry is concerned—"The Attack of Death," "The Victory of Life." But Raphael had pointed out that path already.

The *Revue Générale* contains an interesting article, of rather unusual type, by M. Léon Sougenet, on "Le Paradis de Van Eyck"; an attempt to realise and describe the life, manners, personages, &c., of Van Eyck's day, by way of throwing light on his art and on the treatment of the picture.

Knowledge includes two articles of considerable interest, one on Greek Vase painting in Italy during the fourth, third, and second centuries B.C., and one by the well-known French astronomer, M. Flammarion, on "Some new views as to the planet Venus," though we do not arrive at any of the "new views" in this month's number, but only at a conclusion that Venus is an almost impossible planet to the observer, as far as examination of the body of the planet itself is concerned.

The *Gentleman's Magazine* contains a short article by Mr. J. Ellard Gore, F.R.A.S., on "The Distances of the Fixed Stars."

The *Pall Mall Magazine* contains a very fully illustrated paper on "Wilton House," by the Countess of Pembroke, and one by Miss Alice Dryden entitled "Northamptonshire Village Jottings" illustrated by photographs of many pretty bits of old building. Of both the articles it may perhaps fairly be said that the illustrations form the most important part.

The *English Illustrated* contains an account of a now nearly-forgotten exploit in the early days of ballooning, "The first long voyage in a balloon," that of Green, with the Nassau balloon, in 1836.

BATTERSEA POLYTECHNIC INSTITUTE.—Mr. John Wornell has been appointed General Instructor in masons' work at this Institute. The evening classes in this subject, to be held on Wednesdays and Fridays, are intended for the practical instruction of apprentices and artisans. The instruction will include the application of descriptive geometry to masons' work, the making of working drawings, and setting out and executing of models.

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

ARCHITECTURAL SOCIETIES.

PERTH ARCHITECTURAL ASSOCIATION.—An association under this title was formally constituted at Perth on the 29th ult., and the following office-bearers and committee appointed:—President: Mr. George P. K. Young, A.R.I.B.A.; Vice-President: Mr. Robert J. Gildard; Secretary: Mr. William M. Page; Treasurer: Mr. John S. Jarvie; Committee: Messrs. Wilson, Dan. A. Stewart, John Anderson, and Thomas M'Laren.

GLASGOW SCHOOL OF ART.—The students of the architectural department this year spent the annual autumn holiday in the English borderland, and had an opportunity, under the leadership of Mr. J. Pattison Gibson, the well-known Hexham antiquarian, of examining the remains of the forts of Agricola and the best preserved parts of Hadrian's great wall across the island. The party left Glasgow for Carlisle on the morning of the 25th ult., and, on arrival, proceeded to the Cathedral, where sketching and photography were engaged in. In the afternoon, train was taken to Naworth; and by the kindness of the Earl of Carlisle the party was permitted to view Naworth Castle. Before proceeding to Hexham, which town the party made its headquarters, a visit was paid to Lanercost Priory. On Sunday afternoon a drive was taken, under the guidance of Mr. Gibson, through a most picturesque district. After passing the famous Roman station of Cilurnum and the modern residence of Chesters (from the hand of Mr. Norman Shaw), Chollerford was reached. The remains of the Roman bridge were examined, and the homeward journey resumed, passing on the way Halton Tower, Aydon Castle, and the village of Corbridge with its very interesting church, showing the work of the Saxon builders and the later periods through which it passed. Early on the Monday morning the excursionists visited the Abbey Church of Hexham, and, later in the day, took train to Bardon Mill, accompanied by Mr. Gibson, who conducted the party over about ten miles of the Roman wall, from the important camp of Borcovicus to Aesica, near Haltwhistle, where train was taken to Carlisle, and from thence to Glasgow.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—At the meeting of this Society, on the 4th inst., Mr. G. Maxwell Lawford, President, in the Chair, a paper was read by Mr. James Croll, on the subject of "Filter Presses for Sewage Sludge." The author first referred to the filter press as being the most commonly adopted method for reducing the moisture contained in sewage precipitation works. The press is constructed of a number of iron plates, with drainage surfaces, and with slight modifications it can be applied to a variety of purposes. When first used for the treatment of sewage sludge, it was found that the feed passages occasionally became blocked, causing the destruction of the plates, by the excessive pressure on one side only. To remedy this defect, special plates are now made. There are two methods of introducing the sludge into the machine: (1) the direct forcing system, consisting of pumping the sludge direct into the press, by means of hydraulic forcing engines, and (2) the pneumatic or air pressure system, consisting of running the sludge into a vessel provided with a dip pipe, and applying compressed air to the top of the sludge, thus forcing it up into the press. The air pressure generally used is about 100 lbs. per square inch. The addition of a small quantity of lime to the sludge facilitates the solidifying process, but hard cake can be produced without the aid of lime if sufficient time be given for pressing. The author described the filter pressing machinery at the works of the Richmond Main Sewerage Board. This consists of six filter presses and appliances for the direct forcing and the air-pressure systems. The advantages and disadvantages of the different processes were discussed, together with trials of the various filtering materials, lime, &c. Tables were given showing comparative work with the direct and pneumatic systems, also details of the quantity of sludge cake produced in the district of the Richmond Main Board, with the cost per ton of producing pressed cake, including all expenses. This comes out at 10d. for labour, 9d. for lime, 4d. for cloths, 3d. for coal, oil, &c., giving a total of 2s. 2d. per ton. A visit was made

by a party of the members of the Society on the 6th inst. to the Royal Arsenal, Woolwich. The visitors were conducted over the various departments, comprising the Royal Laboratory, the Royal Carriage Department, and the Royal Gun Factories, in each of which they inspected the various operations.

Illustrations.

ARCHITECTURE OF SHEFFIELD.

THE lithograph plates in this number are entirely devoted to examples of Sheffield architecture, which forms the subject of the leading article this week, in which most of the buildings illustrated here are referred to.

The illustrations in the plates include the exterior of the Mappin Art Gallery, from a drawing lent by the architects, Messrs. Flockton & Gibbs, and an interior of the same building, from a photograph; some premises in High-street, by Mr. Charles Hadfield; the *Sheffield Independent* offices, by Messrs. Flockton & Gibbs; the Corn Exchange, by the late Mr. Hadfield and Mr. Charles Hadfield, from a drawing; the Sheffield Savings Bank, an old building of the revived Classic era, by the late T. J. Flockton; the Yorkshire Penny Bank and Albany Hotel, by Messrs. Perkin & Bulmer; Victoria Buildings, by the late Mr. Wm. Flockton (there have, we believe, been three successive generations of Flocktons practising as architects in Sheffield); Cairns Buildings and the Cemetery Gateway, by Mr. C. Hadfield; the Wesley College, another of the old Classic buildings, by the late Wm. Flockton; Fifth College and Central Schools, by Mr. E. R. Robson and Messrs. Flockton & Abbott; business premises by Messrs. Flockton, Gibbs, & Flockton; Royal Insurance buildings, by Messrs. Flockton & Gibbs; and a shop front of considerable architectural pretensions by the same firm.

The lithographs do not include any view of the Town Hall, because (as explained on another page) we have already had the pleasure of giving so many illustrations of it; a list of those which have been already published, with the dates, will be found in a footnote to the leading article (page 279).

LIVERPOOL ARCHITECTURAL SOCIETY:

PRESIDENT'S ADDRESS.*

It was not long after I received the intimation of the honour you had done me in electing me your President for this, the fiftieth year that has elapsed since the foundation of your Society, that I was also informed of the necessity which was laid upon me of making you an address at the opening of the session. In doubt as to the line I should adopt for the address, I felt I could hardly do better than consult the records, and ascertain what others had done in a similar position; I accordingly ransacked old minute-books and proceedings of the early stages of our existence, and the further I went the more interesting did I find these old accounts. So much so that I felt I could not do better than impart to you some of the results of my investigations, and a few reflections founded upon them. I was greatly struck by many things, and not least by the high character of the papers read, and the great professional knowledge and ability of the gentlemen who then successfully held the position to which you have done me the honour of electing me.

Great as was the diffidence which I have felt from the time I received this honour at your hands, and the natural reluctance I felt to avail myself of the privilege of my position, they were by these researches increased manifold, and I can only implore your kind forbearance with me during the short time I shall occupy with this paper, and your considerate recognition of the fact now and throughout the whole of my tenure of office that, though in ability and experience I shrink from comparison with my predecessors, I need yield to none in the earnestness of my desire to further the best interests of the Society and of the profession to which we belong.

* Delivered by the President, Mr. W. E. Willink, at the opening meeting of the session on Monday evening.

It is most interesting to record that we have still among us one who was not only present at the meeting in the Lyceum on March 1, 1848, of architects desirous of forming a society, but was actually a member of the Council in that year. I think it would be of great interest to us all if Mr. Barry could be induced to impart to us some of his recollections of these early days, and of the progress and vicissitudes of the Society from then down to the present time. I greatly fear, however, that if the comparison I deprecated with regard to myself as President were instituted in connexion with the Society itself, past with present, the result of that comparison would hardly be more flattering to us as a body than of the others to myself as President. But self-mortification is so often held to be an exercise profitable unto salvation, that I propose to give you just a few statements which will enable us all to make the comparison for ourselves.

Remember, to begin with, that Liverpool in 1848 was not what she will be in 1898. Then the total number of her inhabitants was well under 350,000, not much more than half of the present population. The buildings of the town, public and private, showed little of the affluence which is so evident in the streets to-day. The number of men who appear in the directory under the head of architects and surveyors was then eighty-five; now it is 240. And yet what do we find? Only the same extraordinary contrast which meets us in other noteworthy instances.

For example, in 1836, when the population was not much over 200,000, St. George's Hall was projected, a building of which we, and not we only, are proud to this day. In 1877, when, I suppose, the total number of inhabitants did not exceed 80,000, our Town Hall was erected, of which it is said that nowhere, even in the Metropolis, does there exist a building so well adapted for the large and stately public hospitality of a populous centre.

So with our own Society. The smaller the number the greater seems to have been the enthusiasm and vitality of the Society. Let me give you a list of the acts of the Society during the first year of its existence, from which I think you will draw the same conclusion as I have.

To begin with, I find a constant succession of presentations of books, views, plates, &c., and of exhibitions of similar objects of interest, devices, patents of various descriptions, with frequent discussions on them.

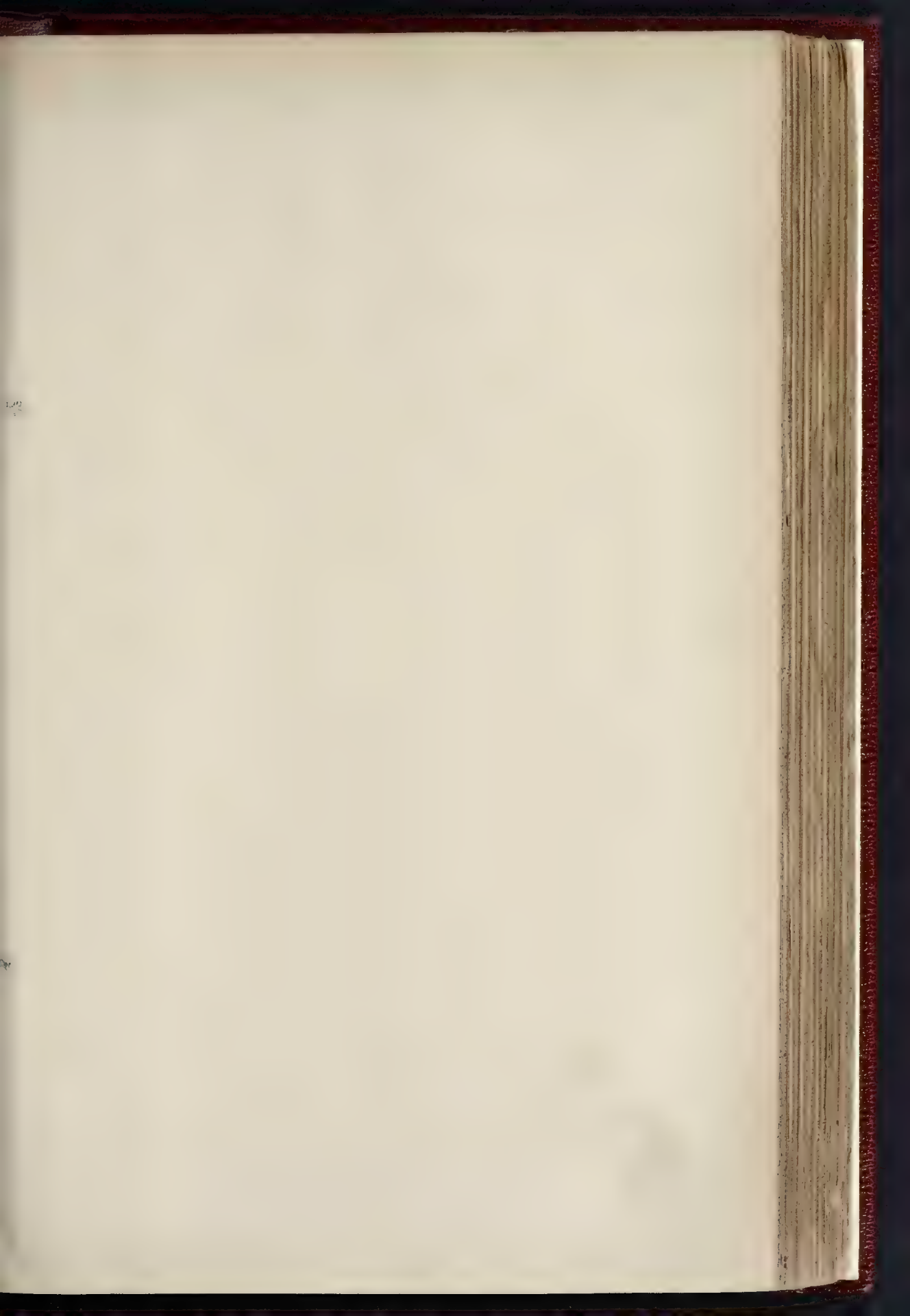
I find also details given of events in the personal experience of members which are likely to interest the general body.

A large number made an excursion to Bebbington Church, where they sketched for seven hours, and adjourned to dine at Eastham, and make genial speeches. This excursion was followed by a paper on Bebbington Church, abundantly illustrated. Then came a paper on a Church near Birmingham, renewed discussion on Bebbington Church, paper on Restoration of Wigan Church, paper on Decoration Applied to Architecture as Distinguished from Decorative Art, paper on Fireproof Houses, paper on Ancient Liverpool, its Architecture and Buildings, lasting two hours, remarks on Birkenhead Antiquities, papers on Constructive Carpentry, Smoky Chimneys, Gothic Moldings, Sculpture as Applied to Architecture, Manufacture of Bricks, Painting and its Poetical Character, Stained Glass, Fitness in Architecture, and finally Professor Cockerell's paper on Progress in Architecture in this and other Countries.

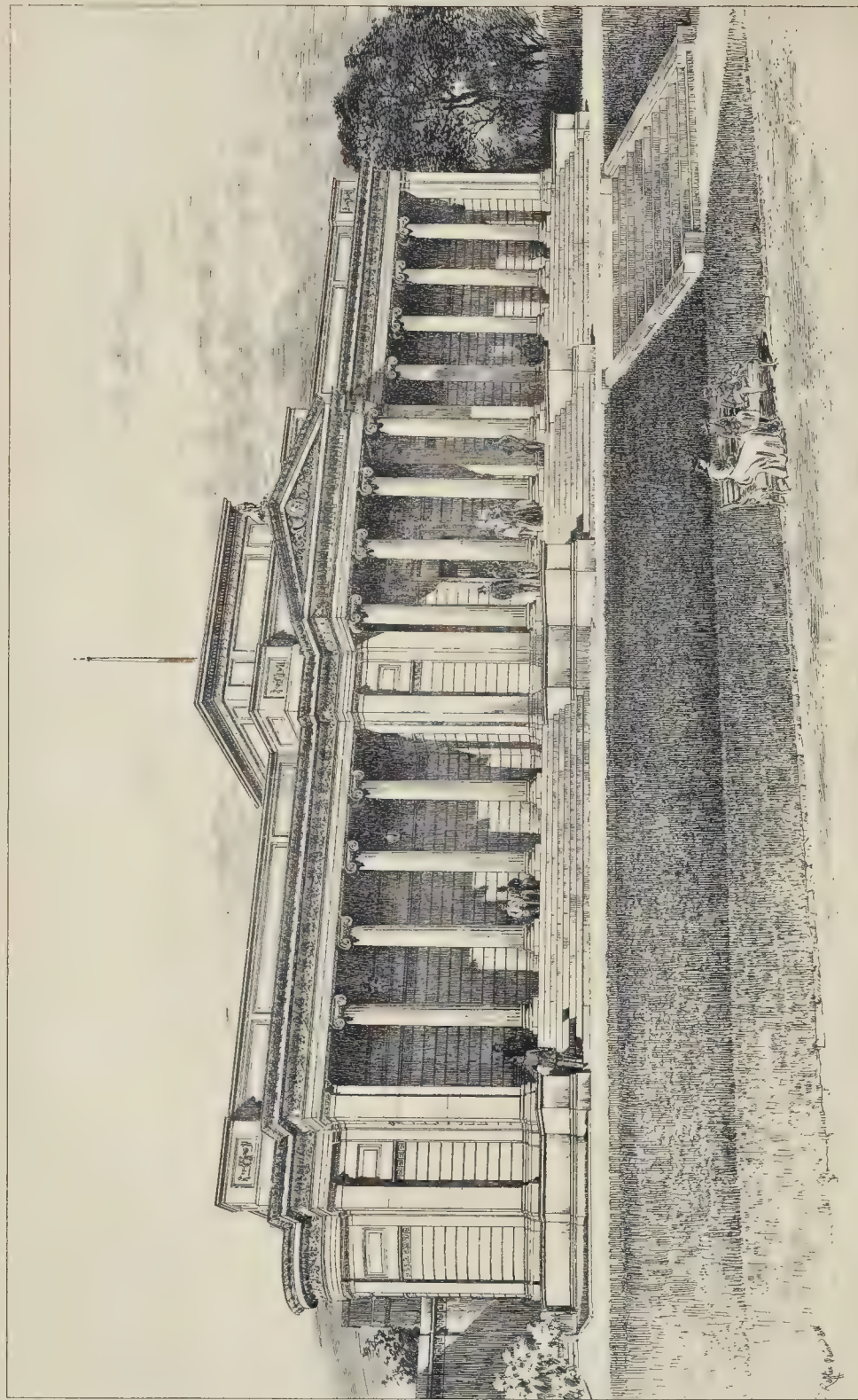
When we note that each and every paper seems to have been followed by a long and spirited discussion, we cannot but admit that this Society, in its early and vigorous youth, set an example which has not always been followed in later years.

Another point I have discovered was the occasion of a surprise to me, which will perhaps be shared by many members present.

At the inception of the Architectural Society, its Committee was approached by a Rev. Dr. Hume, who was about to inaugurate an archaeological society, and the result was a decision to amalgamate the two, the joint institution being named the Architectural and Archaeological Society. On a suggestion from Dr. Hume that the name "Archæological" be omitted, it was resolved "That the Society, having given the subject mature consideration, is not of opinion that the term archaeological can be consistently withdrawn, as the study of architectural antiquities is intended to form a material part of this Society's operations." I have read this decision *in extenso*, because of what I conceive to be its importance as an

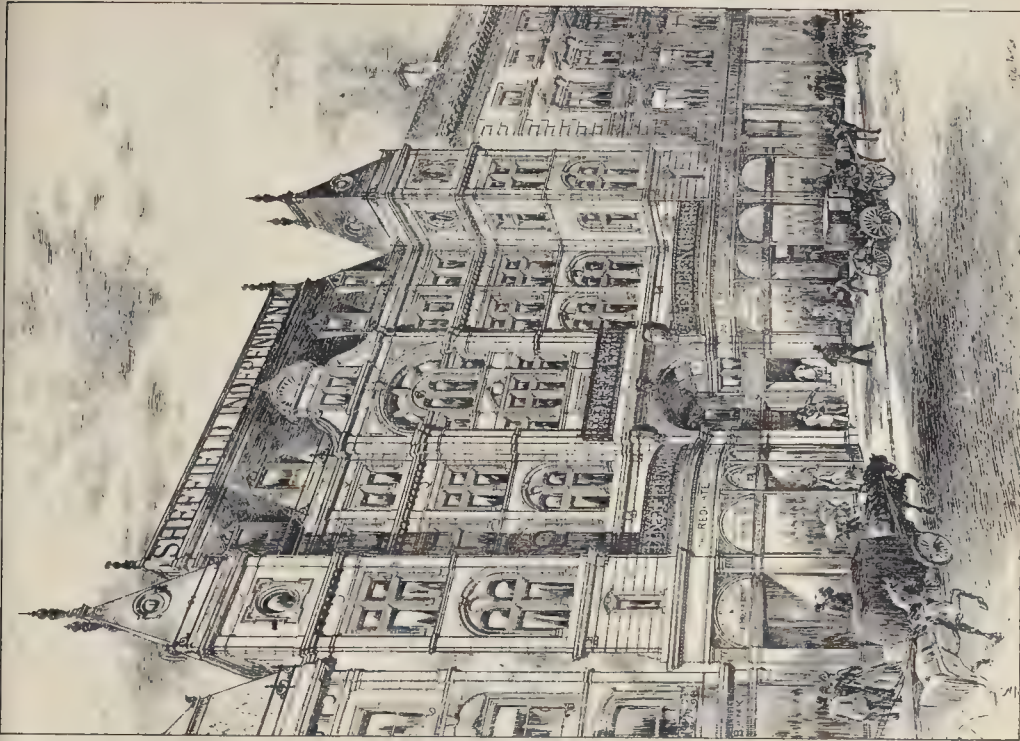


THE BUILDER OCTOBER 9, 1897.



SHEFFIELD ARCHITECTURE: THE MAPPIN ART GALLERY. — (MESSRS. FLOCKION AND GIBBS)

PHOTO LITHO SPRAGUE & CO. 485 EAST WARD BL. STREET PETER LANE E.C.

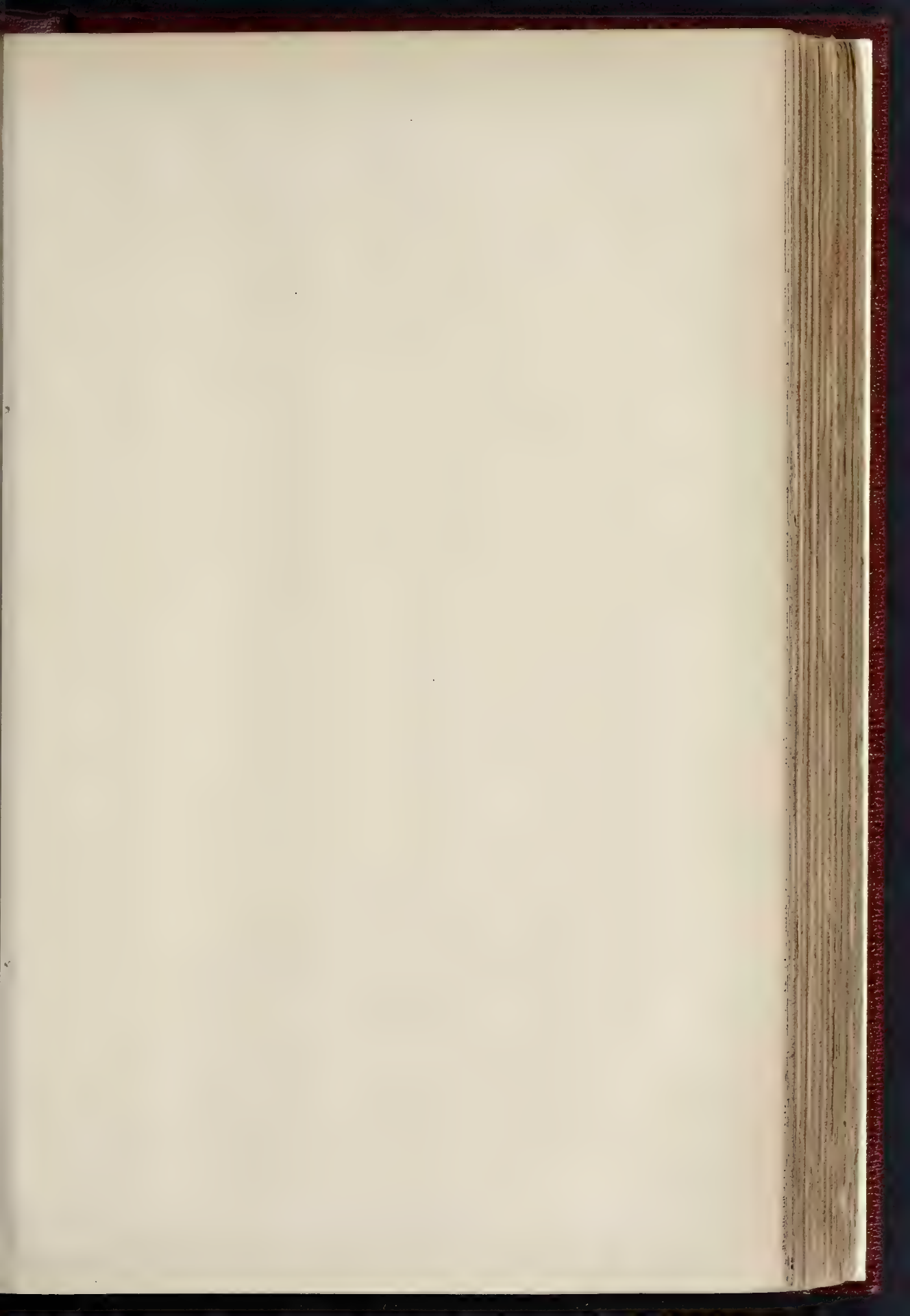


THE "SHEFFIELD INDEPENDENT" OFFICES (MESSRS. FLOXTON AND GIBBS)

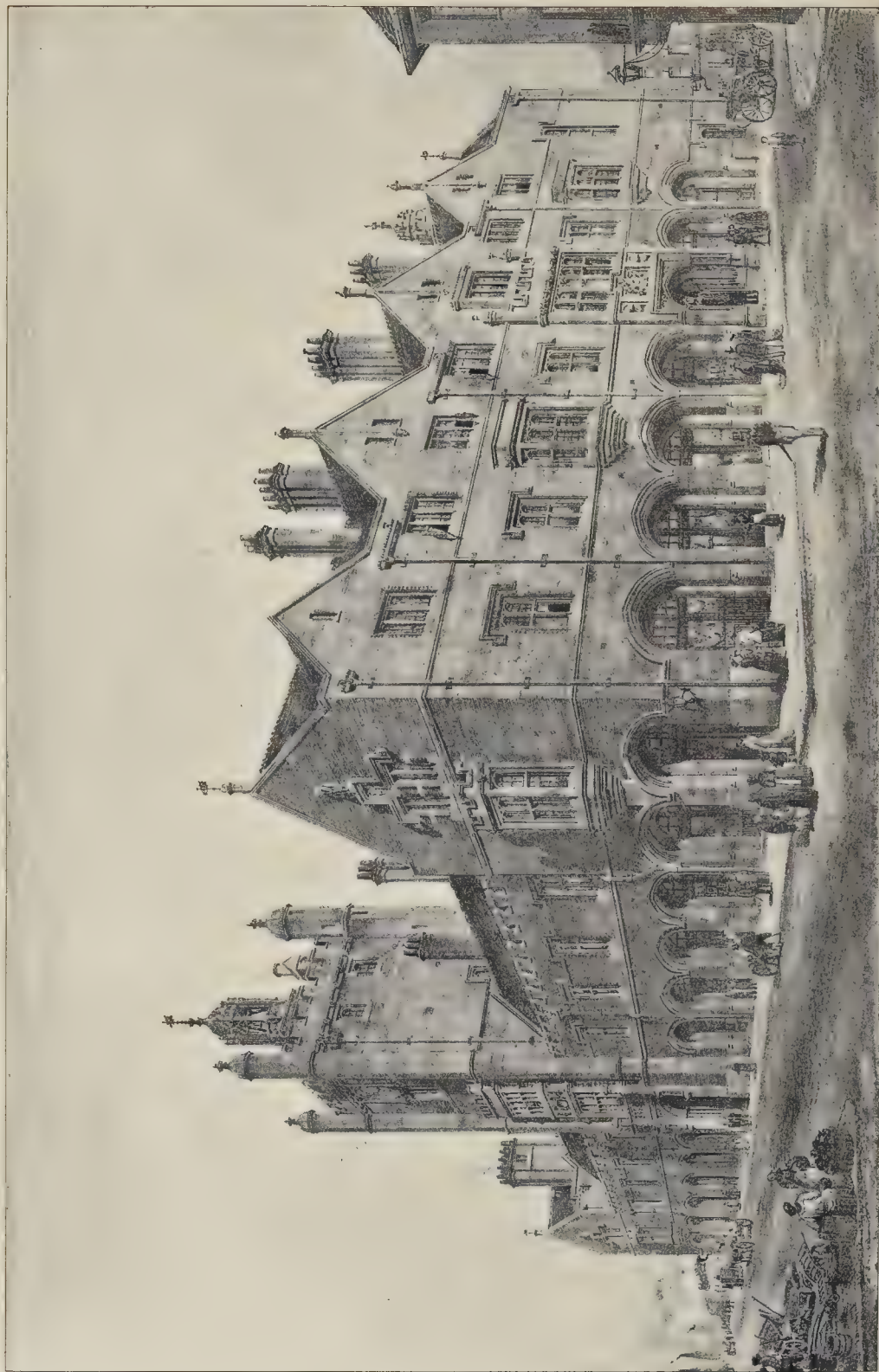


PREMISES IN HIGH STREET (MR. CHAS. HADFIELD)

SHEFFIELD ARCHITECTURE



THE BUILDER, OCTOBER 9, 1897.



THE BUILDER'S OFFICE, 11, PATERNOSTER ROW, LONDON, E.C. 4.



SHEFFIELD ARCHITECTURE THE INTERIOR OF THE MAIN ART GALLERY—(MESSRS FLOCKTON AND GIBBS.)



THE YORKSHIRE PENNY BANK AND THE ALBANY HOTEL—(MESSRS. PERKIN AND HOLMES)



VICTORIA BUILDINGS—THE LATE MR. WM. FLOCKTON



CAIRNS BUILDINGS—(MR. CHAS. HADFIELD)



THE SHEFFIELD SAVINGS BANK—(MR. T. J. FLOCKTON)



THE CEMETERY ENTRANCE GATEWAY & BUILDINGS—(MR. CHAS. HADFIELD)



BUSINESS PREMISES. (MESSRS. FLOCKTON AND ABBOTT.)



BUSINESS PREMISES.—(MESSRS. FLOCKTON, GIBBS AND FLOCKTON.)



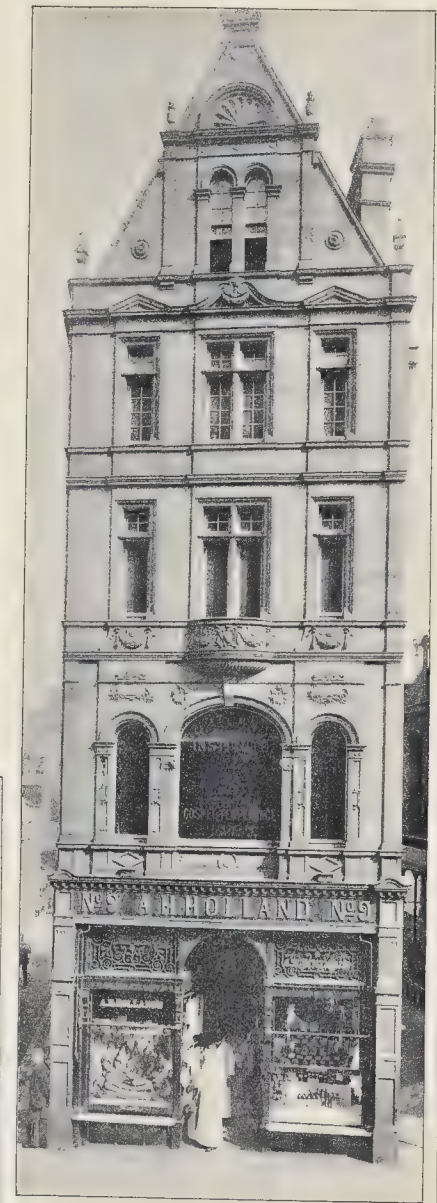
WESLEY COLLEGE. THE LATE MR. WM. FLOCKTON.



ROYAL INSURANCE BUILDINGS. (MESSRS. FLOCKTON AND GIBBS.)



FIRTH COLLEGE AND CENTRAL SCHOOLS.—(MR. E. R. ROBSON AND MESSRS. FLOCKTON AND ABBOTT.)



BUSINESS PREMISES.—(MESSRS. FLOCKTON AND GIBBS.)

indication, the only one we have, of the general views of our founders.

Now, in the month of December, 1875, a meeting took place between the Council of this Society and a deputation from practising architects of the town, relative to certain changes which it was proposed to make in the constitution of the Society. At this time the keeper of the minutes seems to have held that brevity was of greater consequence than clearness, and I am unable to say what really took place. It is stated that "a strong wish was expressed by the deputation that the word *archæological* be omitted from the title of the Society when modified," but it is impossible to ascertain whether the suggestion was adopted or not. The word was certainly absent from the title after that time, but so it was in practice before, and it may be that the omission caused by indolence only became confirmed by habit. The question is, of course, whether we are still an *archæological* society as well as an architectural, and I would fain think we are. In any case, since the omission was only made in order to secure the Society from the admission of members who, though antiquaries, were not architects, I am of opinion that it was not intended to exclude from the discussions of this Society *archæological* subjects introduced and followed up by architects. The two studies are closely allied and mutually assistant, and—although it might be taken that the term *architecture* includes both—I should be very glad should it be ascertained that the Society has never dropped a portion of its title which lays open so wide a field of interest and pleasure, and enjoins upon the members the study of so many problems, obscure, and of doubtful solution, but abounding in human interest, as the word *archæological*.

This consideration brings me to another and a wider one. Which of the many and diverse callings practised by our members are alluded to by the original resolution passed in the year 1848? Some of you have, no doubt, noticed the wording of the heading "Architects," &c., which stands over the list of our profession in "Core's Directory." I myself only noticed it a few days ago. You know how that, for fear some one should fail to be found under one head, the diligent searcher is referred to another cognate one, e.g., "Linen-draper, see Haberdasher." Under "Architects and Surveyors" appear the words, See also Bricklayers and Joiners." Looking at an early Directory, I was amused to find that the identical words appear in the edition of 1847.

Though perhaps the association may be considered out of place in the Directory, I do not grumble at the connexion, because every architect worth his salt must know a good deal about bricklaying and joinery. These are not the widely different occupations to which I alluded, rather to those involved in the second of the two terms which seem to be inseparably connected in Liverpool, architect and surveyor. Now I unhesitatingly express my opinion that the founders of this Society intended that the subject matter of discussions and studies should be architecture, rather than surveying; matters connected with the designing and construction of buildings, rather than with their selling and letting; their stability, fitness, and beauty, rather than their money value. There are, need I say it here, many subjects of the greatest interest connected with the career and practice of a surveyor, and it is impossible for any architect to carry on his profession for any length of time without finding himself called upon to act in that capacity; but a man may be an excellent surveyor without being an architect, and *vice versa*, and though he may be both, he is always able to draw a strict line between questions appertaining to one or the other calling. It is not the lot of every one, as of our late honoured President, to be able to speak with equal authority on both, and if it were, I should recommend the more or less formal division of the work between two societies, in which the widely different questions might be treated separately. There are, and always will be, enough questions which bear directly upon architecture, including the sister professions of bricklaying and joinery, to take up the whole of the limited time we can devote to their discussion. Let us only specialise, and I believe our interest and our knowledge will deepen *pari passu*.

There is one subject which I find to have been constantly in the minds of architects half a century or so ago, and it is, I think, rather striking that it should appear to be discussed less now

than it was then. That subject is "A New Style," "The Style of the Future," "The Coming Renaissance," for it appears under a variety of aspects.

Now what was the state of design in this country at that period? There were, of course, giants in those days, as in most. Sir Gilbert Scott had laid the foundation of his wonderful career. Our fellow townsman, Elmes, had commenced St. George's Hall. But, in the main, I fear it must be confessed that design was at a low ebb. A church I happen to know well, St. Paul's, Princes Park, which was completed in 1849, was probably a good instance of the results. There you have a church built by the exertions of the Rev. Dr. McNeill—at that time a name to conjure by—and therefore, we may suppose, stinted in nothing which was judged to be necessary or advisable. The church is indeed large, the span of the roof enormous, the seating capacity great; from a utilitarian point of view it might be considered admirable. But what of the decorative features? There was a vast splayed chancel arch. It was panelled all up and round with plaster in pointed, cusped divisions. There were gallery fronts with arcades all along, small shafts with capitals and bases, and cusped arches and foliated spandrels. These arches were of plaster, coloured to imitate wood. The roof appeared to be of dark-black-oak, with carved bosses and drops in various places, and a carved cornice to crown the walls. This carving was all in plaster, blackened to the same depth of colour as the wood. There was a communion rail filled with panels of elaborate design, cusped panels with shields in, all painted like oak. You did not notice at first that they were all alike; but they were. The material was cast iron.

It surprises me to read the able papers of the time, and then to see the works. The fact was that though the prevalent fashion of this time—at all events, in ecclesiastical work—was Gothic, the outcome was Gothic only in name. The form was there—often sadly misunderstood, it is true—the form was there, but nothing but the form. The spirit was yet a long way off, and I think it is because they were not at home with their style, and did not understand its true bearing, that the eager spirits of that time felt restless and anxious for a deliverance from bondage. During the time which has elapsed since then, the question of style has become increasingly difficult and complicated. In the Middle Ages, when there was at all times a style of the period, the state of things was entirely different. Then, apparently without self-consciousness on the part of the designers, style seems to have progressed with a steady, majestic march, through development after development by natural and, so to say, inevitable steps from earlier to later forms. Everywhere in each later country or district the same expression was found for the spirit of the time; all the artists spoke in the same language. In this century we have failed to find any common language, any vernacular understood of all; and at the present day we have, speaking generally, very little which is accepted by all, except, perhaps, that churches, banks, public buildings, schools, houses, and many other departments, each have their separate and peculiar style. And that is not all, for each exponent of a style has a different method of expressing himself in that style, a different standard of excellence in design or construction.

Let us for a moment examine into the advantages or drawbacks of this extraordinary position. That great French critic, M. Sainte-Beuve, makes the following assertion—"In France the first consideration for us is not whether we are amused and pleased by a work of art or mind, nor is it whether we are touched by it, what we seek above all to learn is whether we were right in being amused with it, and in applauding it, and in being moved by it." And our own great critic, Mr. Matthew Arnold, emphatically denies to our race the possession of such a conscience as is described by this phrase.

The natural outcome of this frame of mind is the establishment of tribunals in literature and in art; such, for instance, as the French Academy, to which each man can submit his work, as to judgment higher than his own, for criticism and approval.

It is unnecessary to inquire into the potent influence of this system upon literature. The question is for us, What is its effect upon architecture? By this means, without any doubt, there is produced a style, a school, a language common to all. And this style can be and is

polished to an extraordinary degree of refinement. The points of difference are less marked than the points of resemblance; man can be measured against man by the application of standards which admit of no contradiction. But, on the whole, the English spirit alleges against the total results a sameness, a want of variety, a monotony, which fail to satisfy our aspirations.

In our country, on the other hand, every man is a law to himself; he refuses, with rude independence, to submit himself to be judged by any criterion which he does not himself select, and the result is, in our great collocations of buildings, a patchwork in which, even if each composition is itself beautiful, there is an entire absence of harmony, an entire disregard of the *ensemble*, of the fitness of each composition with its neighbours.

Now, we have in this country a religious reverence for liberty, and we believe that greater results can be achieved by individual unsupported striving than by submission to fatherly guidance and prevision, however wisely the interference may be applied. But liberty is generally considered as freedom to do what one will, so long, and only so long, as one does not injure one's neighbour. Surely this inharmonious arrangement of items is an injury to the people, and if so, surely the liberty has degenerated into licence. For my part, I frankly own that if the present alone were to be considered, I should be tempted to prefer the French method to the English lack of it, and to advocate a censorship of design, exercising a forcible control, and quelling all the vagaries of a redundant and inconsiderate fancy. But we must look at the matter in a large way; we have centuries behind us, we may have centuries before. The real, material question is as to the effect of present systems upon the distant future.

What will it be in France? It may be that the admitted standard will itself change and progress, and that the self-conscious efforts of the present age will result in a progress similar to that in the past. But there is the terrible danger that style may become fossilized, forms stereotyped, that life may be chilled out of the artist, and that paucity of ideas may only unfit men for the revolution which is certain to follow.

In our country, on the other hand, what I apprehend is this—and I have warrant for it in the recent history of design in America: Men will rise up, who, though well instructed in all the wisdom of the ancients, are enabled by their force of character, and the instinct of the true prophet, to seize the various films and threads of truth which are floating at large through the air of design, and weave them into a tissue of beauty and fitness which will recommend itself to the world as that which past generations have longed to see, and still desired when they left the scene. And there are signs of the near approach of this great change. There are now vigorous designers who have thrown away the shell of form and kept the kernel, whose conceptions may shock at first by their originality and daring, but finally please by their conformity with fundamental canons. These men I firmly believe to be the forerunners of a new method of expression which in its many forms (for we need not fear uniformity in this country) will command the adhesion of all who truly love and appreciate the beautiful.

Now I have been placed by your goodness in a position from which I have a right to offer advice to students. I could and do wish that some one were in my place whose words would carry greater weight, but even so I venture to avail myself of my right. There are special dangers to be guarded against in such a time of flux as this. One is lest one should say to oneself "Of what use is it to study old outworn styles; I have a better chance of doing good work if I start free from prejudice or even knowledge; let me begin with a mind on which no impression has been made, and I must be on the right road." That would indeed be to build one's house upon the sand, and to court a catastrophe. Are you intrinsically so much better a man than those others who started fair and never got beyond circular huts? Another is the tendency, more common perhaps and less grandiose, to take cognisance indeed of old opinions and forms, but only in order that they may be the more carefully avoided; to regard any use of methods which have been employed before as a sign of weakness and poverty, and to esteem designs in proportion to the number of novelties they

contain. But that is the abandonment of one of the fundamental principles of the artist—humility. Till you are sure that the new is, for your purpose, better than the old, and even unavoidable, adhere to what has stood the test of time; it is unlikely that you are a better man than he whose art you propose to despise.

There is but one word to sum up all I would urge upon students—study. No good work is done by ignorance, and bad work is not likely to be the result of humble and conscientious examination of great work of the past. And above all, whatever you study, study to develop the artistic conscience, that faculty of criticising your own work by the application of unvarying standards, by which alone you can enjoy the conviction that, whatever your faults, you are on the right line. Detach your mind from all prepossessions, and judge your work as you feel you ought to judge that of other people. Do not allow yourself to rest supine in the frame of mind expressed so commonly by the amateur in such words as these, "I don't profess to know what is good, but I know what I like," but study till you grasp fundamental standards of truth, and having once grasped them, apply them rigorously to your own work. Academies are not necessary for such criticism; given ability, knowledge, and honesty, you can yourself in great measure accomplish the work for which they exist.

We have in Liverpool for the student of architecture opportunities which are not offered to any community in England outside London, and of a more comprehensive and thorough description than are to be found even there. I refer to the successful School of Architecture and the Applied Arts which has for its director one so closely associated with our own body as Professor Simpson, our secretary. In this school the student has opportunities not only of advancing in knowledge of principles of design and construction, and history of architecture, but also of practising; and it may be said, that a practical acquaintance with which is essential to their appropriate use in decoration; and in the breadth and universality of the courses of study we have a sufficient guarantee against the real danger of pedantry and academic restrictions which beset all schools of art. Well does it become any architectural student to avail himself of such opportunities at the outset of his career, and to supplement the professional training which he has received, or is receiving, in an office by the more direct instruction which he has until now been unable to obtain. But we must never forget that to a man with his eyes open, opportunities of study of a different sort are as frequent as buildings themselves, and that each new erection must of necessity contain either something to remember, or something to forget; something to store up for use or development, or something to avoid. The study of the best new work I often regard as being in many respects as useful and remunerative as that of buildings erected centuries ago, and in some, even more so, since the authors have been subject to the same conditions and limitations as make our own work so difficult. But in whatsoever time it may be, study is essential to any sort of success, and without it no one, however gifted, and whatever his skill, can attain to a knowledge not of what he enjoys, but of what he ought to enjoy.

The programme of Proceedings for the coming session will be found on examination to consist of papers, followed, I trust, by discussions, on a large variety of most interesting subjects, and will, no doubt, attract good attendances of earnest seekers after information and truth. Let me, however, urgently remind you, gentlemen, that a most important element of success in such evenings as we arrange lies in the audience. A good many of us have been present at the reading of papers in this room by distinguished men who have come a considerable distance for our sake, and yet have met with something less than the reception they deserved from us. I am ready to acknowledge my own fault in this matter. I trust others will feel their consciences burdened by similar recollections, and will take measures to secure themselves against such an oppression in the future.

It would, I think, be of great interest to undertake an examination of what I consider to be our weakness in this respect. It must have an explanation, and the explanation would probably run in this direction; the question being as to how it happened that in a smaller town greater cohesion and community of inter-

rest were to be found among the members of our profession than in a larger.

The smaller the town the more likely is everybody to know everybody else, and everybody else's affairs. When Liverpool was smaller the architects would more constantly meet each other, both professionally and socially, and would be in the habit of exchanging views, of agreement or difference—both excellent means of securing an understanding of each other's minds—on subjects of common interest. At the present day—perhaps fifty years hence the statement will be ridiculed—Liverpool is very large. The mortar of constant intercourse is absent; the living stones of the structure of our Society are isolated and touch only at a few corners, sometimes rough ones. The result is an inclination to take each his several way, to offer a passive resistance to efforts of amalgamation, a reluctance, partly caused by sheer shyness, to convey to each other anything but the baldest commonplaces. This tendency should be most strenuously opposed; it is to the interests of each one that each should impart and receive something of the best of himself and of others, and it is without any shadow of doubt to the advantage of our profession in this city that each should contribute out of his abundance—or of his poverty, as the case may be—whatever he thinks on reflection might be of service to others.

A comparison is often drawn between Liverpool and a neighbouring city, which, to my mind, bears on this question, though, as I profoundly hope, only to a very limited degree.

I have heard it stated that in Liverpool men in general act little in harmony, and keep much to themselves because of little feelings of jealousy and distrust, bordering upon contempt, for each other; whereas, with our neighbours, what is done by one of themselves is good and admirable; each is willing to render to the other his meed of praise for what he does that is good, and to shut his eyes, as a friend should, to what offends him. Far be it from me to endorse this explanation of a fact as regards ourselves, but the fact remains, and it rests with us to remove, as far as we can, a real obstacle to substantial progress.

In his closing address our late President, Mr. Bradbury, made a most notable and generous offer, putting at the disposal of all the members of the Society all his treasures of accumulated wisdom and experience. I do not know if any one has availed himself of the privilege thus offered to all, but this I do know, that it was offered in full sincerity, and that if, as I believe to be the case, other gentlemen would consent to act in a similar manner, it is his own fault if the young professional man does not find means to secure himself against the pitfalls, the disregard of which occasionally gives opportunity for the jeers of the profane.

Such generosity and true brotherly feeling is just what is required if our Society is ever to accomplish anything of the great work intended by its founders, and in a degree varying in each individual, it can be manifested by each of our members. Few of us are omniscient, but all know something, and the contribution of that to the common fund, is an operation which will never injure the donor, while it tends to the enrichment and complete equipment of all in whose advancement we all by our common bond of relationship have voluntarily professed ourselves to be interested.

Let me most urgently beg you to give during this session, and not only then, but in succeeding years, your hearty, and it may be self-sacrificing, co-operation in the work of the Society, and to emulate the true public spirit of your predecessors of fifty years ago.

THE SANITARY INSPECTORS' ASSOCIATION.

THE annual general meeting of this Association was held on Saturday last, at Carpenters' Hall, when, after the election of a number of new members, the retiring Chairman, Mr. W. W. West, presented the fourteenth annual report of the Council. Among the members proposed for election were two lady sanitary inspectors, holding appointments at Manchester, but the question of their election was postponed to another monthly meeting, announcement being made in the meantime in the "Journal" of the date on which the eligibility of ladies for admission to the Association

will be discussed. The report showed an increase of membership from 520, at which it stood at the end of last session, to 583, in spite of the loss of seventy members by the action of the new rule as to affiliated associations. The principal features of the work of the past year were reviewed, the Association having good reason for congratulation upon its progress. The anticipations of the Council in deciding to combine with municipal officers in promoting a Bill in Parliament in favour of a superannuation scheme not having been realised, it had been decided by the Council to renew their efforts in favour of their own scheme, in support of which the Conference of Sanitary Inspectors, recently held at the Leeds Health Congress, had passed a resolution.

Reference was made to the loss sustained by the death of the late President (Sir B. W. Richardson), and the appointment of a successor in Sir John Hutton. One of the most interesting events was the recent visit to Belgium, where a conference was held, that was attended by representatives from sanitary associations in various parts of Europe. The members of the Association had been received in audience by the King of the Belgians, and they had also been received and hospitably entertained by the Municipal Authorities of Antwerp, Ghent, Bruges, and Ostend. The report and also the financial statement, after some discussion, were unanimously adopted.

The report of the scrutineers was also adopted, Mr. G. T. Dee (Westminster) being elected Chairman of the Council by 130 votes. Mr. W. H. Grigg obtained 120. Votes of thanks having been accorded to Mr. West (the retiring Chairman), and also to Mr. Raymond, hon. treasurer, coupled with a resolution to present to him a testimonial, Mr. Dee called attention to the recent outbreak of typhoid fever in Kent, and said that sanitary inspectors had very little authority where a large constituency was concerned. Although they had all the power in small places which had only a few wells as sources of water-supply, they had no say whatever where thousands of lives were concerned. Great care was taken in London to procure regular analyses of water, and it ought to be so in other towns. If the sanitary inspectors at Maidstone had had the power to take samples of the water the mischief might have been found out before it was. Local Authorities had too often not supported their officers in this practical kind of work, but after the publicity which had been given to the present outbreak, severe blame would in the future rest upon any Authority that did not give its officers adequate powers in this matter.

Mr. Tidman (hon. secretary) said it was a disgrace to Kent that no provision had been made for the thousands who annually visited it in the hop-picking season. Through the neglect of proper preparations for them, a great cloud had been cast over the Maidstone district, where many families had been thrown into mourning. More care should be taken where thousands of dirty people were sure to come at certain seasons of the year.

THE LONDON COUNTY COUNCIL.

THE London County Council resumed its sittings after the summer vacation, on Tuesday afternoon, at Spring-gardens, Dr. Collins, the Chairman, presiding.

Loan.—Upon the recommendation of the Finance Committee, it was agreed to lend £60,000 to the Battersea Vestry 2,550l. for paving works, the Bermondsey Vestry 3,000l., the Chelsea Vestry 2,850l., and the Lee District Board 900l. for similar purposes; the Limehouse District Board 2,400l. to defray the cost of providing a coroner's court; the St. George's (Hanover-square) 2,100l. for the purchase of a site for a storage depot; the St. George's-the-Martyr (Southwark) Vestry 1,500l. for paving works; the St. James's (Westminster) Vestry 18,000l. for similar works; the Wandsworth District Board 1,500l. for widening Garratt-lane; the Lambeth Baths Commissioners 10,000l. towards the cost of erecting baths and wash-houses; the Whitechapel Baths Commissioners 5,200l. towards purchasing the freehold of their baths; the Kensington and Chelsea School District Managers 3,000l. for the enlargement of school-rooms and the erection of a superintendent's house; and the Managers of the South Metropolitan School District 4,000l. towards the cost of the erection of an infirmary.

The Council's List of Wages.—The Finance

Committee reported as follows, the recommendation being agreed to:—

"The rate of pay for bricklayers (cutting and setting gauged work) set out in the Council's list of wages is 10½d. per hour. The 1897 agreement between the Masters' Association and the men gives the rate at 10½d. to 11d., and the Council's list should be amended accordingly. The wages of crane, &c., drivers have also been increased, and this necessitates an alteration of the Council's list with regard to this class of workmen. We recommend that the following alterations be made in the Council's list of rates of wages, viz.:—

	Per hour.	
	from.	to.
Bricklayers (cutting and setting gauged work).....	10½d.	10½d. to 11d.
Scotch derrick drivers.....	8½d.	9d.
Steam navy and grab drivers.....	8½d.	9d.
Steam cranes and travellers.....	7½d.	8d.
Locomotive drivers.....	7d. to 8d.	8½d.
Stationary engine drivers.....	7d. to 7½d.	8d.
Portable engine drivers.....	7d. to 7½d.	8d.

Fleet Sewer, River-street Branch.—The Main Drainage Committee reported that the invert and walls of the River-street branch of the Fleet sewer near Farringdon-road is in need of repair, and that the cost of the work is estimated at 500*l.*, for which provision has been made in the estimate of expenditure for the current year. They recommended that the necessary repairs to the River-street branch of the Fleet sewer be carried out by the Manager of the Works Department as a jobbing work, at an estimated cost of 500*l.*

An amendment having been moved and defeated, the recommendation was agreed to.

Blackwall Tunnel.—Mr. Emden asked the Chairman of the Bridges Committee whether in view of the recent fatal accident in the Blackwall Tunnel, which was said to be the consequence of the noises in the tunnel, he would give the committee an opportunity of considering whether the granite pitchings might not be replaced by wood paving.

Mr. Bull replied that the best advice was taken before granite cubes were decided upon, but he would undertake that the matter should be reconsidered. At the same time the recent accident might have happened at any other place, even in the open, because, according to the police report, the man who was driving the runaway horses was not quite sober.

Hammersmith Bridge: Painting.—The Bridges Committee reported that it was necessary to paint the under portion of the platform of Hammersmith Bridge. The Manager of Works was not prepared to accept the estimate of the Engineer, and the Committee recommended that tenders be invited by advertisement for the work.

Mr. Roberts moved to refer the matter back. Such work ought not to be done during the winter months.

Mr. E. White seconded, and the Chairman of the Committee indicated his willingness to take the matter back.

The Embankment.—The Highways Committee reported as follows:—

"We have to report that, acting upon the authority given to us on July 27, 1897, we invited tenders by public advertisement for the execution of the necessary repairs to the carriage-way of the Victoria Embankment. We have arranged that the road shall be closed in transverse sections; and the work, the engineer's estimate for which was 5,000*l.*, is to be completed within two months from its being commenced. The following tenders for the execution of the work were received:—Jesse Ellis & Co., 4,897*l.* 18s. 4d.; L. Sommerfeld, 4,998*l.* 8s. 9d.; Rowe & Mitchell, 5,231*l.* 15s.; G. G. Rutty, Limited, 5,531*l.* 5s.; J. Mowlem & Co., 5,614*l.*; William Griffiths, 5,760*l.* 2s. 6d.; Thomas Adams, 6,455*l.* 12s. 6d.; F. A. Jackson & Son, Limited, 6,564*l.*; William Wilson, 8,597*l.* 18s. 4d.

"We have, on behalf of the Council, accepted Messrs. Jesse Ellis & Company's offer to do the work for the sum stated in their tender; and have referred the matter to the Solicitor, in order that he may, in accordance with the resolution of the Council above referred to, prepare and obtain the execution of the necessary contract."

Upon the reception of the report, Mr. Emden called attention to the public inconvenience attendant upon the stoppage of traffic on the Victoria Embankment. He remarked that, although the Council's officers were in favour of the present method of repairing the road, in transverse sections, there was good authority for saying that the work could be effectively

done in longitudinal sections. The latter method would not necessitate the closing of the thoroughfare.

Mr. Haydon replied that last year, in consequence of the adoption of the longitudinal method, a large number of accidents took place.

Buildings of Historic or Architectural Interest.—Dr. Longstaff moved:—"That the Parliamentary Committee be instructed to take the necessary steps to insert a Clause in one of the Council's Bills empowering the Council to purchase, or contribute towards the cost of purchasing, or otherwise incur expenditure in connexion with the preservation of buildings and places of historic or architectural interest."

He said the object he had in view might often be attained by a very small expenditure. The motion was seconded by Mr. J. W. Benn, and adopted, and the Council soon after adjourned.

COMPETITIONS.

ARTISANS' DWELLINGS, BRIGHTON.—In a special report to the Brighton Town Council, the Sanitary Committee mention that, in response to the advertisement inviting competitive designs and estimates of the cost for the erection of dwellings for the working classes upon the land in Elm-grove and Lewes-road, designs and estimates have been sent in by nine competitors. The Committee have arrived at the conclusion that none of the designs comply in every detail with the conditions of competition and by-laws, and they do not consider that any of the designs fully meet the requirements of the Corporation. They think, however, that the design under the title of "Sanitas" is an excellent attempt to comply with the conditions, and they therefore recommend that the sum of 75*l.*, the first premium, be awarded to the author of that design, subject to his showing, to the satisfaction of the Council, that the works can be carried out for the sums specified in the estimate. They also recommend that the second premium of 25*l.* be equally divided between the authors of the designs entitled "Pax," "O. K." and "Minimum and Maximum," which appear to be of about equal merit. "Sanitas" it should be explained, allows for 168 six-roomed houses in Elm-grove (three bedrooms), and estimates the cost at 174*l.* 13s. 2d. per house, sixty-nine houses for the Lewes-road, five rooms (three bedrooms), and the cost 176*l.* per house.

Correspondence.

To the Editor of THE BUILDER.

MAIDSTONE.

SIR,—You call attention to the self-inflicted visitation at Maidstone, for want of sufficient water analysis. And official sanitary neglect is by no means a new and unheard of offence in that charming locality. Probably, however, there are none remaining on the Board who represented the ratepayers more than twenty years ago.

In the columns of the *Builder* of February 6, 1875, there is in a leading article: "Something about Maidstone," wherein (after a fearful account of the condition of the place generally) we find the following explicit warning:—

"The inevitable day of dirt-disease and sudden deaths may be delayed months, and even years, but it surely comes. . . . It behoves those who are responsible to take heed in time."

The state of things now existing would seem to point to the necessity for some sort of Government inspection to look after public sanitation—as provided under the Factory and Adulteration Acts. There should be some external authority over and above the local, and apart from the local Board of Works, to see that ratepayers do not commit such suicidal acts as to cause the inhabitants to fall a prey to preventable disease.

WILLIAM WHITE, F.S.A.

TOTTENHAM SCHOOL BOARD OFFICES COMPETITION.

SIR,—Enclosed I send you a copy of the *Tottenham Weekly Herald*, in which you will see reported the decision of the Tottenham School Board in regard to the competition for their new offices. I should like to know your views on the said decision, which

needs no further comment from me beyond quoting the following conditions with respect to cost:—

"IV. With the designs should be sent a concise statement (either in print or typewriting) showing what materials are proposed to be used, and the probable cost of the undertaking, including architect's commission. If, when the tenders are opened, the lowest tender from a responsible builder is palpably higher than the estimate of the selected plans, then the Board reserve to themselves the right to abandon the preferred designs without any liability of any kind to the architect."

"XVI. With regard to the cost, the Board leaves this question open to the architect in his description, &c., under Clause IV. The cost will not necessarily by any means be the leading factor in the selection of the plans. In other words, the Board are not looking out for 'the lowest bidder.'"

I draw your particular attention to the subject, trusting you will see your way to putting each of the twenty-two unfortunate architects in communication, with a view to their holding an early conference, and deciding what action to take in this seemingly very actionable matter.

In the meantime, as names are still under seal, I beg to subscribe myself

A DELUDED COMPETITOR.

. From the Press report of the meeting of the Board to consider the subject we find that after telling the competitors, practically, that cost was no object, the Board had privately resolved to limit the expenditure to 3,500*l.*, and that this resolve had become known (as such things always do) to the local architects, who no doubt arranged their estimates accordingly. In consequence of this generally unsatisfactory state of things, a member of the Board moved that there should be another competition, a resolution which was unanimously adopted. In that case the architects in the first competition have simply been victimised.—ED.

FORM OF CONTRACT.

SIR,—It is not safe for any builder to send in a tender on the formula "I hereby agree, &c." unless he is certain that there is no mistake in the estimate, and that the employer is financially sound; as, with your permission, I will endeavour to show.

Some years ago a London builder (now deceased) sent in such a tender. When the tenders were opened he discovered that his clerk had made a serious error, and heard that the employer was not in good repute. He wished to withdraw his tender. The employer refused to do this, and compelled him to carry out the work at great loss.

Such a form of tender, if accepted by the employer or his agent in writing, becomes a binding contract. W. S. H.

THE OPEN CHANNEL IN SANITARY DRAINAGE.

SIR,—The open channel, straight and curved (both semicircular and three-quarter round in section), as now made in beautiful glazed ware, is of the greatest value, both for the bottoms of manholes to convey sewage, and also above ground for rain-water and clean waste conduits; but directly it is used above ground for carrying greasy or impure wastes, as from urinals, it becomes an intolerable nuisance, only rendered less in degree by constant attention and cleansing, in itself an insupportable and disagreeable operation.

The leading feature in all true sanitary work is to reduce all fouled surfaces as much as possible, and the man who makes a scullery sink or a urinal discharge into a long open channel, which in turn discharges into a gully, shows either his ignorance of, or contempt for, the above-mentioned canon of sanitation.

This may be thought to be a mere truism, but, curiously enough, this insupportable practice is asked for in two such dissimilar and divergent districts as Croydon—which owes so much of its healthfulness and repute to sanitation—and Cambridge, which, to put it mildly, does not come up to the Croydon standard.

It is too often overlooked that this bad custom is simply a relic of barbarism. In the days of our grandfathers such waste-pipes were either directly connected to drains or made to discharge *untrapped* over traps (too frequently "bell-traps"). Any smell arising in or from the trap then promptly passed up the waste-pipe.

In these more civilised days a smooth-drawn lead trap is fixed immediately beneath the fitting, the waste-pipe of which then discharges into a self-cleansing circular gully outside the house. No smell from the gully can pass up the waste-pipe, and the introduction of a long or short open channel, with the object of preventing a thing which is already impossible, is a work of supererogation, as well as an evil. Recently I have had to alter the drainage of an important institution, where a tremendous amount of cooking is done, and consequently a vast quantity of grease accumulates, or I may now say used to accumulate. I found the scullery sinks discharging into glazed open channels, with much splashing and fouling of channels, walls, &c. Not satisfied with this large and entirely unnecessary fouled area, the authors of the scheme had caused these channels to discharge their offensive contents into large rectangular grease-traps, which retained the grease upon the premises; and the sour smell of the putrefying

grease in these channels and traps pervaded the place, the grease offending the eyes and the stench the nose; in fact, sickness and sore throats were attributed—no doubt justly—to the horrid effluvia. All this has been swept away. The sinks now discharge properly through ventilated and trapped lead waste-pipes (with expansion joints) into circular flushing-rim gullies in the open air, and large automatic flush-tanks discharge through flushing-pipes of ample area into these gullies at sufficiently frequent intervals to break up all the grease and sweep it through and out of the drainage system without trouble or attention.

All smell has been stopped, simply by reducing fouled surfaces to a minimum. This is only another proof, among many, that this old-fashioned and sanitariously bad requirement should be removed from sanitary by-laws. CHAS. E. GRITTON, A.M.Inst.C.E.

THE TABERNACLE, MILTON ABBES.

SIR,—I am glad that the writer of the article on our Tabernacle disassociates himself from those who have poured contempt upon my appeal on behalf of Milton Abbey. I am not myself competent to give any opinion upon the question in point, though I think the writer has overlooked the evidence from the "Book of Hours" in the British Museum, which shows a similar structure used as a Sacrament House. All that I fear is that the far more important point of the status of the Abbey Church may suffer through the anxiety of archaeologists to defeat my project. It seems to me that it is somewhat turning the tables to put me down as an innovator, since I am only supporting the traditional view until a better is substantiated. I need not repeat the weight of authority there is for the traditional view, but I think the incumbent of the parish is only doing his duty in upholding the opinions of his predecessors until they are shown to be in error. The appeal in question was hastily prepared on purpose for the visit of the Archaeological Institute. This does not look like pressing innovations without due consideration. Have the members of the Institute treated me with the same courtesy with which I endeavoured to treat them? I think those who read the reports to the papers and who know the circumstances will answer in the negative. E. H. BOTSFIELD, Vicar of the Parish.

A WEST COUNTRY CHURCH.

SIR,—It would, perhaps, be almost impossible to illustrate anything more unlike a typical old Gothic church in the West country, than is the design, by Mr. F. Forbes Glennie, under the above heading in the current issue of the *Builder*. The author says, in the description, he has had in the designing Launceston, and churches of that type, in his mind's eye, but there is nothing to suggest Launceston about it. Further, St. Mary Magdalen's at Launceston (the *Hanscavone* of Doomsday) is not in itself a typical West country church; it is, indeed, almost unique, for, although built of grey granite, its exterior walls are most ornately carved. The old parish church of St. Mary, now incorporated into the south-eastern part of Truro Cathedral, is the only other instance of the same kind of treatment I know in the two counties. Practically nearly all our churches have unbroken "waggon" shaped roofs running continuously from east to west. But none of our old churches have a sloping roof running continuously over nave and aisle. Further, the great majority of our Western towers are embattled and generally have pinnacles. Further, our towers, although not so fine as the typical Somersetshire ones, are rarely stumpy, and I know of only two instances (at St. Nicholas, Combe Raleigh, and St. Saviour's, Tor Moyn), where these towers are west of the south aisle. They are almost invariably west of the nave, the tower arch often being an especially fine feature in West country ecclesiastical architecture. Further, spires are rare in the West. The only one I know like Mr. Glennie's, in apparently actual construction (but not in position), is the lead-covered spire on the south side of the church of St. Peter and Paul at Barnstaple, restored by the late Sir G. Gilbert Scott, R.A., in 1866. It was struck by lightning some years ago, and is a small parody of Chesterfield's particularly ugly steeple. Again, porches down-a-long are generally on the south-east side of the church, and are never anything like the one in the drawing exception is taken to.

Not is there any old church in Devon or Cornwall with west windows, such as those shown in the illustration in question. At St. Martin's, Liskeard, there is a vestry at the east end of the south aisle, and this arrangement may also be found occasionally elsewhere; but there is no instance, to my knowledge, of any old choir-vestry in that position.

What "Bury Hill stone" may be it would be difficult to say—probably Berry Head limestone is meant? Heavytree should read *Heavitree*, which is a suburb of Exeter, the word *Heavitree* being derived from *Ave* or *Avon*, water, and *Tre*, the British word for a town or settlement. It is mentioned in the Doomsday Record as the manor of *Hevetruna*. Finally, there are no old churches in the West country whose roofs are covered in by "stone slates." HARRY HEMS.

Exeter.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XII.—MODES OF MEASUREMENT.

Plumbers' Work.

THE work of the plumber so readily divides itself into two sections—"External" and "Internal" that it is advisable to bill these separately, the external work coming first. The greater part of the lead used at the present time is "milled," both on account of cheapness and also from the fact that the sheets run of a more even thickness, whilst cast lead, even with the best work, varies considerably. The latter is, however, sometimes used in roofs of churches and similar cases, where a large surface is exposed, on account of the more agreeable colour. The description in the bill, both as regards material and labour, should distinctly state whether the work is in cast or milled lead, as in both labour and material the former is the more costly.

Architects in their specifications frequently omit to give the dimensions of the widths of lead and also the widths of turn-ups, &c. The dimensions hereafter given are those usually considered correct, but are, of course, subject to variation should the architect specify otherwise.

There is one point that the surveyor must always bear in mind, and with only $\frac{1}{4}$ -in. scale drawings before him will in the majority of cases require his careful attention and that is the width of the gutters. It will be frequently found that the widths shown on plan are insufficient after allowing for the increasing width at the higher end owing to the rise in the slope of the gutter and the drips, and the surveyor will find it necessary to set these out to a large scale in order to arrive at the correct average widths. As he is dealing with a somewhat expensive material, it behoves him to use care in doing this. This may appear a somewhat troublesome business, but with a little practice he will find that it will take little, if at all, longer to do this correctly than to do so in a slipshod manner, and in addition he will have the satisfaction of feeling that whatever arises his dimensions will bear the closest investigation. The writer has endeavoured throughout these articles to impress upon the student the absolute necessity, if he has any idea of becoming proficient in his work, of avoiding anything like a loose or slovenly way of doing it; and in no trade does this apply more than to the plumber. Moreover, in these days of hurry, the architect, however desirous of turning out a complete set of drawings, finds that he has to prepare these in as short a space of time as possible, and may occasionally overlook little points of detail. It is in these little matters that the surveyor, by conscientiously doing his work, can become the helpmeet of the architect by clearing up doubtful points in the early stages of the work rather than leaving them to be discovered at a later date, when they cause delay and trouble to all concerned, which could have been avoided had the discovery been made earlier.

Externally.

Gutters, Flats, and Flashings, &c., per sq. ft.—The lead for these is measured at per foot superficial and abstracted under the headings of the various weights: 5 lb., 6 lb., 7 lb., or otherwise, as the case may be, and afterwards weighted out and collected.

If the drips and rolls are not shown take the former not more than 10 ft. and the latter not more than 2 ft. 6 in. apart. The lead to flats and gutters next walls usually turns up 6 in., and up slope of roofs 9 in. from sole of gutter. Allow beyond the net width of the lead 7 in. for $1\frac{1}{2}$ in. and 9 in. for 2 in. rolls, and 6 in. for $1\frac{1}{2}$ in. and 8 in. for 2 in. drips.

Measure horizontal cover flashings 6 in. wide and stepped ditto (over soakers, &c.) 8 in. wide. Apron flashings 12 in. wide and stepped ditto 14 in. wide, valleys 21 in. wide. Keep lead in soakers and stepped flashings also secret gutters separate, or take an item for the latter of "extra labour" at per foot run.

Coverings to hip and ridge rolls are kept separate and should be measured 18 in. wide.

Work of a somewhat unusual character as to small turrets, &c., should also be kept separate.

Allow beyond the net lengths of flashings, valleys, coverings to hip and ridge rolls, &c., 6 in. in every 10 ft. run, and also the same at each angle. This allowance will cover the lead

required for the "tacks" as well as for "passings."

The ordinary labour to dressing over wood-rolls is included with the item, but the bossings at mitres, intersections, ends, &c., should be numbered separately.

Wetted rolls—i.e., without a wood core—should be measured as "labour" at per foot run, with the mitres, &c., numbered as last described.

The following items are also measured at per foot run. Dressing over moulding (slating the girt), double welt, bedding edges of lead in white or red lead; copper nailing ("open" and "close.")

The following items are billed as numbers: Extra labour and solder to cesspools (if extra large, state size); mitres, &c., to mouldings (slating the girt); dressing lead around ends of sills; bossing and dressing lead around finials, crockets, &c. (giving full description and size); a sketch being frequently required; solder dots and screws; copper tacks; outlet pipes from cesspools (stating diameter, weight of lead, length, the number of bends, and including the solder joints and any other connexions and bands or tacks if necessary); gratings over cesspools; outlets of gutters, and to tops of vent pipes (stating if galvanised iron or copper wire and the shape); lead rain-water heads (these are generally given at a p.c., but if not, a full description, with the thickness of lead and the size; in the latter case a sketch will generally be required).

Lead Rain Pipes, per foot run, as hereafter described to soil and ventilation pipes.

Internally.

In measuring internal plumbers' work the surveyor has to exercise his discretion as to the run of the pipes, &c., taking the shortest convenient run from point to point, bearing in mind that while in the better parts of the premises they should be out of sight as much as possible they also should be easily accessible in the case of failure.

Lead Linings to Cisterns, Sinks, &c., per sq. ft.—Measure the lead for these at per foot superficial, and afterwards weigh out as described for gutters, &c.

Measure at per foot run soldered angles, close copper nailing, and other similar items, and number bossed angles to safes, stating the height of the angles.

Lead Water Pipes, per foot run.—Give internal diameter and the weights per yard or per foot run. It is a good plan in the heading to the internal plumber's bill to make an abstract of the weights of the pipes for the different sizes of "services," "wastes," and "overflow and ventilating pipes." It will then be merely necessary to mention in the item to what category they belong. Keep the pipes laid in trenches, and those fixed on walls separate, again separating the latter where they are fixed to glazed facing or tile wall lining, describing also whether fixed with wall hooks, lead tacks (in the latter case describe the tacks and the distance they are apart), or brass or copper bands. Include with all pipes up to $1\frac{1}{4}$ in. diameter the bends, but if over this size number these separately. Any pipes of 3 ft. and under in length, such as overflows to waste preventers, also short lengths of wastes should be numbered, including the bends (stating how many in the length) and the joints.

Measure wrapping pipes with felt or other similar material at per foot run.

Solder Joints.—Number these, stating the size of the pipes. In the case of a smaller pipe being jointed to a larger one the plumber is entitled to the average diameter of the two pipes, but in practice it is not usual to mention less than a $\frac{1}{4}$ in. variation in size. Running joints in the length of the pipes (unless a variation in size) are included with the pipes. Where a lead pipe is jointed to a lead lining to a sink or cistern, describe the joint as "tailed." The soldered joints to cocks, &c., are usually included with the brasswork, unless a fitting such as a bath or lavatory is supplied with the cocks complete. In the latter case keep separate as "to brasswork, including tinning."

Stopped Ends.—Number these, stating the size of the pipes.

Joints to Earthenware.—Number these, giving the sizes of the pipes. These will generally require india-rubber cones; if so, include with the item. There are various patents now in existence where a metallic preparation on the earthenware junction is used; in this case a solder joint is all that is necessary, and may be measured with the ordinary soldered joints.

Brasswork generally.—There is such an infinite variety in the brass fittings used by the plumber that the student would do well to study and thoroughly master the uses to which these various fittings are put to enable him to take the "right thing in the right place." These should, of course, be numbered. In addition to the great variety there is also a very great difference in the quality and cost, and therefore a very full description should be given, and, if possible, a list number and the maker's name. This applies with particular force to cocks and valves. In any case, they should be described as "including stamping by the water company." The solder joints to brasswork are included with the items as previously noted.

Cisterns.—Number these, stating size or the number of gallons they are to contain. If the space is confined, examine a maker's list to see whether a "stock size" will fit. If not, describe as "purpose made." Describe the thickness of the plates either B.W.G. or the thickness as "½ in. bare," "½ in. full," &c. If with angle around top or special frame or stay bars, &c., describe these also. Mention the height to which they are hoisted, and measure bearings, &c., separately. The holes in cisterns are usually included with the items of boiler screws and other brass connections with the cisterns.

Connexion with Company's Main.—Number this giving the size of the connexion and including the screw ferrule and drilling, and tapping the main, and make the item cover any fees payable to the Water Company.

Baths, Number.—These are generally put in at a p.c. or l.p., and maker's name. Note whether the price given includes taps and other fittings, and whether a trap will be required, or whether it is contained in the bath itself. If no p.c. is given, give full description and the size.

Lavatories, as noted for baths. Note whether the overflow requires a piece of lead pipe as connexion, also whether a top has to be taken. If so, take this as described in "Slate Mason."

Water-closets, as noted for baths. The waste-preventers are frequently included in the price complete. If a pedestal closet, see whether the price includes the seat; also the brackets for seat and waste-preventer. Describe whether fixed to wood floor or otherwise, and how brackets for seat and waste-preventer are fixed; whether plugged to ordinary brickwork, glazed faience, or through tile wall lining.

Lead and Vent Pipes, per foot run, giving internal diameter and the weight of the lead "per foot superficial" as "equal to 7 lbs." (or "8 lbs.," or otherwise, as the case may be). Describe the method of fixing, and the facing to which it is fixed, and also the kind of tacks, bands, &c., used in fixing, and the distance apart. If of very elaborate description, number these separately. If fixed in a chase, keep this separate, and describe as such. Short lengths as from the water closets up to the main pipe are generally numbered, including with the item the number of bends and the joints. Number also beaded and perforated ends to tops.

Iron Soil and Vent Pipes, per foot run, as described to drain pipes. Note.—That in the event of the branch from the water-closet being lead and the main pipe iron a brass "sleeve-piece" or "collar" will be required, as also at the connexion of a lead soil pipe with the drain.

It is a good plan to have a note in the heading of the bill that all work is to be done to the satisfaction of the water company, but the Surveyor should at the outset get a copy of the Regulations of the Water Company in whose district the work is situated to enable him to take his work correctly, both as regards weights of pipes and also the description of the fittings. He will also find a copy of the Regulations of the Local Sanitary Authority of great assistance to him where, as is sometimes the case, he has to use his discretion in selecting the various fittings.

GENERAL BUILDING NOTES.

ROYAL COUNTY THEATRE, KINGSTON-ON-THAMES.—This new theatre, which was opened on the 4th inst., occupies a position in the Fife-road, midway between the railway station and the market place. The site was formerly occupied by the Albany Hall, and parts of the old building have been retained where it was found possible to incorporate them with the new work. The principal portions so retained are the side walls and roof enclosing the auditorium, and the central portion of the Fife-road front. The retention of the roof over the auditorium was a work requiring some care, as the

planning of the new interior necessitated the removal of eight heavy cast-iron columns which formerly supported the principal trusses of the roof. Heavy timber trusses 48 ft. long and 7 ft. deep were inserted prior to the removal of the columns, and so little was the building disturbed by this process that the plaster ceiling was retained practically intact, and hardly a crack was detected in it after the columns were struck and the new trusses took their bearing.

The auditorium is now constructed of two tiers, viz., dress circle and gallery, of the usual horse-shoe form, and two private boxes are arranged on each tier. A fireproof construction of steel and concrete has been adopted to carry the floors on both tiers, and the cantilever system has been used so far as to avoid as far as possible obstructing the view of the stage by columns. The dimensions of the auditorium are:—Width, 46 ft.; distance from curtain to front of dress circle, 35 ft. 6 in.; to back of pit, 46 ft. 6 in.; to front of gallery, 37 ft. 6 in.; to back of gallery, 60 ft.; from back of gallery to back of stage, 100 ft.; height from stalls floor to dome of ceiling, 37 ft. The holding capacity of the house is:—Private boxes, 16; orchestra stalls, 74; dress circle, 126; pit, 500; gallery, 500. Cuckoo-room and refreshment-bars are provided in all parts of the house. There are seven separate exits from the auditorium, two of which are for the exclusive use of the gallery, two for the pit, and three for the occupants of the private boxes, stalls, and dress circle. The decoration of the auditorium is in tints of blue, salmon, and ivory with gold relief; the ceiling has a figure subject in the centre panel with floral surroundings, the walls are hung with a ruby and gold paper, and the upholstery and draperies are in terra-cotta velvet. The woodwork is finished ivory white except in pit and gallery, where it is maroon. The principal entrance, staircase, and grand lounge have been treated so as to form a contrast to the auditorium, the walls being a rich yellow, draperies wedgewood blue, and paint ivory white. The outside painting on Fife-road front is in Gay's enamel paint of a dark green colour to contrast with the red brick and stone dressings. The stage block is an entirely new structure and has been designed to accommodate the heaviest productions. The leading dimensions are:—Depth from footlights to back wall, 41 ft.; clear width, 46 ft.; proscenium opening, 22 ft. 3 in. wide by 23 ft. high; stage to fly rail, 19 ft. clear; width between fly rails, 21 ft.; clear height from stage to grid, 47 ft.; total height from basement floor to apex of lantern light, 70 ft. Dressing-room accommodation has been provided in a separate block. There is an exit from each side of the stage direct to the street. The constructional steel-work of circles was designed and erected by Messrs. Drew-Bear, Perks, & Co.; the heating apparatus, canopy over pavement, wrought-iron work, and sun-burner are by Messrs. Vaughan & Brown, Limited; and the hydrants and fire-resisting appliances by Messrs. J. H. Heathman & Co. The fibrous plaster enrichments and general decorations of auditorium have been designed and executed by Messrs. F. De Jong & Co. Messrs. J. E. Spagnoletti & Crookes have installed the electric light under the direction of Mr. J. E. Edgson, the Borough Electrical Engineer. The furnishing contract was placed with Messrs. A. R. Dean, Limited, of Birmingham, and executed the marble work and mosaic floors. A small installation of gas for use in case of emergency has been fitted up by Mr. T. Button. Messrs. Kirk & Kirk, of Westminster, were the general contractors for the building, Mr. J. H. Strickland being their foreman in charge of the work. Mr. J. Espley has been employed as clerk of works. The theatre has been carried out from the designs and under the superintendence of Mr. J. Charles Bourne, of Basinghall-street, E.C., the late Mr. C. J. Phipps, F.S.A., having acted as consulting architect during the preparation of the plans. The bills of quantities were prepared by Messrs. Batstone Bros., London.

NEW GOVERNMENT LABORATORY, LONDON.—On the 1st inst. the new laboratory was opened which the Crown Office of Works have built for the analytical work required equally by the Inland Revenue Board and the Crown Contract Department. The building is approached from the Strand through Clement's Inn. The cost is estimated to be about 25,000l., and the staff will be about 250, while provision is also made for the assistance of the students in this branch of science at South Kensington. A description of the building appeared in our issue for April 10, page 339. The work was carried out from the plans, &c., and under the direction of Mr. J. Taylor, C.E., of H.M. Office of Works.

ART AND TECHNICAL SCHOOLS, LEICESTER.—These buildings were opened at Leicester on the 5th inst. by the Bishop of London. Hitherto the art and technical schools in the town have been quite distinct institutions, but it was decided to incorporate them in one building with full and adequate appliances. The schools are situated near Leicester Castle. The cost of the new buildings and site is just under 40,000l. The site extends to nearly three-quarters of an acre, and the main frontage is 220 ft., with an elevation of four stories. The structure is of red brick, with Portland stone dressings, and has been designed by Messrs. Everard & Pick, architects, Leicester. Two of the floors are devoted to technical

instruction in hosiery and boot and shoe manufacture, with a full complement of all kinds of old and new machinery, showing the development of the processes of manufacture, engineering, plumbing, dyeing, painting, &c. The two upper floors comprise the school of arts; and the local efforts have been seconded by the authorities of South Kensington, who have given cases and lent a wide variety of objects of art for the benefit of the students. The art school has also been enriched by the Art Departments of France, who have provided casts and other art objects from the Musée du Trocadéro, Paris. A portion of the roof of the building is flat, and on this a conservatory has been erected for plant-life studies. The building was illustrated in our Leicester Town article (see the *Builder* for June 5, page 500).

BOARD SCHOOLS, SHREWSBURY.—A new Board School has just been erected at Shrewsbury from the plans of Mr. A. E. Lloyd Oswell, architect, of that town, the contract for the building being entrusted to Mr. T. Pace, also of Shrewsbury. The ground floor, which will be used as the girls' school, consists of a large general room, entered by a corridor, from which open out two class-rooms (each capable of accommodating sixty children), cloak-room, and lavatories. On the mezzanine floor are the schoolmaster's rooms. The boys' school, which is situated on the top story, is a counterpart of the girl's.

POLICE STATION, LONDON.—A new police station has just been erected at the corner of Goodman's-yard and the Minories. It is a red brick building, with the principal entrance at the corner of the two streets, the rounded corner being surmounted by a turret. On the ground floor are the charge-room, the inspector's room, and the muster-room, an opening out of the latter is an apartment for the use of the detectives. Seven cells are provided, cased with white glazed brick, and lighted directly from the inner courtyard. In the basement are the mess-room and a large kitchen, together with the necessary offices and the coat and helmet room. The ground floor contains, in addition to the official offices, a reading-room and a large recreation-room. Every man at the Minories station will have his own sleeping cubicle. There are three floors of these cubicles, and on each landing there is lavatory accommodation, with a bath-room. In all, some sixty-five constables and sergeants can be accommodated at this station, in addition to a housekeeper. The building has been constructed from plans prepared by Mr. A. Murray, the City Surveyor, and the work has been carried out under the personal superintendence of Mr. T. R. W. Mossman, of the City Surveyor's office.

CONVENT CHAPEL, EDINBURGH.—The cornerstone of a new chapel in connexion with the Convent of the Little Sisters of the Poor, Gilmore-place, Edinburgh, was laid on the 29th ult., by Archbishop Macdonald. The building is being erected by Messrs. Wm. Beattie & Sons, from plans by Mr. James M. Munro, Glasgow. It is in the Romanesque style and is intended to accommodate about 250 persons. Besides the chapel proper, there will be behind the sanctuary a number of sacristies for the use of the Sisterhood. The cost is expected to be about 3,000l.

INFECTIOUS HOSPITAL, BELPER.—An infectious hospital is being erected at Belper, in which accommodation will be provided for 18 patients. It is built of brick with stone window sills. The contract for the erection of the hospital is let to Messrs. Moss & Son, of Loughborough, at 6,480l. The architects are Messrs. Hunter & Woodhouse, of Belper, and the clerk of works Mr. W. H. Woods, Belper.

TOWER, BLACKPOOL TOWN HALL.—A meeting of the General Purposes Committee of the Blackpool Town Council was held recently, when the question of providing a tower for the new Town Hall was discussed. The design of Mr. R. B. Edmondson was submitted, and a tender handed in for the work, the amount for which was in advance of the last by 2,000l.—Mr. Heap said they had been given to understand that it would cost 2,500l. altogether. Mr. Howarth suggested it was the cost of a church. The Town Clerk stated that the cost of the new Town Hall, including the site, but not the tower, had been 40,720l. so far. After several objections had been made to the expenditure, a resolution was moved recommending the Council to accept the plans.

MISSION HALL, BOLTON.—A new mission hall is to be erected at Bolton, from the designs of Messrs. Bradshaw & Gass, architects. The hall will accommodate 2,000 persons, and will be 117 ft. long, and 72 ft. wide, with one gallery.

ALTERATIONS TO FERRYHILL FREE CHURCH, ABERDEEN.—After undergoing alterations Ferryhill Free Church was reopened on the 26th ult. The chief feature of the alterations is the erection of two side galleries, these giving 160 additional sittings. Messrs. D. & J. R. McMillan were the architects, and the contractors were:—Messrs. James Garvie & Sons, carpenters; Scott & Sellar, plasterers; John F. Anderson, plumber; James Abernethy & Company, ironwork; and John Whyte, painter.

GROVE ACADEMY, BROUGHDY, FERRY, DUNDEE.—This building has just been enlarged, the architects for the addition being Messrs. James MacLaren & Sons, Dundee.

ALTERATIONS, PARISH CHURCH, FORFAR.—A meeting of the Kirk Session of Forfar Parish Church was held on the 22nd ult., when the plans of the

site for the organ to be erected by Mr. James Duncan, of Rangoon, were submitted and approved. The plans, which have been prepared by Mr. J. H. Langlands, architect, Dundee and Forfar, provide for the organ being placed on the north side of the church immediately beside the pulpit. The north wall is to be taken down and a new wall erected, giving an additional 15 ft. the whole length of the church. The organ chamber is situated in the middle, and at the corner a new staircase will be built, the present staircase being removed and seated in order to make up for the seating accommodation lost both downstairs and in the gallery by the introduction of the organ.

TRINITY CONGREGATIONAL CHURCH EXTENSION, DEWSBURY.—This building, situate in Halifax-road, is being altered and enlarged. The church itself will be somewhat reduced, as a division wall has been placed across the building at the back part, thus cutting off the gallery corners. A recess has been formed for the organ, and the instrument will be lowered almost on a level with the floor. A new rostrum will be placed in front of the organ, and on each side of this stalls will be provided for the choir. New rooms have been formed in the part divided from the church, and a new wing has been erected on the eastern side of the church. A church parlour has been provided, and also a deacons' vestry, minister's room, new class-rooms, and a large hall and staircase. The infants' room, which is on the basement floor, has also been enlarged. The new rooms will have panelled ceilings, and the whole building will be lighted by electricity. The interior is to be re-decorated and the organ reconstructed. The cost of the alterations and extensions will be nearly 3,000l. Messrs. Kirk & Sons are the architects, and the contractors for the various works are:—Messrs. Charles Whitehead & Sons, masons; Messrs. Fothergill & Schofield, joiners; Mr. S. Crawshaw, plasterer; Mr. F. Newsome, plumber; Mr. N. Ramsden, painter; Mr. R. Bennett, decorator; Messrs. Hirst & Son, electric lighting; and Mr. J. R. Thornton, heating apparatus.

SCHOOL-CHAPEL, PRESTON.—The memorial stone has just been laid of a new school-chapel in Garstang-road, Preston. The whole contemplated scheme will involve an expenditure of 7,500l., and for the present it has been found necessary to abandon the project of erecting a chapel, and to build a school-chapel only. The new school-chapel will provide accommodation for 350 persons, as follows:—Assembly room, 400; lecture hall, 100; infant class-room, 50. It will be from the designs of Mr. E. J. Andrew, architect, Preston, which were selected in open competition. The building will be erected of red brick, with a Cullingworth (Yorks) stone frontage, and St. Bees red sandstone dressing. The upper room of the building will be used as a Sunday school and chapel, and will be provided with a rostrum and pews for the present. On the ground floor there will be an assembly hall, and a lecture hall, which will be used for public meetings and other purposes. In the basement there will be a gymnasium, and a caretaker's cottage forms part of the undertaking. The contract for the erection of the building has been let to Messrs. Colley Brothers, of Preston, and the sub-contract for the joiners' work to Mr. John Whiteside.

ABINGTON CHURCH RESTORATION, NORTHAMPTON.—The parish church of St. Peter and St. Paul, Abington, was recently closed while a few alterations and additions (which form part of a scheme of enlargement, which must be undertaken in the course of a few years), have been made. The ground stage of the tower has been restored to its original connexion with the body of the church, from which, until recently, it was shut off by a lath and plaster partition, while it was also blocked up by a modern flight of stone steps to the ringing floor. When these steps were cleared away the remains of a window on the south side of the tower were discovered. These remains have been carefully repaired, and the missing portions made out with new materials. The expectation that the modern plastering of the body of the church obscured a tower arch of some importance has been more than verified, for when the plaster was cleared away an arch of two orders was discovered. It was much injured and mutilated, all the ancient moulding, with the exception of one piece, being chopped away. This small piece, however, was taken by the architect as a guide, and the result is that the whole label has now been restored, and all broken and missing stones made good. Further, the ground stage of the tower has been seen and used as a baptistry, the entrance to which is obtained from a step of polished Hopton wood marble, and the whole area paved with tiles. The ancient font and its cover has been reset in the centre of the tower area, and the re-seating has also been undertaken. The seats are made wholly of wainscot oak, with traceried and carved ends. Restoration has been made to the ancient sedilia in the chancel, and some temporary improvements have been effected in the choir stalls and the lighting of the chancel. The contractor for the work was Mr. Robert Cosford, of Northampton, and Mr. M. H. Holding, also of Northampton, was the architect. —*Northampton Reporter.*

CHURCH, DOLPHINHOPE, LANCASHIRE.—On the 29th ult. the Bishop of Manchester laid the foundation stone of the new church at Dolphinholme, near

Lancaster. The church, which stands on the site of the old one, is to be built of locally-prepared stone, in irregular layers. The chancel will be 34 ft. by 32 ft., and the nave 54 ft. by 36 ft. The vestry will measure 25 ft. 8 in. by 10 ft. 6 in., and there will also be an organ-chamber, transept, a square tower, and a belfry 48 ft. high. The length will be 88 ft., and the breadth 36 ft. Sitting accommodation has been arranged for 250. The five windows are to be of stained glass. The timber throughout is of pitch-pine, except the seats and fittings of the chancel, which are oak. Brown flag stones will substitute slates, and the red stone of the old church will be used as lining. The cost will be about 3,000l. The architects are Messrs. Austin & Paley, Lancaster, and the work is contracted to Messrs. J. Hatch & Sons, Lancaster.

HOTEL, LLANDRINDOD WELLS.—The foundation stone was laid recently of the New Gwalia Hotel at Llandrindod Wells. Messrs. Swash & Bain are the architects.

FREE LIBRARY, ST. GEORGE'S-IN-THE-EAST, LONDON.—A Free Library building is being erected in Cable-street, St. George's, and the foundation stone was laid on the 29th ult. The building has a frontage of 49 ft. and a depth of 99 ft. It has been designed by Mr. Maurice B. Adams, of Chiswick, and the contractors for the work are Messrs. W. Johnson & Co., Limited, of Wandsworth Common.

WESLEYAN SCHOOLS, HENTHORPE.—On the 30th ult., memorial stones were laid in connexion with a new Wesleyan school at Henthorpe, which is to be used as a mission church until a chapel can be erected. The architects are Messrs. Athron & Beck, of Doncaster, Mr. J. Athron being the contractor. Accommodation will be provided for about 300 persons.

NEW HALLS, UDINGTON, LANARKSHIRE.—The new halls just completed at Udington were opened on the 28th ult. The halls, which have been designed by Mr. Alex. Cullen, architect, Motherwell, are estimated to cost 3,500l.

PARISH ROOMS, COCKERMOUTH.—The Bishop of Carlisle recently opened the new church rooms for the parish of All Saints, Cockermouth. The building is of an Elizabethan type, and has been erected upon the site of the old Grammar School. On the ground floor there are class-rooms, cloak-rooms, and retiring-rooms, and over these there is a hall capable of accommodating 300 persons. The building has been erected from designs prepared by Mr. G. Dale Oliver, architect, Carlisle, and was estimated to cost 1,400l.

PRIMITIVE METHODIST CHAPEL, FARNHILL, YORKSHIRE.—A new Primitive Methodist Chapel has just been opened at Farnhill. The sitting accommodation in the new chapel is for 240, and that of the school for 300. The contractors were:—Messrs. Masons, Drivers & Lee, Silsden; painters, Messrs. Holmes Bros., Steeton; joiner, Mr. T. Green, Farnhill; plasterer, Mr. John Greenwood, Crosshills. Messrs. Judson & Moore, Keighley, were the architects.

WESLEYAN CHURCH, WALTHAMSTOW.—The memorial stones were laid recently of the new church in course of erection at the Hoe-street end of Church Hill. The plans for the church were prepared by Messrs. Gordon Lowther & Gunton, of London, and the work is being carried out by Messrs. Castle & Son, of Clapton. The church will consist of nave, aisles, transepts, chancel, organ chamber, and three vestries. It will be built of red brick, with stone dressings. The seating accommodation will be for 600—200 on the ground floor and 400 in the gallery. On the far side of the church will be schools to accommodate 450 children. The tower will contain the staircase to the gallery.

CO-OPERATIVE PREMISES, HAVERHILL, SUFFOLK.—New stores for the Haverhill Industrial Co-operative Society, Limited, were opened recently. The building, which is of red brick faced with stone, and has bottom piers of chocolate-glazed brick and stone, consists of three stories. The cost of the building amounted to 3,280l., and the site was about 1,000l. The contractors were Messrs. Mason & Son; the sub-contractor Mr. E. M. Green, and the architects Messrs. Goodey & Crissell, Colchester. The building operations were superintended for the Co-operative Society by Mr. T. Cockerell.

VICTORIA HALL, SUTTON SCOTNEY, HANTS.—This building, erected in commemoration of the Diamond Jubilee, has just been opened. The hall is 48 ft. long by 22 ft. wide, with a height of 10 ft. to the eaves and 22 ft. to the apex of the roof. The floor at one end of the room is raised 2 ft., and forms a platform projecting 12 ft. into the room. A retiring-room adjoins the platform end of the room. The roofs are open-timbered and match-boarded. The work has been executed under a contract by Mr. T. Grace, from the design of Messrs. Colson, Farrow, & Nisbett, of Winchester.

BOARD SCHOOL, HARRGATE.—The second of the two educational establishments erected by the Harrogate School Board was opened a few days ago by Mr. Amos Chippindale, vice-chairman of the Board. The building, which is known as the Grove-road School, has been erected at a cost of 22,000l., and has accommodation for 1,350 scholars. The central hall, which measures 78 ft. by 22 ft., has three class-rooms on each side, a similar arrange-

ment being made on the two upper floors. Mr. T. E. Marshall, of Harrogate, was the architect, and the contractors were Mr. M. Wilson, mason, Headingley; Mr. Hudson, painter, Shipley; Mr. J. Cook, concrete and asphalt, Huddersfield; Mr. J. Shepherd, slater, Harrogate; Messrs. Dorgue, Griffiths, & Co., heating engineers, Liverpool; Messrs. Suttle & Son, plumbers, Otley; Messrs. Rushworth Bros., iron-founders, Harrogate; Mr. G. Walker, wood block printer, London; and Alderman Fortune, plasterer, Harrogate.

TECHNICAL COLLEGE, WEST HARTLEPOOL.—The new Technical College and Public Hall, West Hartlepool, has just been opened by Sir Philip Magnus. The buildings have been built of red brick, with stone dressings. The style is Tudor-Gothic, and the architect was Mr. H. A. Cheers, of Twickenham. The exterior of the building is faced with the best red Aclington pressed bricks, with Dunhousestone dressings. The Technical College is entered from Lauder-street, through a porch and vestibule, fitted with stained glass screens displaying the arms of the Borough, which gives access to a staircase hall, square in shape, having wide corridors branching off right and left, the former leading to the school, and the latter to the engineering, plumbing, and carpenters and joiners' workshops, together with class and cloak rooms, while that to the left gives access to rooms allotted to the secretary, the committee, &c. The corridor to the left likewise leads by a branch to the physical laboratory, balance and combustion rooms, &c. From the large public hall, a staircase leads to a platform above the art in the semi-basement are storage rooms, heating chamber, &c. The public hall is on the ground floor, and has five direct entrances from the surrounding streets, in addition to the door from the school premises adjoining. The main entrance, which is flanked by two octagonal turrets rising above the doorway, is from Hart-road through a porch and vestibule to a foyer or saloon, from which retiring-rooms open right and left. Glazed screens with folding doors at either end of this saloon lead to the gallery staircases of polished hard stone, while further staircases at the opposite corners, at the platform end of the hall, make together four staircase approaches with a total width of 20 ft. The hall is capable of seating about 1,500 persons. Polished grey granite columns, with Robin Hood hard stone caps, bands, and bosses, support the gallery, and the same are continued up in cast-iron tapering shafts with gilded capitals to support the roof. The ceiling is panelled in polished pitch-pine and plastered between the ribs. At the back of the platform is a large gallery. The contractor for the building is Mr. Thos. Dickinson, of Middlesbrough. The clerk of the works is Mr. A. Dermont. The building has cost, including site and fittings, about 16,000l.

LIVERPOOL MUSEUM EXTENSION.—On the 30th ult. a meeting of the Library, Museum, and Arts Committee was held in the Public Libraries, William Brown-street. The Committee resolved to accept the tender of Messrs. Joshua Henshaw & Sons, for the erection of the Museum extension, at a cost of 89,242l., and the technical schools on a site running from the present museum to Byrom-street.

MISSION CHURCH, SUNNYSIDE, DARLINGTON.—The new Mission Church at Sunnyside was dedicated recently by the Bishop of Durham. The building, which was erected by Mr. Walton, Crook, from designs of Mr. Samuel Candler, architect, is a red brick structure. Windows of tinted glass have been provided by Messrs. Atkinson, of Newcastle.

SCHOOLS, BITTERNE, HANTS.—The new infants' school and class-room addition to the girls' school, Bitterne, were opened recently. The new buildings, on the south end of the Bitterne Church of England Schools provide accommodation for 172 infants, while the girls' school has been extended so as to accommodate close upon sixty-six more scholars. The infants' school is built of red brick, with slate roof; the stone on the north side, facing the street, bears the inscription: "Queen Victoria School, A.D. 1897." The main room is 48 ft. by 22 ft., and class-room 22 ft. by 20 ft., with a lavatory and lobby. The buildings have been constructed by Messrs. C. & A. Witt, of Bitterne, under the supervision of Messrs. Mitchell, Son, & Gutteridge, architects, of Southampton.

THE NEW LYRIC HALL, DUBLIN.—The conversion of the old Conciliation Hall into a place suitable for concerts and other entertainments has been nearly completed. The new hall will seat between 1,500 and 1,600 people. The plans, which were prepared by Mr. W. H. Byrne, provide a large number of exits. The contractors were Messrs. Meade & Son.

WESLEYAN CHAPEL, COMMONDALE, YORKSHIRE.—The foundation stones were laid recently of a new Wesleyan Chapel, which will be erected from the designs of Mr. F. W. T. Richardson, architect, of Stockton, the builders being Messrs. Craggs & Benson, of Stockton.

ADDITIONS, &c., BERWICK INFIRMARY.—As a permanent memorial of the Queen's Diamond Jubilee, improvements are being carried out at Berwick Infirmary under the supervision of Mr. John L. Miller, architect. The new accommodation consists of two nurses' bedrooms, servants' double bedroom, bathroom for attendants, and the heating of the institution.

COTTAGE BUILDINGS, GREENOCK.—The buildings to be erected by the Greenock Building Company, Limited, in Finart-road will consist of eight cottages of six apartments each. The contractors for the work are:—Mason and brickwork, A. Whitelaw & Co.; joiner, Miller & Co.; slater, P. Mackay & Son; plumber, Crawford & Kerr; gas-fitter, F. Logan & Son; plasterer, Hailey & Co., Glasgow; ranges, &c., Findlay & Co. Messrs. Boston, Menzies, & Morton are the architects.

CHURCH, NORTH SHORE, DURHAM.—The foundation stone of St. Paul's Church, North Shore was laid on the 24th ult. The architects of the building are Messrs. Garlick & Sykes. The edifice will be of cruciform shape, with the chancel at the south-easterly end, and the exterior of Yorkshire parapet stone, with white stone dressings. Its total length will be 126 ft., and the width across the nave and aisles will be 52 ft., allowing accommodation for 840 seats. The plan shows a chancel with north and south aisles and transepts, chancel and chancel aisle, and vestries for clergy and choir, with an organ chamber over the latter. There is also a gallery at the west end, and over the south-west porch will be a tower and spire, 140 ft. in height, with a belfry.

MISSION CHURCH, GRIZEBECK, LANCASHIRE.—The foundation stone has just been laid at Grizebeck of a new mission church. The contract has been let to Mr. W. Dixon, and the building is to be of grey brick with red sandstone dressings. The sub-contractors are:—Mr. Hill, mason work; Mr. Frearson, joiner work; Mr. Temple, painting. The church is being built to the plans of Mr. William Newby, architect, of Kirkby.

SCHOOLS, SHAW, OLDHAM.—New Congregational Sunday Schools are being built at Shaw. Mr. F. W. Dixon is the architect, and the general contractor is Mr. W. Whittaker.

CHURCH, BASSETT, HANTS.—The dedication stone has just been laid of a new church, now in course of erection by the case of London-road, Bassett. Mr. E. P. Warren, Westminister is the architect of the church, which, it is estimated, will hold from 400 to 500 persons when completed. The cost of the portion of the building first taken in hand is estimated at about 2,400l. The new building is being constructed by Messrs. Holloway Bros., contractors, of Battersea, and it is dedicated to St. Michael, of All Angels. It is to be roofed with a groined vault, and the deep buttresses will resist the thrust of this vault are placed internally, and pierced with arches to form continuous narrow passage-aisles, the outer walls of which are mere screens or "curtain-walls" connecting the buttresses, and roofed over with a low-pitched roof immediately below the tall nave windows. The nave is thus divided into a succession of deep arches and bays. The chancel, which is a direct continuation of the nave, is formed by omitting the passage-aisles, and making the side walls almost flush with the inner faces of the buttresses, at the same time raising the floor, and providing steps for approach. The materials are local bricks, red for external facing, and Monk's Park stone for all dressed work of the buttresses, &c. The roof is covered externally with green slates. It is only at present possible to build a portion of the church, the south transept and the two westernmost bays of the nave being omitted. The edifice, when completed, will be 99 ft. long, and the nave will be 25 ft. wide, and with the aisles added, the total dimensions across will be 37 ft. There is no tower in contemplation, but it is finally intended to have at the west end a stone bell cote on the west gable.

FIRE BRIGADE STATION, HAMPTON, MIDDLESEX.—The foundation stone of a fire brigade station, Thames-street, Hampton, was laid recently. The engine-house, which is being erected upon the site of the old building purchased by the District Council for the widening of Thames-street, will be of red brick, with Mansfield stone facings. It will be a two-story building covering an area of 20 ft. 6 in. by 12 ft. 9 in. The lower room is for housing the steamer, and the upper for the accommodation of the men and their accoutrements. The plans have been prepared by Mr. J. Kemp, the Surveyor to the Council. Messrs. J. Wright & Sons, Hampton, have secured the contract.

PROPOSED SMALL-POX HOSPITAL FOR HALIFAX.—The Borough Engineer of Halifax (Mr. E. R. S. Escott) has prepared plans for a small-pox hospital, and these have been adopted by the Health Committee. The scheme provides accommodation for twenty-four patients, and the cost, inclusive of site, will be about 16,000l.

THE LITTLEWOOD MEMORIAL HALL, SHEFFIELD.—This hall, which has been built by Mr. W. L. Littlewood, was designed by Messrs. Flockton, Gibbs, & Flockton, and has been erected next to the Second-street chapel. There is a large lecture-room, a church parlour, a caretaker's house, and a café.

SANITARY AND ENGINEERING NEWS.

CENTRAL STATION HOTEL, GLASGOW.—The sanitary fittings here have been recently reorganised by Messrs. Doultou. The work includes the entire reconstruction of the entresol floor lavatories and the restaurant lavatories, also a new ladies' cloak-room and lavatory, in which the floor, walls, and ceiling are tiled with the firm's patent key-back tiles, the roof being panelled and the floor in mosaic. The closet rooms are finished entirely in dark fumed mahogany, highly polished; the divisions are of marble, the lower section Bardillo marble, and the upper section white veined marble. The closets are of the "Simplicitas" type, the cisterns being cased in mahogany.

NEW WATERWORKS SCHEME, BEDWORTH.—A scheme—prepared by Mr. Bertram Nichols, C.E., of Birmingham—is about to be carried out for the water supply of Bedworth.

SEA DEFENCES, BRIGHTON.—On the 20th ult., at the Town Hall, Brighton, Colonel W. R. Slacke, R.E., one of the Inspectors of the Local Government Board, held an inquiry into the application of the Brighton Town Council for sanction to a loan of £12,000 for the construction of sea defences on the Madeira-road. The Town Clerk said the Borough Surveyor (Mr. F. J. C. May) was unfortunately very ill, and was away from Brighton, but all necessary information would be given by Mr. P. C. Lockwood, the Consulting Engineer, and by Mr. A. Weller, the Deputy Surveyor. As to the necessity for these works, the sea had encroached upon the shore at that point very considerably of late years, and the heavy storms of last autumn carried away a great deal of the foreshore. The Town Clerk then read reports of the Surveyor bearing on the work, and said that the original estimate for the proposed groynes was 10,000l., and for the timber breastwork, 1,000l., making, with some additional work, a sum of 13,670l. The Council, however, proposed to build groynes only up to a certain height immediately, which was estimated would reduce the cost to 11,271l. The reduced groynes would not only answer the purposes, but would probably be better than if built to the extreme height at first. Mr. P. C. Lockwood explained details of the plans. He said there would be two concrete groynes, each 450 ft. long. The height at the top would be 33 ft. above low-water mark. The groynes would be constructed of concrete blocks, laid on a foundation in the chalk, the class of work being the same as in the case of other groynes on the beach, which had been found to stand well. The plan, however, was intended not only to protect against encroachments of the sea, but also to enable the Council to widen the road. The groynes were to be 1,000 ft. apart, the next groyne eastward being 1,480 ft.

RESERVOIR, CARDIFF WATER SUPPLY.—The Beacons (or No. 1) Reservoir of the Cardiff water supply undertaking was opened on the 30th ult. No. 1 is the second to be constructed of the four great water storages for which the scheme provides, and is situated at the foot of the Beacons, in Breconshire, a distance of thirty-four miles from Cardiff. It is the northernmost of the chain of three large storage reservoirs, the powers to construct which were obtained by the Corporation of Cardiff in 1884. The middle reservoir of the series (Cantriff, or No. 2) was completed and opened for use on September 14, 1892, and contains 322 millions of gallons. A commencement was made on April 17, 1893, with the construction of the Beacons Reservoir, for which enlarged powers were obtained in 1894, and the Engineer-in-chief, Mr. J. A. B. Williams, M.Inst.C.E., calculated that it should be ready for filling with water on September 17, 1897, a period of four years and five months. The Beacons Reservoir is constructed on the old red sandstone formation, by building an embankment across the River Taff Vawr. The embankment is 1,200 ft. long, and 65 ft. high above the old river bed, the greatest transverse width being 400 ft. The main trench was carried down at all points until solid, compact rock was found, the greatest depth below the surface being 70 ft. At this point considerable difficulty was met with by reason of quicksand and strong springs of water. During the construction of the reservoir provision had to be made for carrying off the heavy floods that frequently occur, and this was done by constructing a discharge tunnel, 10 ft. in diameter, with a length of 650 ft. (including wings). It provides for the safe discharge of a maximum flood of 1,300 cubic ft. per second. The next step was the diversion of the main roads from Merthyr to Brecon and that from Hirwain to Brecon. The former road was diverted to the eastward at a higher level, clear of the intended works, and the diversion of the Hirwain-road was effected by building a viaduct of masonry, 50 ft. high, across the river. The "overflow" is constructed on the eastern side of the valley, and is 150 ft. long, and from it all overflow and storm water is conveyed down a by-wash of massive masonry, 20 ft. in width, to the river below the works. At the point of intersection between the discharge tunnel and the centre line of the embankment a valve-shaft has been built, which contains all the necessary pipes and valves and machinery for working them, and for governing the delivery of water from the reservoir. The Beacons Reservoir will contain 335 millions of gallons. Its

estimated cost, including Conduit No. 1, railway, plant, huts, &c., was 198,700l., and up to the present time the sum of 180,500l. has been spent in its construction. The whole of the work has been carried out by the staff and workmen in the employ of the Corporation (without the aid of contractors), under the supervision of the Engineer-in-chief, Mr. J. A. B. Williams, and Mr. F. Orton, who has acted as resident engineer and manager, Mr. Mitchell being the assistant engineer. Since the completion of Cantriff Reservoir (No. 2), in September, 1892, Cardiff has been supplied with four and a half millions of gallons per day of Taff Vawr water, and now, by the completion of the Beacons Reservoir, an additional quantity of three millions of gallons per day will be obtained, making the total daily quantity of seven and a half million gallons for town supply. —*Western Mail.*

SEWERAGE OF EXETER.—The Local Government Board have intimated their willingness to arrange for an inquiry into Exeter City Council's application for power to borrow 40,000l. for dealing with the sewage of the city on the septic tank system. It is stated that the action of Mr. Scott-Moncrieff against the Corporation for an alleged infringement of patent in connexion with the system has been dropped.

PROPOSED SEWERAGE SCHEME, COALVILLE.—At the offices of the Coalville Urban District Council recently Mr. G. W. Willcocks, C.E., one of the Local Government Board's inspectors, held a public inquiry concerning the application of the Council to borrow the sum of 35,000l. for the purposes of sewerage disposal. There were present, amongst others, Mr. Thos. Jesson (Clerk to the Council), Mr. J. B. Everard (the Engineer), and Mr. L. L. Baldwin (Surveyor).

NEW SKATING POND FOR ABERDEEN.—The Aberdeen Skating and Curling Pond Company have concluded contracts for the construction of a skating pond, east of the Bridge of Dee. The pond measures fully 700 ft. long, by an average width of 150 ft. or thereby, and will be supplied with water from the adjoining burn. During skating the depth of water will be about 9 in., but for boating and other purposes during summer this depth will be increased to about 30 in. Mr. William Durward, contractor, Clashfarguair, Portlethen, has secured the contract, and the engineers are Messrs. Walker & Duncan, Aberdeen.

OLDHAM SEWERAGE WORKS.—The formal opening of the new sewerage works for the town of Oldham took place on the 30th ult. When they were begun it was estimated that the cost would be about 200,000l., but that sum will be exceeded by about 65,000l. The effluent obtained will, it is believed by the Sanitary Committee and by Mr. H. Law (the Engineer for the Committee), be entirely satisfactory to the Mersey and Irwell Joint Committee.

SEWAGE WORKS, MIDDLETON.—The new and modern sewage works of the Middleton Corporation were publicly opened on the 30th ult. by the Mayor of Middleton. The population is 24,000, but the sewers have been designed of such a capacity as to be able to cope with the population of thirty years hence. The system of purification at the outfall is that known as the International, the sewage being first precipitated by ferrous in circular precipitation tanks, from which the sludge is automatically removed by means of the Candy patent apparatus, and is afterwards pressed and sold to farmers as manure. From the tanks the sewage flows on to clarifiers, and thence through polaris filters, from which it emerges a pure and clear effluent. The engineers for the drainage and outfall works are Messrs. Hinnell & Murphy, of Manchester.

ELECTRIC LIGHTING NEWS.

ECLES ELECTRIC LIGHTING SCHEME.—Sanction has been given by the Local Government Board to the borrowing of 11,408l. for carrying out a modified electric lighting scheme for Eccles. The street lighting will be carried out on the Brighton plan.

ELECTRIC LIGHT IN ST. PANCRAS.—A report was presented to the St. Pancras Vestry, at its meeting on the 28th ult., showing a gross profit of 5,063l. 2s. 8d. earned by the Regent's Park station electrical installation during the half-year ending June 30 last, and a gross profit in respect of the King's-road station, subsequently opened, of 293l. 15s. 11d.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW AND ALTAR, EAST MARKHAM CHURCH, NOTTS.—At the Church of St. John the Baptist, East Markham, recently, the ceremony took place of dedicating the altar and blessing the Brameld Memorial window. The restoration was begun in 1883, when the fabric and the roof were strengthened, and it is now intended to improve and replace the fittings. A start was made in June last by providing new altar and hangings, and by inserting at the east end of the church a stained glass memorial window in memory of the late vicar (the Rev. G. W. Brameld, M.A.), and it is intended later on to restore the screen and loft. During the improvements, when the floor was being taken up in the north aisle, a discovery was made of an old

altar slab. Both the altar and memorial window were designed and executed by Messrs. W. Bucknall and J. N. Comper, of Westminster. The window is representative of the history of the Church, in general, and of East Markham Church in particular. In the centre light of the window is the Virgin Mary and the Holy Child; on the right is St. John the Baptist, the patron saint of East Markham; and on the left is St. Paul, the patron saint of West Drayton. The two outside lights represent St. Hugh, of Lincoln, and his swan with its beak up his sleeve, and a Latin inscription on the book which he holds in his left hand; and St. Cuthbert, holding St. Oswald's head, in connexion with St. Cuthbert's Priory, of Workop. The floor has been entirely relaid on concrete, with a raised surface of wood for seating accommodation. A heating apparatus has been supplied by Mr. John Grundy, London. The builders engaged were Messrs. Rudd & Son, of Grantham.

DECORATION OF WESLEYAN CHAPEL, HORSEFAIR, PONTRACT.—This building has just been reopened after redecoration. Mr. Thomas Bottomley, of Crosshills, near Kedgeley, prepared the designs, &c., and Messrs. Henry Butler & Sons, of Pontract, carried out the work.

A WINDOW, HASELEY CHURCH, WARWICKSHIRE.—A stained-glass memorial window has just been placed in the chancel of the parish church of Haseley, Warwick. The work has been carried out by Messrs. Hardman & Co., Birmingham.

DECORATION OF ST. CUTHBERT'S CHURCH, EVERTON.—The redecoration of St. Cuthbert's Church, Everton, has just been completed. All the designs submitted, which was chosen from a number of designs submitted by competing firms, consisted of two female figures emblematical of Peace and Plenty.

A JUBILEE MEMORIAL WINDOW, LEEDS.—Messrs. Wailles & Strang, of Newcastle, have erected a stained-glass window, commemorative of the Queen's Jubilee, in St. Clement's Church, Leeds. The design they submitted, which was chosen from a number of designs submitted by competing firms, consisted of two female figures emblematical of Peace and Plenty.

JUBILEE MEMORIAL WINDOW, ALVECHURCH, BIRMINGHAM.—On the 4th inst. Lady Windsor unveiled a stained-glass window, which has been placed in the west end of the tower of St. Lawrence's Church, Alvechurch, as a local commemoration of the sixtieth year of the reign of Queen Victoria. The execution of the work was entrusted to the firm of William Pearce, Limited, Birmingham. The centre light contains a representation of the Saviour as the head of the Church, and beneath is the Royal coat-of-arms. The dexter light is occupied with a representation of her Majesty robed as she appeared at the time of taking the Coronation oath, whilst the other light is filled with a representation of a former Bishop of Worcester. Underneath the last-mentioned figure are the heraldic arms of Nicholas Lewknor, of Hadzor, who in 1580 founded the free school and almshouses at Alvechurch. In the tracing of the window the rose, shamrock, and thistle are associated.

FOREIGN.

FRANCE.—The "Union Centrale des Arts Decoratifs" is organising a competition among French artists and architects for a collection of works to be exhibited together at the 1900 Exhibition, under the names of their authors.—M. Formigé, the architect, is at present engaged in completing the new horticultural buildings for the Municipality of Paris, in the neighbourhood of the Bois de Boulogne. The cost of the whole work will amount to about three million francs, and it will be adorned with a decorative fountain in stone by M. Dalou.

—The railway company "de l'Est" is about to undertake important works with the object of moving and rebuilding the station at Reuilly, on the Vincennes line, and demolishing the Reuilly tunnel, which will be replaced by a steel bridge 70 metres long. There is some talk even of rebuilding the Bastille Station.—The town of Suresnes is about to open some important new public buildings, including a large hall for entertainments, a public library, a charitable institution ("Bureau de Bienfaisance"), a fire brigade establishment, and a public place or square decorated with a fountain. These works have all been carried out from the plans of the same architects, MM. Baudouin and Barbaud.—It is announced that the Romanesque tower at Limay, in consequence of some movement of the ground, is in danger of falling. The tower is classed among the "Monuments Historiques."—A committee has been formed to raise a monument at Bayonne to the memory of General Bourbaki. The design is to be carried out by M. Alphonse Moncel.—The municipality of Besançon has opened a competition for the restoration and enlargement of the Hôtel de Ville.—It is reported that in the Church of St. Moloy (Côte d'or) some mural paintings have been found which have the appearance of late Gothic work, but which are framed in Renaissance architecture. It seems probable that there is a misconception as to the style and date of the paintings. They are on a thick coat of plaster, and represent St. Michael, St. Anne instructing the Virgin, and other figures of saints.—MM. Usgé, Vachat, and Condois

architects, are engaged in carrying out a new hospital at Evian-les-Bains.—An art exhibition, has just been opened at Rouen, which will close on November 30. At Angers, the eighth exhibition of the "Société des Amis des Arts" will open on November 21, to close on January 15, 1898.—The painter Gustave Maincent has died suddenly at the age of forty-seven. He was a pupil of Pils and Cabasson, and obtained various mentions and medals at the Salon between 1881 and 1889. He was known as a charming painter of the scenery of the banks of the Seine, at Rolleboise, Rueil, Chateau, Ile de Croissy, and other places. For twenty years he had exhibited annually at the Salon.

CAPE TOWN.—The new General Post Office, Cape Town, was opened on August 30 last. The building has cost about 175,000. The architect was Mr. H. S. Greaves, Public Works Department, and the contractors were Messrs. Small & Morgan.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. Alfred Williams & Son, civil engineers, have removed their offices from 18, Great George-street, to 1, Victoria-street, Westminster.—Mr. H. V. Ashley, architect, formerly of 66, Conduit-street, has removed to 50, Berners-street, where he has taken offices in conjunction with Mr. G. P. Armstrong.—Messrs. Geo. Trollope & Sons have vacated their offices at 15, Parliament-street, Westminster (where they have been since 1777) in consequence of the property being required for Government improvements, and have taken temporary offices at 5, Victoria-street, Westminster.—Mr. Arthur L. Gibson, representing the "B. & S. Folding Gate Company," announces that he has severed his connexion with the Otis Elevator Company, and intends to devote himself entirely to the business of his own company.

HANDBOOK TO MID-WALES.—Messrs. Darlington & Co. (Llangollen) send us their handbook to "Llandrindod Wells and the Spas of Mid-Wales," describing the country and objects of interest about the district of Llandrindod, Rhayader, Builth, &c. It is well written and contains a good deal of information, besides illustrations.

THE PLUMBERS' COMPANY.—At the quarterly meeting of the Court held September 29, Alderman Richard Hind was sworn into the office of Master, Mr. Frederick Machin to that of Warden, and Mr. Charles Hudson to that of Renter Warden for the ensuing year.

THE LIFT ACCIDENT AT THE GENERAL POST OFFICE.—Messrs. Easton, Anderson, & Gooden write:—"As it is well known that we have supplied a number of lifts to the General Post Office, we think it only fair to ourselves to state that the lift which was the cause of the recent lamentable accident was not one of our manufacture."

HANOVER-SQUARE.—An interesting old house in Hanover-square has lately suffered changes which considerably modify its pristine appearance and character. The house stands at the north-eastern corner of Tenterden-street. A new stone doorway inserted in the east side, together with sundry trade announcements set forth in obtrusive prominence, combine to give quite another and less pleasing aspect to the former home of the Arts Club. No. 26, Upper Mall, Hammersmith, and named after the old manor-house, near Lechlade, which forms the scene of Morris's Utopia in his "News from Nowhere," had been the residence of Sir Francis Ronalds, a pioneer of the electric telegraph, to whom a memorial medallion was placed on the house-front. We read in the *Academy* that it is understood the lease of the house has been taken over from Mrs. Morris. The Kelmescott Press was removed from No. 16 to No. 14 (Sussex-cottage), and to Sunderland-cottage, by Morris, and, we gather, the business will be now brought to an end upon the completion of certain work now in progress. The South Kensington carpet hung in the dining-room. The library has been sold.

RUGBY URBAN DISTRICT COUNCIL BUILDINGS.—In announcing the result of this competition, the name of one of the successful competitors was incorrectly printed in our issue of the 25th ult. The accepted designs were prepared by Messrs. North & Hawke.

PUBLIC IMPROVEMENTS, LEICESTER.—An inquiry has just been held at the Town Hall, Leicester, by Colonel Coke, Local Government Board Inspector, as to applications of the Town Council to borrow 30,000l. for the purchase of a public park, 1,200l. for a branch free library, and 33,710l. for electric lighting purposes. Mr. Bell, Town Clerk, said the proposed park was to take the place of a recreation ground, which had been acquired by the Great Central Railway Company, for the purpose of its new line. The land was known as the New Parks Estate, and had been bought from the trustees of the late Sir John Mellow for 30,000l., the area being 183 acres. There was no opposition to the scheme. Mr. Colson, the engineer, said the electric light works were necessary to meet the increased demand for the light.

PROPOSED CITY IMPROVEMENT.—A meeting of merchants engaged in the tea, fruit, and fish trades was held on the 1st inst. at the London Chamber of

Commerce, Eastcheap, for the purpose of petitioning the Commission of Sewers to widen the eastern end of Lower Thames-street, where a daily congestion of traffic exists in connexion with Billingsgate Fish Market. For some time past the inhabitants of the ward have been agitating for the widening of the street from Fish-street-hill to Botolph-lane, and the meeting resolved to appoint a deputation to wait upon the Commission of Sewers with a memorial in favour of the widening of the street, the cost of which is estimated at over 100,000l.

RESIGNATION OF THE CITY ENGINEER, LIVERPOOL.—We understand that at the meeting of the Health Committee of the Corporation on the 30th ult., among the communications which were considered privately was a letter from Mr. H. P. Boulton, City Engineer, resigning his appointment. The resignation was accepted with much regret. A hope was expressed that Mr. Boulton would see his way to reconsider his decision, but it was stated that he could not do so, having made arrangements to go to London.—*Liverpool Post.*

MEMORIAL FOUNTAIN, BILSTON.—The memorial to the late Mr. Walter Hughes, sanitary inspector of the town of Bilston, was inaugurated at a public ceremonial on the 29th ult. The memorial consists of a lamp and fountain, and bears the following inscription:—"To the memory of Walter Hughes, *for more than twenty years Sanitary Inspector of this town*, who died August 17, 1896, this fountain is erected by voluntary subscriptions as a public recognition of his worth. He was a good citizen, and a devoted friend." It is placed at the junction of Wellington-street and Wolverhampton-street. The makers are the Coalbrookdale Company. The erection has been conducted under the direction of Mr. C. L. N. Wilson, the Town Surveyor.

THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—The twenty-fourth voluntary pass examination for candidates for the offices of Engineer and Surveyor to Municipal Corporations and District Councils was held at the Council House, Birmingham, on Friday and Saturday, last week. The first day was devoted to the written portion of the examination, the greater part of the second being occupied with the viva voce part of the examination. Twenty-one candidates presented themselves for examination. The examiners were: 1. For Engineering as applied to Municipal work, Mr. Edward Pritchard, M.Inst.C.E., Birmingham; 2. Building Construction, Mr. A. M. Fowler, M.Inst.C.E., Manchester; 3. Sanitary Science, Mr. J. Lemon, M.Inst.C.E., Southampton; 4. Municipal Local Government Law as relating to the work of Municipal Engineers and Surveyors, Mr. J. T. Eays, M.Inst.C.E., Birmingham. Mr. Pritchard acted as Superintending Examiner.

REERDOS, ST. CHAD'S, LICHFIELD.—The Bishop of Lichfield recently dedicated a reeredos which has been erected in St. Chad's, Lichfield, in commemoration of the forty years' pastorate of the late rector, the Rev. Prebendary John Graham, M.A. The reeredos is of carved oak, with a representation of Christ as the Good Shepherd in the centre panel, and has been erected, from designs of Mr. J. Oldrid Scott, by Mr. R. Bridgeman. The floor within the communion rails has been relaid with black and white marble, and a brass tablet has been placed on the south wall of the chancel.

CITY COMMISSIONERS OF SEWERS.—On the 5th inst. a meeting of the Commissioners of Sewers was held in the Guildhall. Alderman Sir Reginald Hanson, M.P., and Mr. Alderman John Knill attended in support of a memorial from the owners of property and inhabitants interested in the trade of the river in Lower Thames-street and neighbourhood, urging that Lower Thames-street should be widened between Fish-street-hill and Botolph-lane. Similar petitions were presented from the London Fish Trades' Association, the National Sea Fisheries Protection Association, and the wardmoor. The memorials were referred to the Finance and Improvement Committee for consideration and report.

BELLS, LANGHAM CHURCH.—The peal of bells at this church, which have not been rung for thirty-five years, when the church was damaged by fire, have been restored and re-hung. The bells have been equipped with new fittings by Messrs. Taylor & Sons, of Loughborough. The upper stage of the tower has been strengthened and thickened. The work has been carried out under the superintendence of Colonel Edis, of London, Mr. Grimes, of Colchester, having done the building work in connexion with the tower.

THE BIRMINGHAM CORPORATION MEAT MARKET.—The date of the opening of the new meat market and slaughter-houses in Broad-street has been fixed for the 27th inst. The ceremony will be performed by the Lord Mayor. The members of the Birmingham Clerks of Works and Builders' Foremen's Association visited the new market recently, and were conducted through the building by the clerk of works and the foreman (Mr. Todd). At the conclusion of the visit a vote of thanks was accorded to the architect (Messrs. Essex, Nicol, & Goodman) and the builder (Mr. John Bowen) for their permission to visit the building, and to the clerk of works and foreman for their explanations of the various parts of the building.

CONVENTION OF MASTER PAINTERS IN SHEFFIELD.—A convention of master painters, representing the National Association of Master House Painters of

England and Wales, is to be held in Sheffield on the 12th inst. and following days. Nearly 300 delegates are expected. A portion of the Albert Hall is to be apportioned for the exhibition of paints, varnishes, and wall decorations. The Duke of Norfolk is to open the exhibition. Papers are to be contributed by Mr. J. T. Cook (headmaster of the School of Art), Mr. Hugh Stannus, Mr. Thomas Bonnar, and others. The President is Mr. John Smith.

MEASUREMENT OF ENGRAVED BLOCKS.—As blocks produced by the modern photographic engraving processes are generally charged at so much per square inch, there is sometimes difficulty in calculating accurately and immediately the actual content of those of which the side measurements run to fractions of an inch. Mr. F. Godfrey Cole, photo-engraver (London), sends us a sheet with numbered curves by means of which the area of any rectangular block, if placed with two of its sides parallel to the boundary lines of the sheet, can be seen at a glance, on noting which of the numbered curves the outer angle touches. If it touches line 27, there are 27 square inches in the block. This may be useful both to engravers in making out their charges and to publishers in checking them.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board have sanctioned the appointments of the undermentioned sanitary inspectors:—Mr. H. Body, in Hackney; Mr. W. Wood, in Plumstead; Miss M. M. Vines, in St. Pancras; and Messrs. R. S. Wrack, G. Harvey, A. Goddard, P. Wrack, H. Mills, and W. Shepherd, in Whitechapel.

MEMORIAL BUST, WEST SMETHWICK PARK.—West Smethwick Park, of more than fifty acres, was presented to the public two years ago by Mr. James T. Chance, J.P., D.L., who bought the land for it, laid it out, and endowed it at a cost of about £5,000. On the 2nd inst. a bust of Mr. Chance was unveiled at the Festival of the Arts in bronze, the work of Mr. Hamo Thoraorcyfink, R.A. The architectural support for the bust was designed by Mr. William Hennan, architect, Birmingham. The whole structure is mounted upon red Aberdeen granite steps.

LECTURES ON SANITARY SCIENCE, LIVERPOOL.—A committee has been formed at Liverpool, called the Sanitary Science Instruction Committee, who have arranged a winter course of tuition in matters affecting the public health, this being designed to meet the requirements of sanitary inspectors, teachers, lecturers, builders, foremen of works, surveyors, architects, and of others interested in subjects connected with sanitation. The opening lecture was delivered in the Arts Theatre of University College, on Wednesday evening, at eight o'clock, by Dr. Hope. Subsequent lectures and demonstrations will be given in Ashton Hall, University College, at 7.30 on Monday and Wednesday evenings. The systematic course of lectures will embrace:—1. "Sanitary Engineering and Appliances," Mr. Wilding (surveyor, Runcorn); Mr. Goldstraw (deputy building surveyor, Liverpool); and Dr. Manby (assistant medical officer). 2. "Food Inspection," "Diseases of Animals," and "Bacteriology," lecturers, Dr. Hope and Professor Boyce. 3. "Objects and Methods of Inspection of Nuisances" and "Vital Statistics and Meteorology," lecturers, Dr. Hope and Dr. Manby. 4. "Methods of Disinfection, &c.," lecturer, Dr. Manby. 5. "Sanitary Law," lecturer, Mr. E. W. Pierce, assistant town clerk.

PROPOSED ART GALLERY FOR HUDDERSFIELD.—The seventh annual exhibition of pictures of the Huddersfield Art Society was opened recently by Mr. George Thomson, of Woodhouse Hall, at the Sale-room of Messrs. George Tinker & Son, Market-street, Huddersfield. Mr. Thomson delivered an address on art in its relation to products for everyday use, and to the furnishing and decorations of the abodes of human beings. He deprecated generally the application of art to the production of objects of utility when the purpose was chiefly to secure effect and to obscure the real nature of the product, warmly advocating the cultivation of artistic instinct amongst the people. He pointed out that whilst education was directed to fitting men and women for the vocations of life, the training of the senses towards appreciation of the beautiful was almost entirely neglected. He conceived that there was scope for a new profession in matters artistic. To secure beautiful and artistic houses it was as essential that there should be a professional adviser for the furnishing and decoration of houses as that there be an architect to plan the houses.—*The Bradford Observer.*

KING'S COLLEGE ARCHITECTURAL SCHOOL.—The distribution of prizes to the students of the architectural and building construction and wood-carving classes at King's College was held on the 30th ult. at King's College. The Rev. Dr. Robertson, Principal of the College, occupied the chair, and was supported by, amongst others, Sir Henry Harben, and the Master, Clerk, and Warden of the Carpenters

Company. Professor Banister Fletcher reported that the competition for the two free scholarships, given by the Carpenters' Company, took place at the

College. There were twelve candidates, of whom ten sat for the examination, the successful candidates being Mr. A. C. Remnant (126 marks) and Mr. C. J. T. Dadd (123 marks). In conclusion he announced that since the opening of last session the whole of the original diagrams and drawings prepared by the late Sir Gilbert Scott, R.A., and his pupils, numbering some 400 drawings, had been presented by his son, Mr. John Oldrid Scott, F.S.A., to the architectural school of the college.—Sir Henry Harben then presented the prizes to the successful students, and afterwards delivered a short address to the students present. The Rev. Dr. Robertson proposed a vote of thanks to Sir Henry Harben, saying that a great deal of the success which the classes had achieved was due to the munificent and thoughtful support received from the Carpenters' Company. Mr. Joseph Henry Gibbins, Master of the Carpenters' Company, seconded the vote, which was carried. A vote of thanks to the chairman concluded the proceedings. A conversation was held afterwards, various exhibits in connexion with the architectural classes being thrown open to the guests.

STRATFORD TECHNICAL SCHOOL.—We have received the prospectus of the Day Technical School at Jupp-road, Stratford, E. This school is founded and maintained by the Carpenters' Company, is inspected and examined by the Government Science and Art Department, and is in connexion with the City and Guilds of London. It is a public secondary and technical school, established for the purpose of giving boys who have passed the V. or VI. Standard at an elementary school, or boys from other schools, who can do equivalent work, a higher education of a technical character in order to fit them for the various industries of the country. Every boy must pass an entrance examination before admission. The school curriculum includes mathematics, mechanics (theoretical and applied), practical physics, chemistry, practical geometry, drawing, carpentry and joinery, plumbing, smiths' work, &c., &c.

THE CRAFT-SCHOOL, EAST LONDON.—The Committee of this School (formerly the Whitechapel Craft-School) are desirous of conferring with workmen and employers in the building and furniture trades as to the kind of technical education required by those trades, and they propose to hold two conferences at the school, the first to be devoted to the needs of the building trades and the second to those of the furniture trades. The first of these meetings will take place on the 13th inst., at 7.30 p.m.*

CAPITAL AND LABOUR.

EXETER BUILDING TRADE STRIKE.—This strike which commenced on July 1, has just been ended. The working hours are to be reduced from nine and a half to nine per day. Bricklayers are to receive an increase of from 7d. to 7½d. per hour, and carpenters from 6½d. to 7d. per hour at once, with further increase to 8d. for the bricklayers and 7½d. for the carpenters on March 1 next.

BRICKLAYERS' STRIKE AT CHESTER.—The bricklayers working for Messrs. Grimwood & Sons, of Sudbury, on the building of the St. John's Green Board School, left work recently, the reason of this being that they refused to work with a "blackleg." It is a condition of employment with this firm that there shall be no distinction made between Union and non-Union men, and they intend to treat all men alike. In compliance with this, after the firm had been communicated with, intimation was given to the men that what they urged, viz., the discharge of the man complained of, could not be complied with.—*Norfolk Standard.*

LEGAL.

CASE UNDER THE BUILDING ACT:

SECTIONS 50 (3), 59 (1), PART VII, 1ST SCHEDULE AND BY-LAWS:

WOODEN ENCLOSURES, PARTY WALLS, &c.

The case of A. Payne, District Surveyor of East Hackney (South) and North Bow, v. William Slater, was heard in the North London Police-court recently before Mr. Frederick Mead. Mr. Slater appeared in person. The District Surveyor said defendant had made a wash-house addition at the back of 21, Lauriston-rd., Hackney, converting the wall of an adjoining house into a party-wall without carrying out the rules as to party-walls with regard to it; he had erected an enclosure at the back of the yard of wood with two doors and two windows instead of a brick wall; he had also erected a copper and irregular chimney; he then allowed some time to elapse, and converted the whole into a building by putting a roof on. Defendant had carried out an addition at the same premises before in 1893, and stated that the things complained of had been done a long time before, and tried to mix up the case with the work done in 1893. The magistrate took some time to consider his decision, and gave judgment on the 1st inst. He stated that he had come to the conclusion that the work done by the defendant came within the Act, and must be

done according to the rules. He inflicted a nominal fine of 10s. and 12s. costs, and intimated that if the work was not amended to the satisfaction of the District Surveyor the defendant would be liable to further penalties.

DANGEROUS STRUCTURES.

At the North London Police-court on the 1st inst. the London County Council summoned the owners of several properties in Hackney under the Dangerous Structures Clauses of the London Building Act. In one case Warrant Officer Giles said he found no person on the premises, so he nailed the summons on the door. Mr. Mead: Who was the summons addressed to?—Mr. Godfrey (for the County Council): It was addressed "to the owner." Mr. Mead: Who is he? Mr. Godfrey: We don't know. The two houses in question are empty, and have been so for several years. The Local Authority cleared the occupants out because of their dangerous condition, and now the County Council want the buildings removed for the public safety. Mr. Mead: The Act does not provide for the serving of an anonymous summons, and you must ascertain who is the responsible party. You may trace the rate-books. Mr. Godfrey: They are not always correct, and whilst we are searching for the owner the houses may fall down, as in Cleveland-street. It is a serious matter they take out about 1,500 such summonses in a year, and the major portion are addressed to the owners. Mr. Mead: You may as well have no order at all as have one on the owner of abandoned premises. Mr. Godfrey: We only want to secure ourselves against an action for trespass. Mr. Mead: I shall not make the order, because there is no power in the Summary Jurisdiction Act to serve an anonymous summons. You may mandamus me; and go to the High Courts and ask for an early order as a matter of urgency.—*Morning Advertiser.*

MEETINGS.

FRIDAY, OCTOBER 8.

Architectural Association.—Annual General Meeting. Address by the President, Mr. Hampden W. Pratt; and distribution of prizes. 7.30 p.m.

SATURDAY, OCTOBER 9.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Wimbledon Sewage Works. 3 p.m.

MONDAY, OCTOBER 11.

Clerks of Works' Association (Carpenters' Hall).—Monthly meeting. 7.30.

WEDNESDAY, OCTOBER 13.

Sanitary Institute (Lectures for Sanitary Officers).—Inspection and Demonstration at a Common Lodging House. 2.

THURSDAY, OCTOBER 14.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. J. F. J. Sykes on "Objects and Methods of Inspection, Nuisances, &c." 8 p.m.

SATURDAY, OCTOBER 16.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Express Dairy Company's Farm, College Farm, Finchley. 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

16,863.—**KILNS:** R. Witte.—Inventor claims a continuously burning kiln, with polygon horizontal section for burning lime, bricks, &c., distinguished from all preceding ones by the fact that it can be enlarged whilst the work is going on, the number of its sides being changed. The kiln has a lining wall, behind which is a chambered fire passage, and in the centre a smoke-collecting passage, with outlet capable of regulation.

20,712.—**WATER TAPS:** J. H. Austin.—The object of this invention is to provide a tap or cock for steam, water, and other liquids, which will be self-closing when not in use, and which will not leak. The tap is closed by the pressure of the steam or water, and so prevents waste. It is opened by means of a suitable lever or other arrangement, and is provided with chamber-valve and connecting-rod.

24,505.—**FITTING FOR SLIDING SWING SASHES:** G. Hebert.—Invention consists in an arrangement in the shape of a three-knuckle hinge, also having three shutters or face plates and screw fasteners, which enables sashes to be swung into the room for cleaning and repairs.

25,874.—**HAND TOOL OR SAW FOR WOOD WORKING:** W. Borrer.—Inventor claims novel tool for cutting or sinking circular or practically circular holes, through or in any material capable of being cut with a saw, consisting of a frame adapted to be pivoted vertically to the material to be cut, or a block sliding vertically in the said frame, and adapted, when adjusted therein, by a screw; of a bar adjustable readily in the sliding block; of a cutter mounted on said bar; and of an operating handle mounted on the radial bar.

50.—**DRAIN TRAPS:** D. W. Buckan.—Invention has for its object to improve construction of drain traps so as to permit of easy access for cleansing purposes, and also to render traps more adaptable to the requirements of any system of drainage and manholes. Inventor constructs an inspection end of trap of elongated oval form with a flat sash in the side of trap sloping upwards and downwards from the sewer side to bend of the trap. Between this inspection mouth and trap proper, inventor connects a branch pipe, normally closed by a sealed cover fitting in a socket formed in a sloping side of inspection mouth.

17,004.—**CERAMIC DECORATIVE PLISTS, TILES &c.** A. C. Downing.—Invention consists in ceramic decorative plates, tiles, or coverings, the designs of which consist of small coloured projecting semi-hemispheric beads, contour.

* The school is at 137, Globe-road, E.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Public Hall,	Wells T.C.	25, 15, and 10,000,	Nov. 30
Laying Out and Planting Cemetery	Nottingham Corp.	Premiums, 100, and 100,	Dec. 10
Town Hall	Dukinfield U.D.C.	50, and 50,	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Form of Tender, &c. Supplied by.	Tenders to be delivered.
Two Cottages	J. Pring, Halcroft, Yeovil	Oct. 8
Kilren House, &c. Abernethy	Thomas & James, Archt., 21, Victoria-st., Belfast	Oct. 9
Covered Pold Yard, &c.	Edwin & Sons, Archt., 10, St. James's, London	do.
Carl Shed, Haswell	Haswell Co-op. Provision Soc.	G. J. Hunter, Secretary, 21, Victoria-st., Belfast	do.
Excavation of Land	Edwin & Sons, Archt., 10, St. James's, London	do.
Storm Water Drain	Edwin & Sons, Archt., 10, St. James's, London	do.
Workhouse Repairs, Hooles	Edwin & Sons, Archt., 10, St. James's, London	do.
Sewerage, &c. St. Andrew's-avenue	Edwin & Sons, Archt., 10, St. James's, London	do.
Area Lights	Edwin & Sons, Archt., 10, St. James's, London	do.
Earthware Sanitary Pipes, &c.	Edwin & Sons, Archt., 10, St. James's, London	do.
Halls, Piers, and Kitchens	Edwin & Sons, Archt., 10, St. James's, London	do.
Railway Tavern, Southend	Edwin & Sons, Archt., 10, St. James's, London	do.
Extension of School, Buckley	Edwin & Sons, Archt., 10, St. James's, London	do.
Stables, Altham	Edwin & Sons, Archt., 10, St. James's, London	do.
Thirty-four Cottages, Ramsgate	Edwin & Sons, Archt., 10, St. James's, London	do.
Residence, Cuffley	Edwin & Sons, Archt., 10, St. James's, London	do.
Street-making and Sewerage	Edwin & Sons, Archt., 10, St. James's, London	do.
Drain-making up Road Sewers, &c.	Edwin & Sons, Archt., 10, St. James's, London	do.
Road Making and Paving	Edwin & Sons, Archt., 10, St. James's, London	do.
Keying, Tarpaving, &c. &c. Brook	Edwin & Sons, Archt., 10, St. James's, London	do.
Stable and Lower Winchester-roads	Edwin & Sons, Archt., 10, St. James's, London	do.
Goods Offices, Halifax	Edwin & Sons, Archt., 10, St. James's, London	do.
Fort Dwelling-house, &c. Wors	Edwin & Sons, Archt., 10, St. James's, London	do.
Detached House, Barley	Edwin & Sons, Archt., 10, St. James's, London	do.
Erecting Public Baths and Ventilation	Edwin & Sons, Archt., 10, St. James's, London	do.
Stable, Bathing, and House	Edwin & Sons, Archt., 10, St. James's, London	do.
Footbridges at Workhouse	Edwin & Sons, Archt., 10, St. James's, London	do.
Baths, &c. Union House, Great	Edwin & Sons, Archt., 10, St. James's, London	do.
Tea-rooms, St. James's-street	Edwin & Sons, Archt., 10, St. James's, London	do.
Fire Station and Stables	Edwin & Sons, Archt., 10, St. James's, London	do.
Four Houses, &c. Hay and Common	Edwin & Sons, Archt., 10, St. James's, London	do.
New Road	Edwin & Sons, Archt., 10, St. James's, London	do.
Extending Brewery	Edwin & Sons, Archt., 10, St. James's, London	do.
Extensions, Canton Police Station	Edwin & Sons, Archt., 10, St. James's, London	do.
Six Cottages, Soghill	Edwin & Sons, Archt., 10, St. James's, London	do.
Alterations, &c. Richmond Lodge	Edwin & Sons, Archt., 10, St. James's, London	do.
Waterworks, Cymmer	Edwin & Sons, Archt., 10, St. James's, London	do.
Shelter for Animals, &c. Jericho	Edwin & Sons, Archt., 10, St. James's, London	do.
Monument, Dublin Park	Edwin & Sons, Archt., 10, St. James's, London	do.
Fishing Main Water Storage Tanks	Edwin & Sons, Archt., 10, St. James's, London	do.
Excavating Trenches, &c. Cross	Edwin & Sons, Archt., 10, St. James's, London	do.
Pumping Station, Reservoir, &c. Cross	Edwin & Sons, Archt., 10, St. James's, London	do.
Store & Six Houses, Wilsey	Edwin & Sons, Archt., 10, St. James's, London	do.
Hall	Edwin & Sons, Archt., 10, St. James's, London	do.
Additions to School, Langton-on	Edwin & Sons, Archt., 10, St. James's, London	do.
Heating Hospital Wing, Ipswich	Edwin & Sons, Archt., 10, St. James's, London	do.
Clock Room, Brownhill Schools	Edwin & Sons, Archt., 10, St. James's, London	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Form of Tender, &c. Supplied by.	Tenders to be delivered.
Additions to Devonport High School	Mr. A. J. Rider	R. H. B. Neale, Archt., Central Exchange, Bath	Oct. 15
Repairs to Labourers' Cottages	Mr. Little, C. Bathurst	do.
Severn Contract 15,	Mr. R. M. Chubb, & Chapel	do.
Fencing, Public Park	Mr. W. Collins, Archt., Penryn-street, Redruth	do.
Granite Entrances, &c.	Mr. R. H. Holmes Hand, Archt., 6, Doublet, Spalding	Oct. 10
Three Small Houses	Mr. F. Shaly, Clerk, Road	do.
Fifty-eight Labourers Cottages	The Guardians	Mr. R. M. Chubb, & Chapel	do.
*Enlarging Nurses Home at Infirmary	St. Marylebone Ods.	Mr. R. M. Chubb, & Chapel	Oct. 13
*Road Making	Mr. R. M. Chubb, & Chapel	do.
Nineteen Houses, Cornwell-road	Mr. R. M. Chubb, & Chapel	do.
Road Works, &c.	Spannamoor U.D.C.	Mr. R. M. Chubb, & Chapel	do.
*Iron Shafing (Disposal of)	Laurel Guardians	Mr. R. M. Chubb, & Chapel	do.
*Boundary Wall	Croydon Union	Mr. R. M. Chubb, & Chapel	do.
G. Holder, &c.	Mr. R. M. Chubb, & Chapel	do.
Additions to Training School	Mr. R. M. Chubb, & Chapel	do.
Sewers, for Three Years and One Year	Mr. R. M. Chubb, & Chapel	do.
Wall and Arching, &c. Hurley-st.	Mr. R. M. Chubb, & Chapel	do.
Public Baths	Mr. R. M. Chubb, & Chapel	do.
*Erection of Hospital Buildings	Mr. R. M. Chubb, & Chapel	do.
*Timber Framed Batteries, Drill	Mr. R. M. Chubb, & Chapel	do.
Shed, &c.	Mr. R. M. Chubb, & Chapel	do.
*Mast-making and Laying Concrete	Mr. R. M. Chubb, & Chapel	do.
*Bridge over Sewage Works	Mr. R. M. Chubb, & Chapel	do.
Sanitary Tanks, &c.	Mr. R. M. Chubb, & Chapel	do.
Lancashire Steel Boiler, &c.	Mr. R. M. Chubb, & Chapel	do.
Pumping Engines, &c.	Mr. R. M. Chubb, & Chapel	do.
Elevators, &c.	Mr. R. M. Chubb, & Chapel	do.
Lodging House	Mr. R. M. Chubb, & Chapel	do.
School for 500 Children	Mr. R. M. Chubb, & Chapel	do.
Dietitians Buildings, &c. Kenneth	Mr. R. M. Chubb, & Chapel	do.
Official House and Workshop	Mr. R. M. Chubb, & Chapel	do.
Cottages	Mr. R. M. Chubb, & Chapel	do.
*Stores, Various	Mr. R. M. Chubb, & Chapel	do.
*Shed, &c.	Mr. R. M. Chubb, & Chapel	do.
*Living Crossings and Paving	Mr. R. M. Chubb, & Chapel	do.
Passenger Station, Windsor	Mr. R. M. Chubb, & Chapel	do.
Bath Main	Mr. R. M. Chubb, & Chapel	do.
*Ward Pavillion at Hospital	Mr. R. M. Chubb, & Chapel	do.
*Constructing about 9 miles of	Mr. R. M. Chubb, & Chapel	do.
*Pulling Down Old and Erecting New	Mr. R. M. Chubb, & Chapel	do.
*Lodges at Brys School	Mr. R. M. Chubb, & Chapel	do.
*Removal of Old and Re-erecting	Mr. R. M. Chubb, & Chapel	do.
*New Office, Barry Dock	Mr. R. M. Chubb, & Chapel	do.
*Repairs, Manoeuvring Court	Mr. R. M. Chubb, & Chapel	do.
*Six Houses and Dwelling-houses	Mr. R. M. Chubb, & Chapel	do.
*Water Supply (Head etc.)	Mr. R. M. Chubb, & Chapel	do.
*Braceley Fall Stone	Mr. R. M. Chubb, & Chapel	do.
*Three Blocks of Artisan's Dwellings	Mr. R. M. Chubb, & Chapel	do.
Eleven Houses	Mr. R. M. Chubb, & Chapel	do.
Detached Villa, Harrogate	Mr. R. M. Chubb, & Chapel	do.
Cubmen's Shelter, Harrogate	Mr. R. M. Chubb, & Chapel	do.
Large, Rushworth	Mr. R. M. Chubb, & Chapel	do.
Villa Residence, Brighthelm Quay	Mr. R. M. Chubb, & Chapel	do.
House, Clifton-street, Sowerby Bridge	Mr. R. M. Chubb, & Chapel	do.
Farmhouse, Lea Heath	Mr. R. M. Chubb, & Chapel	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applicants to be in.
*Surveyor's Assistant	Southwick Vestry	21. 10. per week	Oct. 14
*Clerk of Works	Lianduno U.D.C.	Maximum 30. 4. per week	Oct. 23

Those marked with an asterisk (*) are advertised in this number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & xxi. Public Appointments, pp. xviii. & xxi.

run into a layer of cement, preferably of the same colour.

NEW APPLICATIONS FOR LETTERS PATENT.

SEPTEMBER 20.—21,492, W. Crowther, Drainage or Sewerage Traps.—21,502, S. Bott and Others, Combined Latch and Bolt.—21,515, S. Keighley and R. Hardisty, Stone Sawing Frames.—21,543, J. Maskelyne, Door Indicators.—21,547, T. Kay, Seats for Water-closets, &c. SEPTEMBER 21.—21,551, C. Allison, Step Ladders.—21,589, J. Elphinstone, Screw.—21,590, J. Elphinstone, Bolt.—21,591, G. Newton, Stoves for Heating Green-houses and Other Buildings.—21,610, W. Durrant, Joint for Drain or other Pipes.—21,611, W. Durrant, Interception Traps.—21,612, W. Durrant, Interception Traps, Gulleys, &c.—21,628, N. McQueen, Sash Cord Pulleys. SEPTEMBER 22.—21,674, J. Wilson, Waterproof Joint for Roof and other Boards.—21,672, H. Yearsley, Floor

Treads for Bath-rooms, &c.—21,680, H. Foster and Others, Bolt for Joining Handrails, &c.—21,733, L. Williams, Water-closet Valve Apparatus. SEPTEMBER 23.—21,773, J. Stidder and F. Bourne, Fire Grates.—21,826, A. Roe, Chimney Pots for Preventing Down Draught or Improving the Up Draught.—21,844, W. Hall, Window Sash Fastener.

SEPTEMBER 24.—21,859, A. Johnson, Joints for Drain Pipes, &c.—21,919, C. Coaf, Devices for Retaining Open Hinged Windows.—21,924, C. McKay, Stencil Plates. SEPTEMBER 25.—21,950, R. Gregory, Ventilating Sewers, Tunnels, Mines, Buildings, &c., by Induced Currents.—21,959, P. Watt, Throwing Front out of Land, Stone, Mortar, &c.—22,000, T. Geldart, Chimney Top.—22,013, W. Carne, Sliding Sash Frames and in Bolts for same.—22,043, R. Adams, Appliances for Sliding and Other Window Sashes, and in the Method and Means of Converting same into Revolving Sashes.

PROVISIONAL SPECIFICATIONS ACCEPTED.

14,121, A. Williams, Window Fastener.—16,780, F. Beer, junior, Roof.—18,829, A. Fitton, Window Sashes.—19,277, J. Austin, Water Taps.—19,500, E. Grinnall, Window Sashes.—19,509, S. Armstrong, Preventing the Rattling of Window Sashes.—19,572, M. Adams, Flushing Valves.—20,195, J. Martlew, Chimney Ventilating, and like Cows.—20,285, T. Smith, Fastener for Window Casements, &c.—20,312, R. Leinhardt, Door Lock.—20,348, A. Keon, Combined Door Fastener and Alarm.—20,405, W. Bryan, Preventing Water Supply Pipes Freezing and Bursting.—20,114, W. Thomson, Glass Taps.—20,491, R. Simpson, Building of Arches upon Metal Girders or Wooden Beams.—20,606, C. Udall, Wall Plugs.—20,619, T. Scotland, Window Sashes.—20,665, E. Fox, Non-immovable Wood.—20,670, T. Holden and C. Major, Cement.—20,681, F. Brown, Kitcheners.—20,791, J. Hulls, Glasses or Glazings for Windows and Domestic

PETERSFIELD.—For the erection of new schools, Sheet, near Petersfield. Mr. H. T. Keates, architect, Petersfield.—
J. S. Kimberley.....£2,730 0 W. Mould.....£2,350 0
Cannon & Son.....£1,400 0 W. Jenkins.....£1,095 0
E. C. Hughes.....£395 17 * Accepted.

PONTYPOOL.—For erecting two dwelling-houses at Wainfield-road, for Mr. C. Foxwell. Mr. D. J. Lougher, architect, Bank-chambers, Pontypool.—
Bailey Bros.....£1,400
C. H. Hambleton, Asborne-road, Pontypool (accepted) 443

PORT TALBOT.—For the erection of a school-room, boiler-house, &c., Grove-place, Port Talbot, for the Welsh Calvinistic Methodists. Mr. F. B. Smith, architect, Port Talbot.—
Rees & Co.....£246 10 Jan Davis.....£408
E. David & Sons.....570 Leventon Bros., Aberystwyth.....475
Jno. Nicholas.....518 * Accepted.

RIPLEY.—For the extension of school buildings. Mr. J. Pullin, architect, Ripley, Surrey.—
Drowley & Co.....£1,615 0 J. Whitburn.....£795 0
G. Christmas.....845 10 Fred Hobbs, Witley.....919 0
* Accepted.

ST. ALBANS.—Accepted for heating and ventilating the Campfield Works, for Messrs. Orford Smith, Limited. Mr. G. P. Smedley, architect, 122, St. Martin's Lane, Charing Cross, W.C.—
William Sugg, Limited, Westminster.....£895
[Including all labours.]

SEAFORD.—For alterations at the sewage pumping-station and gasing additional machinery, for the Urban District Council. Mr. B. A. Miller, Surveyor, 3, Clifton-place, Seaford.—
S. H. Berry.....£491 0 C. Morling, Seaford.....£486
* Accepted.

SEND (Surrey).—For new residence and stabling, for Mr. T. L. Kemp. Mr. Hy. A. Whitburn, architect, 2, Broadway, Woking.—
J. Whitburn.....£1,904
W. W. Gale.....1,350
J. Pullen, Ripley (reduced and accepted) 1,600
Stabling and Greenhouse.—J. Pullen, Ripley.....935

STRETTFORD (Lancs.).—For the supply of 22,000 agricultural 6 in. drain tiles, 12 in. long. Mr. Henry Boyle, engineer.—
Hoscs, Tugby, & Co., Ashby-de-la-Zouch.....
Isaac Dooch.....
J. Sherwood Brothers.....
John Wilson.....
Peter Bailey & Sons.....
Hall & Rogers.....
Backley Brick and Tile Co.....
W. Hall & Son.....
J. Woodward.....
Hauchooood Tile Co.....
Jat. J. Lee.....
J. Dickett & Son, Limited.....
E. Morgan.....
* Accepted.

WEST HARTLEPOOL.—For the erection of house and shop in Cullingwood-road, for Mr. A. M. Atkinson. Mr. J. I. Wilson, architect, West Hartlepool.—
James Andrews.....£74 14 Bravell & Whitton.....£444 0
John Proud.....463 0 S. & A. Swain.....425 0
* Accepted.
[All of West Hartlepool.]

WEST HARTLEPOOL.—Accepted for erecting the Middleton Church School and Mission Church, West Hartlepool. Mr. J. I. Wilson, architect, West Hartlepool.—
T. T. Watson.....£2,392 10 8

WEST HARTLEPOOL.—Accepted for erecting a villa residence, lodge, stables, &c., for Mr. William Roper, C.C. Mr. J. I. Wilson, architect, West Hartlepool.—
J. Bulmer, West Hartlepool.....£5,300

WEST HARTLEPOOL.—Accepted for erecting business premises, for Messrs. Carter & Co., of West Hartlepool. Mr. J. I. Wilson, architect, West Hartlepool.—
Jos. Howe & Co.....£5,190

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT, Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGTON ROAD, E.C.

BE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE Telephone, 62, 74, 80, 82, 84. Tele. Address: "SNEWIN, London."

WEST HARTLEPOOL.—For the erection of St. James's Vicarage. Mr. J. I. Wilson, architect, West Hartlepool.—
H. Meredith, West Hartlepool.....£1,200 10 6

WHITEHAVEN.—Accepted for rebuilding No. 30, Lowther-street. Messrs. Moffat & Bentley, architects, Whitehaven.—
Messrs. Hors, Stating, and Plastering.
Jonathan Young, Catharine-street, Whitehaven.....
Carpenter and Joiner's Work.
Richard D. Metcalf, George-street, Whitehaven.....£1,200
Flashing, and e.g., and g. (accepted).
Henry Burns, Duke-street, Whitehaven.....
Fitting.
John Brown, Scotch-street, Whitehaven.....
Steel orders, wrought and cast iron work, and electric lighting not tendered for yet.

WISBECH.—For the erection of new offices at Wisbech, for Messrs. Ropkins & Company, Limited. Messrs. Langford & Ward, architects, Wisbech. Quantities by architects.—
Elworthy & Son.....£285 10 E. Goring & Co.....£923
S. Hipwell.....951 Rands & Son.....Modined
* Accepted.

WOKING (Surrey).—For the erection of six cottages, Maybury Heath, for Messrs. Colyer & Colyer. Mr. Hy. A. Whitburn, architect, 2, Broadway, Woking. Quantities by Mr. W. E. Sedgwick, 30, Glenparke-road, Forest Gate, E.—
Fyfe & Son.....£2,250 Hobbs.....£1,792
Ingram & Son.....1,995 Harris & Son.....1,829
F. J. Kemp.....1,751 A. A. Gale, Woking.....1,439
* Accepted.

WOKING (Surrey).—For the erection of three houses, York-road, Woking, for Mr. W. H. Last. Mr. Hy. A. Whitburn, architect, 2, Broadway, Woking. Quantities by Mr. W. E. Sedgwick, 30, Glenparke-road, Forest Gate, E.—
Ingram & Son.....£1,981 W. W. Gale.....£1,792
Hooker.....1,995 Harris & Son.....1,829
G. Kemp.....1,990 J. Whitburn, Woking.....1,639
Martin.....1,351 * Accepted.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who reserves the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES, GREENHOUSES, WOODEN BUILDINGS, Bank, Office, & Shop Fittings. CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION. TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT to the Office to residents in any part of the United Kingdom, at the rate of 1s. per annum FRISTAD. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 4s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

SUBSCRIBERS IN LONDON AND THE SUBURBS, preparing at the Publishing Office, 19s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

THE BATH STONE FIRMS, LTD. BATH. FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE. The Ham Hill and Douling Stone Co. (Incorporating The Ham Hill Stone Co. and C. Trask & Son The Douling Stone Co.). Chief Office:—Norton, Stoke-under-ham, Somerset. London Agent:—Mr. E. A. Willis, 16, Craven-street, Strand, W.C.

THE TEST OF TIME has proved that **SZERELMEY STONE LIQUID** Absolutely waterproofs and preserves Brick, Stone, Cement, Stucco, Plaster, &c. SZERELMEY & CO., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lav Asphalte Company (Mr. H. Glenn), Office, 42 Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADV]

SPRAGUE & CO., PHOTOLITHOGRAPHERS, 4 & 5, East Harding-street, Fetter-lane, E.C. [ADV]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch. **METCHIM & SON** (PRINTERS STREET, ST. GEORGE'S WESTMINSTER) "QUANTITY SURVEYORS' TABLES." For 1897, price 6d. post 7d. In leather 1/- Post 1/6 [ADV]

PILKINGTON & CO. (ESTABLISHED 1838), MONUMENT CHAMBERS, KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark. **Polonceau Asphalte** PATENT ASPHALTE and FELT ROOFING. ACID-RESISTING ASPHALTE. WHITE SILICA PAVING. SEYSSSEL ASPHALTE.

ERNEST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS. PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES, Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow. Head Office and only City Address, 61, ST. MARY AXE, E.C. PAYNE-road Wharf, Bow, Branch House, 37, Victoria-street, Bristol. SEND FOR ILLUSTRATED PRICE LIST.

The Builder.

VOL. LXXIII. NO. 2854.

OC T. 16, 1897.

ILLUSTRATIONS.

Sculpture: "At the Gates of the Past," by Miss Esther M. Moore; and "The Age of Innocence," by Mr. Alfred Drury..... *Two Single-Page Ink-Photos.*
Church of SS. Michael and All Angels, Little Ilford—Mr. Charles Spooner, Architect..... *Double-Page Ink-Photo.*
Design for Cabot Memorial at Bristol—By Mr. E. P. Warren..... *Single-Page Ink-Photo.*
Public Drinking Fountain, Bury, Lancashire—Mr. T. Rogers Kittell, A.R.I.B.A., Architect..... *Single-Page Ink-Photo.*
Swiland Church, Suffolk: New Tower Top—Mr. J. Shewell Corder, Architect..... *Single-Page Photo-Litho.*
Sketches in East Anglia: Smallbridge Hall and Parham Hall—By Mr. J. S. Corder..... *Single-Page Photo-Litho.*

Blocks in Text.

Oratory of St. Benen, Greater Island of Aran..... Page 298
Oratory on St. Maclean's Island, off the Coast of Connemara..... " 298
Ancient Oratory (St. Declan's) at Ardmore. (The Ardmore Round Tower, a late example of the class, is in the Background)..... " 298

Comparative Sections of some Irish Stone-roofed Buildings..... Page 299
Plaster of Careful Construction, Dulane, co. Meath..... " 299
Interior of very Ancient Oratory near Kilmalkedar, co. Kerry. (The Old Stone Altar is visible under the Square-headed East Window)..... " 302

CONTENTS.

British Trade and Foreign Competition.....	297	Bury Public Drinking Fountain.....	308	General Building News.....	319
The Ancient Architecture of Ireland. IV.....	298	Swiland Church.....	308	Sanitary and Engineering News.....	312
Notes.....	298	Wayside Notes in East Anglia: Parham and Smallbridge Halls.....	308	Electric Lighting News.....	312
The Architectural Association.....	298	Architectural Societies.....	308	Foreign.....	313
Technical Education and the Building Trades.....	305	The London County Council.....	309	Miscellaneous.....	313
Competition.....	307	Assumption of the Islands "F.S.A.".....	310	Capital and Labour.....	314
Sculpture: "At the Gates of the Past".....	308	Sheffield Architecture.....	312	Legal.....	314
Sketches: "The Age of Innocence".....	308	The Open Channel in Sanitary Drainage.....	310	Meetings.....	314
Church of St. Michael and All Angels, Little Ilford.....	308	Student's Column: Quantities and Quantity-Taking. XIII.....	310	Recent Patents.....	314
Design for a Monument to Sebastian Cabot.....	308	Surveyorships.....	310	Some Recent Sales.....	315

British Trade and Foreign Competition.



N November 25, 1895, Mr. Chamberlain wrote a despatch with the object of ascertaining the extent to which the generally alleged displacement of British by foreign goods was really taking place in Colonial markets. The returns to that document were recently published in a voluminous blue book. This must for some time to come be a publication of great importance and value. It enables some kind of general view to be obtained of the course of British trade with the Colonies, and it forms a practical guide for traders. While it dispels many of the gloomy statements which have been written on the subject of the decay of British trade, and appears to show that, as a whole, there is no cause for alarm on this point, it yet indicates many weak places which the British trader will do well to bear in mind.

There are, of course, a large number of articles of export with which readers of this journal have no interest; there are others which concern them. But before we say anything upon some points of detail it is desirable to note some of the causes of the displacement of British goods in Colonial markets. One of these is the Merchandise Marks Act, but this is, in truth, rather an exaggeration of the transit trade than anything else. In other words, Colonial buyers go straight to the foreign producing country. There are other and more important factors to be considered. The chief of these is the cheapness of certain goods. "It is abundantly shown by all the returns that throughout the Empire the cause which principally operates to let in foreign goods is their greater cheapness." As long as the British manufacturer holds the field in regard to the best quality of goods, we may perhaps see the foreigner take the chief place in regard to cheap and inferior kinds of goods without alarm. But when cheapness and good quality go together, then it is clear that, unless opposing interests are more favourably situated, the British manufacturer is being defeated because the cost of manufac-

ture is too high. Again, too, there is always this warning to be found in the fact that the British manufacturer is outbid by the foreigner in cheap articles, namely, that rises in the rate of wages in England, however desirable they may be from the point of view of the operative, may yet have the effect, sooner or later, of actually destroying a trade.

The next cause which operates in favour of the foreigner is that the finish of his goods "is much greater than that of British goods. Finish is independent of quality, and the foreigner has the art of giving a good finish to a low-class commodity, while the British producer keeps finish for the better-class goods. . . . The British manufacturer will always give additional quality before finish." Here perhaps we may see a national characteristic exemplified. The Continental workman is more of an artist than the Englishman. But at the same time we see a weak place, and one which those who advocate the spread of technical education and of art schools desire to see removed.

We now come to another cause, namely, packing. In regard to it "there is a general consensus of opinion that our foreign competitors, and in particular, perhaps, the United States, take much more trouble than we do." They do so in the following ways: by saving space, and therefore freight; by giving greater security during transit; and by giving greater facilities for easy distribution at the end of the transit, so that goods look more attractive in store. An instance of this, among others, is one which may easily be understood. In Victoria, it is said, the British have lost the trade in metal tacks "by failing to pack in cardboard boxes instead of paper parcels."

We must now refer to yet another cause, and that is what is called in the report the greater "adaptability" of the foreigner. "He is ready to consult the smallest man, and always on the look out for new trade in articles however small." Again, "he is ready to give longer terms of credit, and he will give them to smaller people." But in this respect we are inclined to think that the British trader shows sounder judgment: long credit to people of small means is by no means characteristic of a good man of business, and we should doubt if in the long run the British trader would be really benefited by a relaxation of his terms of business.

The results of the returns from the different Colonies are thus summed up:—1. "In the best class of goods . . . the British manufacturer is still supreme." 2. "There are certain exceptions to the above rule, chiefly in the case of machinery and tools of certain patterns, and in favour of the United States." 3. "A great portion of the general Colonial market is not one for the best class of goods, and in proportion as cheap and finished imitations of such goods can be put on the market the trade will go away to the producers of such imitations." 4. "There is some danger that when the trade goes to foreign competitors in the cheap goods, a certain proportion of the better class of trade may also be diverted eventually." As we have already said, there is nothing therefore in this to alarm the British manufacturer, but there is plenty to put him on the alert.

Now we will turn for a moment to some points of detail which emphasise and illustrate the general statements which have just been made. We find, under the return from the Cape of Good Hope, the following statement:—"Bolts and Nuts: The American are cheaper in the smaller sizes, and, if anything, rather better in finish. They are also nicely boxed, whereas the British are wrapped in paper. Some patterns made by the Americans are preferred to those made in England" (p. 238). From the same Colony we also find the following answer in regard to furniture, cabinet and upholstery wares:—"Cheap and portable articles have the largest sale in this colony, and although the British manufacturer can produce three-fourths of such goods, he does not give the necessary care required to the packing," p. 237.

From Hong Kong we find this: "Plane irons.—Hundreds of thousands of plane irons come out here for carpenters' use, and the English article is finding a keen competition with the French. The French produce a lighter make, which suits the Chinese labourer better," p. 328. In South Australia we find that American hammers are preferred to those of English make, because their balance is better adjusted, and because the head is fitted to the handle with an adze eye, and the bend of the claw has a quicker curve. It is, in fact, a "handier" article.

We might continue to pick out illustrations in regard to many more articles used in the building trade where the foreigner is dis-



Fig. 18.—Oratory of St. Benen, Greater Island of Aran.



Fig. 20.—Ancient Oratory (St. Declan's) at Ardmore. (The Ardmore Round Tower, a late example of the class, is in the background.)



Fig. 19.—Oratory on St. Macdara's Island, off the coast of Connemara.

placing the Englishman. In hardly any instance do we find that the British article is inferior as regards actual material. But the British manufacturer, like the British farmer, is too conservative and too insular, too wanting in adaptability, not sufficiently quick in watching the demands of the colonists and in suiting his wares to special requirements. It is stated in one instance that the lighter tiles, packed also in lighter cases, are pushing out the British tiles, heavier in themselves and packed in casks. When building materials have, as is the case now in Rhodesia, for example, to be conveyed for great distances, lightness is very essential. A man who desires to tile a house at Bulawayo, wishes to do so at a small cost, and has no intention of building a dwelling for his grandchildren; consequently light and cheap articles are most important to him. The British manufacturer has, in truth, only to be less conservative to hold the field, it would seem, for an indefinite period, provided the workman does not wreck the business by demands for, and the obtaining of, too high wages. We sympathise altogether in the demand of the workman that he shall be fairly paid and not be overworked, but he has to bear in mind that he is a factor in regard to the price of

an article to the consumer in the colonies, and in many instances if his demand goes beyond a certain point he may ruin both himself and his employer, or, at any rate, close the market for a particular class of goods.

THE ANCIENT ARCHITECTURE OF IRELAND.

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

By PROFESSOR BALDWIN BROWN.

IV.

SOME of the most interesting features of the Irish churches now under consideration have still to be noticed, and these features belong to the domain not of planning but of construction. We deal here with the question of Irish stone construction, which has been already touched on in connexion with primitive oratories, such as Gallerus.

All through this early mediæval period, and on into the twelfth century, the primitive method of roofing by stone vaults in encorbelment appears either as an actual technique or in the form of survivals. Buildings like the oratory of Gallerus have no walls, unless we

take the fact that the lower portion of the structure of Gallerus seems more upright than the upper to indicate some approach to the vertical wall. The slope of the vault begins here, as in other examples of the class, practically from the ground level. The next stage in the constructive development was to begin with an upright wall at the long sides, but to keep it low and throw the chief part of the whole height of the structure into the roof. As an example we may take the little oratory of St. Benen, on the greater island of Aran, shown in fig. 18. It is of minute size, measuring internally only 10 ft. 9 in. in length by 7 ft. in width, but gains dignity from the use of large blocks of stone. The middle portion of the south wall is formed of a single slab. The side walls are very low, but the gable so steep and high (15 ft.) that from a distance the structure presents the appearance of a cone. The roof is gone, but was probably of stone slabs, and the use of these would explain the slope of the gable. In some of these stone-roofed churches with walls the original stone roof remains entire, as in a small building on Inanismurray, or at any rate in part, as in the Irish Romanesque church of Kilmalkedar, dating from the twelfth century. This method of roofing is clearly the cause of the low side walls and lofty gables, and it also gave rise to very curious features in Irish buildings of this class, that at first sight have a somewhat classical appearance. These are upright pilaster-like projections that appear to east and west at the corners of the building, as if they were extensions of the side walls beyond those of the gables. The visitor to Ireland who first sees these thinks of Roman work, but they are purely native, and are clearly connected with the system of roofing already noticed. This becomes evident in those examples where the projections are not confined to the vertical walls, but extend up the gables to their apex, presenting the curious appearance shown in fig. 19. This little oratory is on the island of St. Macdara, off the coast of Connemara, and the photograph from which the drawing has been made has been kindly furnished for the purpose by Mr. R. Welsh, of Belfast, to whom also the writer is indebted for the view of St. Benen's

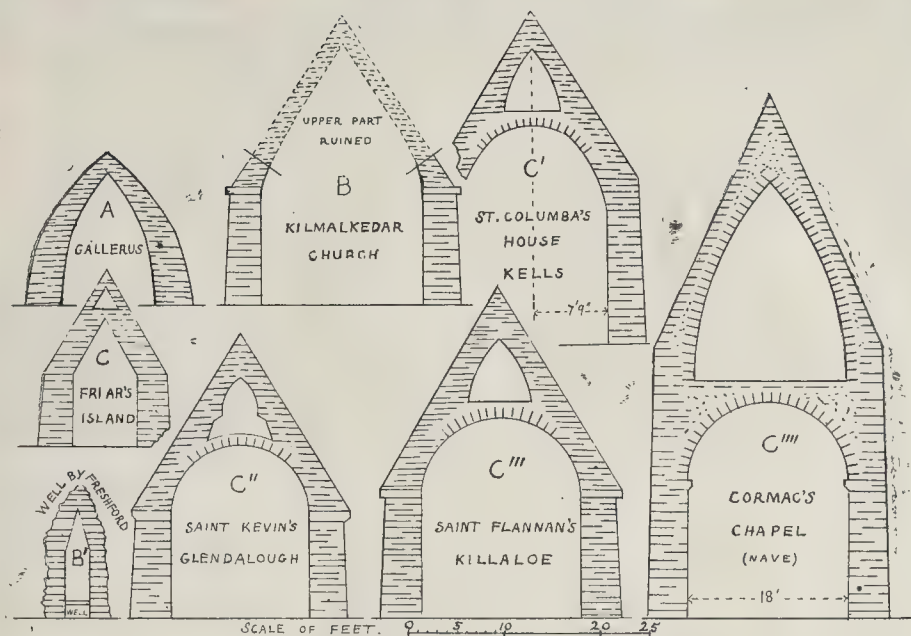


Fig. 22.—Comparative Sections of some Irish stone-roofed buildings.

oratory given in fig. 18. In the St. Macdara oratory, one of the single-celled type, a portion of the stone roof still remains, and the projections just spoken of are the ends of walls and roof regarded as being essentially one, as they are in the earlier buildings of the Gallerus type where no part of the side is vertical. It is evident that the sides were looked upon as quasi-independent, the gable walls serving as centering on which they were constructed, and this independence is emphasised by the projections which find there their explanation. In some specimens of this kind of work the sides and the gables are only very slightly bonded together, or are quite out of bond.

St. Macdara's oratory is unique in the complete preservation of these curious features, but there are other cases in which they begin to ascend the gables and die off after a few feet. In some of these instances it is doubtful whether the church was ever roofed in stone, and even where, as at Kilmalkedar in the twelfth century, the beginnings of a stone roof are actually extant, some have expressed a doubt as to whether it was ever fully carried out. There is a very early-looking, single-celled oratory in the churchyard of Ardmore, near Youghal, where the ground outside has risen almost to the level of the lintel of the square-headed western door (fig. 20). Here there are pilasters at both east and west ends, but they cease a few feet below the top of the side walls, and the masonry above bears every sign of having been altered. No doubt there was a stone roof here originally of the St. Macdara type, but it fell in, or was taken down and replaced by a roof of wood, the pilasters not being continued upwards when the upper part was rebuilt in connexion with the change.

The pilaster projections are often found where there is no indication at all of a stone



Fig. 21.—Pilaster of careful construction, Dulane, co. Meath.

roof, and where, owing to the width of the building, such a covering could hardly have been intended. The "Cathedral" at Glendalough and the principal church on Innis Scattery, which both have pilasters, measure respectively about 30 ft. and 27 ft. 7 in. in internal width. The pilasters may in cases of this kind represent survivals, and have remained in use because they form an appropriate architectural finish to the façade. The construction of them is sometimes very precise, as in the example from Dulane in fig. 21, where the treatment of the masonry reminds us a little of the method of the Anglo-Saxon builders in their long-and-short work, as we find it in carefully-built examples such as Wittering.

We have now to deal with a special class of buildings that present us with examples of stone construction of a very curious and interesting character. These are the oratories or churches with a double stone roof, which form a small but very conspicuous group among Irish mediæval monuments. To this group belongs the finest of all these monuments, Cormac's chapel, upon the Rock of Cashel, a work of the first half

of the twelfth century, as well as the still later pointed-arched church of St. Doulagh, near Dublin, so that we can trace the constructive system in question down to a comparatively late period. The system is specially Irish. In Europe generally, mediæval churches have double roofs, but the outer one is a wooden structure, designed to protect the inner (stone) vault from the weather. Only in the south of France do we get outer roofs of stone,* but these serve also as inner roofs, and the covering is really a single one. In the Irish examples there are two distinct roofs, each of stone, with a space, or chamber, between them, sometimes of considerable size; and the question of the reason for this arrangement, and of the true relation between the outer and the inner covering is one of no small interest and difficulty.

The buildings in question, so far as plan is concerned, belong both to the single-celled and the nave-and-chancel type. Those that the writer has visited and that will be noticed here are the following:—(1) The chancel of the small church on Friar's Island in the Shannon, near Killaloe (considered by Brash to have been originally an independent cell); (2) "St. Columba's House," Kells; (3) "St. Kevin's Kitchen," Glendalough; (4) St. Flannan's Oratory, close to the Cathedral, Killaloe; (5) Cormac's Chapel, Cashel; (6) St. Doulagh's, near Dublin. They are enumerated in order of simplicity, though this is not, of course, necessarily the order of date. In fig. 22 are given sections of most of these buildings, with some others useful for comparison. They are drawn to the same scale, and with sufficient accuracy for the purpose in hand, from data derived from published works and from the writer's notes. The perfect condition of

* Professor Baldwin Brown seems to have overlooked for the moment the stone-covered pointed barrel vaults in some late examples of Scottish ecclesiastical architecture.—Ed.

most of the edifices renders observation of their construction somewhat difficult, and absolute correctness is not claimed for the sections given. The series begins with structures like Gallerus (A), where there are no upright walls. The next type (B), that to which belongs the just-noticed small oratory of St. Macdara (fig. 19), is represented in the illustration by a section of the twelfth century church of Kilmalkedar, of which, however, little more remains than the side walls and the gables. The little structure B¹ is built over a holy well, now dry, at Cloneturid, near Freshford, co. Kilkenny, and is worth notice as a useful model for fabrics of the kind which are sometimes put up over springs of traditional sanctity in our own country. Unfortunately, the outer facing of the masonry, of well-wrought ashlar-work, has almost all been torn away, and a mass of ivy overshadows the tiny monument. The inner construction, with horizontal courses of stone cut to form a straight-sided vault, is, however, quite clear. Just above this in the illustration is a section of the chancel of a small church or oratory on an island in the Shannon, just below Killaloe. The construction is like that of the Freshford well, but the gable of the straight-sided roof is not solid. There is within it a small hollow chamber, triangular in section, with an opening by which it could be entered in the gable wall, and another, too small for the passage of an ordinary body, in the floor of it looking down into the cell. Brash, in his "Ecclesiastical Architecture of Ireland,"* says, "This chamber was evidently for ventilation; it also lightened the dead weight in the apex of roof." Mr. Brash held the opinion, not shared by the present writer, that the structure, now the sanctuary of a small nave-and-chancel church, was originally the cell of the saint whose name it bears, St. Lua, who lived in the sixth century. At that date and with so holy a man surely ventilation was not a matter of much importance; the oratory had, moreover, all along a sizeable round-headed window and a door, while it is so admirably put together that the additional weight of a solid apex would have made no difference. Conceivably, the chamber may have been a place of retirement. A thin saint could have crouched or lain in it, and he would have been better off there than his brother St. Kevin was at Glendalough, in that no intruder, however jimp, could have squeezed in beside him. The real interest of the arrangement is that it seems an embryo form of what appears in the other structures marked C in the illustration as an over-croft of substantial size, which at Cormac's Chapel, and also at the still later St. Doulagh's (not shown in the illustration), is almost as spacious as the main chamber below. This over-croft was in the latter cases, as well as at St. Columba's House, Kells, C¹, certainly used for purposes of dwelling or temporary sojourn, access being gained by a ladder raised to an opening in the lower vault. At St. Kevin's, Glendalough, the floor is not made up flat and there is no sign of human occupation.

In the structures C¹ to C^{III}, the roof is distinctly a double one. The lower is in the form of a barrel vault, semicircular, or, as in C¹, elliptical in section, constructed of rubble-work of small stones bedded in abundant mortar, the stones being apparently laid flat for a third of the height of the vault on each side, but on edge, voussoir fashion,

for the middle portion. The upper roof is constructed of stones overlapping in horizontal layers, an arrangement even preserved in the roof of Cormac's Chapel, but only in the outermost skin, for the inner stones of the upper vault are laid with radiating joints.

The question of the rationale of this arrangement of the double stone roof is worth consideration. Fergusson, who was interested in it as a genuine native contrivance, seems to have regarded it as a matter of convenience, rather than of constructive necessity. "This mode of double roofing," he writes, "... enabled the Irish to make the roof steeper than could be effected with a single vault, and in so rainy a climate this may have been of the first importance."* From this point of view the lower vault will be the real cover of the building, made of a suitable height for the comfort of those who were to occupy it, while the upper one will answer the same purpose as the later Gothic roof of wood and lead, as an efficient protection against the weather. The objection to this view is that it assumes a sort of priority for the inner vault, whereas the earlier history of Irish stone roofs shows that the outer covering is really the original one, derived through stages that we have traced from the structure of the bee-hive cells of pagan date. The lower vault is an addition, and it may conceivably have been due either to considerations of construction or to those of utility. A constructive reason is brought forward in the following extract from a paper on Kerry antiquities, contributed to the "Journal" of the Royal Society of Antiquaries of Ireland, fifth series, vol. ii., p. 264. It is there said, in respect of Kilmalkedar Church (C¹ in fig. 22), "In looking at a cross section . . . the weak point of the construction will be at once apparent. When the side walls were given separate existence independent from the roof, by making them vertical, instead of sloping inwards the whole way from the ground up to the ridge, the span of the roof was thereby increased and the masonry of the side walls was unduly weakened at the point where the side walls end and the roof begins. In consequence of this defect the roofs of all the churches constructed on this principle have fallen in. As soon as the use of the arch became familiar to the Irish builders an obvious remedy suggested itself, namely, to support the roof on a barrel vault, leaving a small chamber between the top of the vault and the underside of the roof."

It is a fact that no single vault on vertical walls of any considerable width has been preserved to us, though some on a small scale are still in existence. It is not easy, however, to be quite sure where and why they failed. Stone roofs constructed with horizontal courses might give way conceivably in one of two ways. The stones might slip outwards on their beds, or they might topple over inwards through want of sufficient support from below. The slipping would naturally operate most at the lower part of the slope where the weight that sets the movement going would be greatest. On the other hand, the tendency to fall inwards would be most felt in the upper part where the material hangs over the void far in front of the vertical support of the walls. Now, so far as the evidence of the monuments goes, the latter theory of the failure seems

most plausible. In the old beehive huts and the oratories of the Gallerus type, this slipping of the lower courses on each other is not, so far as the writer's observation extends, to be discerned, and the rough stones would probably key into each other sufficiently to prevent this contingency. On the other hand, most of them have fallen in the upper part, as is the case with the beehive hut shown in fig. 8 (*ante*, p. 233), or the very primitive-looking oratory of the Gallerus type near Kilmalkedar, of which fig. 23 gives an interior view. The condition

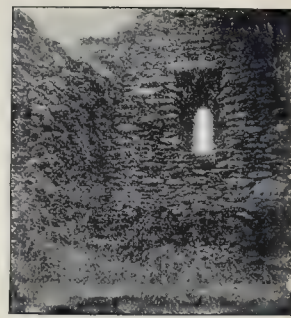


Fig. 23.—Interior of very ancient Oratory near Kilmalkedar, co. Kerry. The old stone altar is visible under the square-headed east window.

of Gallerus itself is in this respect significant in that on the south side in the upper part there is a slight but very perceptible depression in the roof, as if to give an indication that it is here that it will ultimately, if left to itself, give way. In the walled buildings, "the point where the side walls end and the roof begins," to quote the foregoing description, does not show signs of yielding. The side walls of Kilmalkedar Church and the first courses of the roofing have not suffered deformation. No more have those at St. Macdara's, see fig. 19.

Furthermore, if the weakness were in this part, the construction of a barrel vault abutting exactly on the same spot would hardly, one would think, have mended matters. Such a vault, even when constructed at the flanks in horizontal courses, must have exercised some thrust on the side walls, and so helped the slipping outwards of the base of the roof. It seems, on the whole, a preferable view of the constructive problems involved to suppose that these vaults, when of too wide a span, fell in in the upper part, but that the undergirding barrel vault, being itself sufficiently supported by the side walls which were strong enough to resist its thrust, narrowed considerably the span of the outer roof, and brought it thereby within the limits of stability. The open space between the two relieved the crown of the barrel vault—at St. Kevin's it is only about a foot in thickness—from all superincumbent weight, and contributed greatly to its security.

The question would still remain whether these constructive considerations actually led to the adoption of the system in question, or whether it was rather the convenience of the second chamber to the building that was the determining motive. The chambers certainly increased in size and habitable character as time went on, and this is a sign that they were found to be of actual use.

However this may be, the constructive interest of the buildings remains. Though

* Dublin, 1875, p. 9.

* "History of Architecture," ii., 232.

they have in most cases been considerably restored in recent times, their vaults seem to have remained firm, and have not been reconstructed, while in no case has any buttressing of the external walls become a necessity. This fact reflects no little credit on the ancient Irish mason, who not only evolved a novel scheme of construction, but carried it out with perfect success into practice. The buildings offer problems of some interest to the student of the statics of building, and in connexion with such problems the writer does not pretend to bring anything forward but suggestions. Any contributions toward their solution which experts in construction may care to entrust to the columns of this journal would probably be welcome to others besides the present writer.

NOTES.

DR. SAUER, who won his archaeological spurs by his investigations on the pediment marks of the Parthenon, has now turned his attention to the same questions in relation to the so-called "Theseion." And, if we may trust the report of his paper read before the Berlin Archaeological Society (Arch. Anzeiger, 1897, p. 84) he has done so with marked success. It is there stated—paradoxical though it may seem—that, spite of the fact that the pediment sculptures have completely perished, we are, owing to the numerous and distinct attachment marks, in a position to be more certain as to the actual composition of both pediments than we can be in the case of the Parthenon. If the subject-matter of these groups can be determined then the ascription of the temple will follow, and on this ascription hang important questions of Athenian topography. As is well known, Dr. Dörpfeld long ago, on grounds partly architectural, partly topographical, ascribed the temple to Hephaistos; and now Dr. Sauer announces his belief that the subjects of the two lost pediments were respectively the birth of Erichthonios (son of Athene and Hephaistos) and the rising of Hephaistos after his fall into the sea. He concludes that the temple was dedicated to Athene Hephaestia and Hephaistos, and is the one described by Pausanias as belonging to Hephaistos. Dr. Sauer has in hand a work on the temple as a whole, and for the publication of this any judgment on his theory must naturally wait.

It had been known for some time, though not officially announced, that Mr. F. C. Penrose intended during this year to resign his appointment as Surveyor to St. Paul's Cathedral, a position which he has held for forty-five years—not "thirty-four," as stated in several of the daily papers. Mr. Penrose's exceptional knowledge of classic architecture rendered him a peculiarly fitting custodian of our greatest classic building, and the fact that he joined to this qualification a high degree of mathematical acquirement seemed to give him an additional fitness for an appointment first held by Wren; in fact we have no doubt that Wren would have regarded Mr. Penrose as an ideal surveyor to St. Paul's Cathedral. From both points of view it must be admitted that the appointment of Mr. Somers Clarke to the office comes rather as a surprise. Mr. Clarke has a high reputation as a church architect, and has produced some very fine modern Gothic

churches; but one would naturally have expected that the Surveyorship of St. Paul's would have been bestowed on an architect with a special reputation in classic architecture.

THE Chancellor of Truro, in a very reasonable and well-considered judgment, has refused the faculty for destroying the old tower at Liskeard, acting mainly on the advice of Mr. Ponting, who was called in as an independent architectural assessor unconnected with the diocese. Mr. Ponting had examined the foundations, and they were, like many Norman foundations, originally defective, and their construction had been the real cause of the cracks and settlement of the tower; but he states that it can be underpinned and repaired, and he generously offered gratuitous instruction as to the methods to be adopted for making the tower secure. This, however, has not secured him from the wrath of the destructive party among the parishioners, and the *Cornish Times* publishes an irritable article questioning Mr. Ponting's authority and professional position, and complaining that the parish had to pay his fees as assessor for advice given in opposition to their wishes. There is rather an amusing kind of Nemesis in this, certainly, but why did the parochial authorities want to do a foolish thing? As to Mr. Ponting's claims to be heard on such a question, he is much better known in the country than the Liskeard parish seems to be aware, and his opinion will command the general respect of architects. The following extract from the Chancellor's judgment puts the main point as to the old tower very well:—

"The Court cannot disregard the fact that the builders of the present Perpendicular nave were content (probably from the value they set upon such ancient work) to leave the Norman tower standing, and is also bound to consider future as well as present parishioners.

It is, moreover, the duty of the Court to discourage, so far as possible, the demolition of all such ancient and interesting ecclesiastical buildings as are within the limits of its jurisdiction; and in a diocese where Norman work is comparatively rare, no effort should be spared to preserve every link that connects the present age with the far distant past."

THE *Centralblatt der Bauverwaltung* publishes this month an account and a criticism, very fair and impartial, on architectural education in England. The first place in advanced architectural training is given to the Architectural Association. The writer thinks that technical training is yet in its infancy in this country, and that we are still a long way from obtaining that systematic training which we desire. He warns us, too, that the indiscriminate formation of polytechnics, or technical schools, with architectural classes, will not lead to much until we have made up our minds what ought to be taught, and in whose hands the masterpieces are to be placed. It is his opinion that we lack good teachers at present throughout the country, and, further, that before we can expect much of architectural education, the elementary education of our private schools, from which the majority of our professional men are recruited, will have to be improved. Yet, for all that, the teaching of architecture in this country, it is said, deserves the attention of the Continental authorities, more especially on account of the spirit (*Geist*) in which the student is instructed with regard to the artistic

side of architecture, its draughtsmanship, its designing, and its individuality, as distinct from the essential machine-like, though highly scientific, curriculum so common abroad. Our critic hopes that we shall retain and develop this spirit whilst, at the same time, improving our methods and facilities for architectural education, and that whilst gradually making headway in systematic training, we shall not fall into the errors of those almost automatic architect-factories, the Royal Technical Colleges of Prussia.

The Locale of the Paris Salons.

THE artistic world of Paris, it appears, is up in arms against the idea of being put off with the *Galerie des Machines* for the next three years' Salons, and there is even a threatening (we very much regret to hear) of a new schism and a second rival of the *Société des Artistes Français* being set up, in some other building, and Paris will have three "Salons" instead of one. No decision is likely to be come to till December, and we earnestly hope that no such further subdivision of the artistic camp will take place, as it must have a deteriorating effect on the main exhibition at the old Salon, which will lose its prestige and importance, besides the great evil of leading the rival exhibitions to further lower their standard of work in order to compete in covering their walls. The result of the division into two Salons has already shown that Paris, with all her array of genius and talent, cannot adequately support two annual exhibitions on so large a scale; and an attempt at three will be still worse. As to the *Champ de Mars Salon*, it is understood that they refuse the hospitality of the Government, and intend to open their exhibition in private quarters selected by themselves; but it is hardly likely they can find such a range of well-lighted galleries as they enjoyed at the *Palais des Beaux-Arts*.

The Bismarck Monument Competition, Berlin.

WE regret to learn from Berlin that there has been another competition scandal, not very unlike the one which created so much ill-feeling in connexion with the Emperor William Monument. A Bismarck "National" Monument is to be placed opposite the Berlin Houses of Parliament, and there was a general competition for the design last year. This has now been followed by a limited competition, for which invitations were issued to a number of architects and sculptors who had been prominently associated with the earlier competition. Professor Begas was also invited, in accordance with the instructions from the Emperor, though he had not participated in the preliminary work. The usual farce was again gone through, and many models and drawings prepared, though some of the better men, like Professors Diez and Ruemann, already anticipated the fiasco and refused to compete. Again the assessors appear to have followed the hints given them by the Emperor, and selected Professor Begas' design for the first premium and the commission. There were to be sixteen assessors, but we understand that several of them, including Professor Wallot and Professor Lenbach, absented themselves when they saw what was required of them. This kind of interference of the German Emperor in artistic competitions is something quite behind the age, and his Majesty will perhaps find out presently

votes of thanks were agreed to: to Mr. H. T. Hare, for permitting members to visit recently the Oxford Municipal Buildings, and to Mr. W. Harrison, who met the party on the occasion and gave them much interesting information; to Mr. G. H. Fellowes Pryne for allowing the members to visit the new church at Roehampton; and to Mr. A. Hessel Tiltman for permitting the visit to the Grove Hospital, Tooting.

The Chairman remarked that the visit to Grove Hospital had unfortunately taken place a little too early, for the building was not far enough advanced to be seen to advantage; but Mr. Tiltman had kindly promised that another opportunity for inspection should be afforded in the Spring.

A long list of nominations for membership having been read, the Chairman announced the following reinstatements:—Messrs. G. H. Smith, F. A. Lamb, A. W. Pocock, jun., A. Lovejoy, G. E. Withers, A. G. Turner, and G. Bailey.

The Chairman also announced that on the 20th instant the Discussion Section would commence its proceedings for the new session. He also stated that photographs of the recent excursion into Lancashire and neighbourhood could be purchased on application to Mr. F. J. Osborne Smith.

Presentation of Prizes, &c.

Donations to the library having been announced, the Chairman presented the prizes, medals, and certificates gained during the past session. The following is the full prize list:—

A. A. Travelling Studentship, value 25*l.* and *Bronze Medal*: E. H. Evans.

Second Prize: Not awarded.

Architectural Association Silver Medal, and *10*l.* 10*s.**: H. Inigo Triggs.

Hon. Mention: F. D. Clapham.

Essay Prize, value 10*l.* 10*s.*, and *Silver Medal*: Alexander Wood.

The Andrew Oliver Prize, 1st Prize, value 3*l.* 3*s.*: Not awarded.

The Andrew Oliver Prize, 2nd Prize, value 2*l.* 2*s.*: Not awarded.

The Arthur Cates Scholarship, value 10*l.* 10*s.*: H. T. Bromley.

Measured Drawings Prize, value 5*l.* 5*s.*: C. H. F. Conyn.

Hon. Mention: H. Farquharson.

Discussion Section Prize: Not awarded. No competitors.

Architectural Union Company's Prize: Not awarded. No competitors.

School of Handicraft (Masonry) Bronze Medal: H. C. Lander.

LECTURE SIDE.—Division I.: R. H. Spalding, silver medal and certificate; A. Wood, bronze medal; H. White, hon. mention.

Division II.: G. S. Nicol, silver medal and certificate; H. C. Trimmell, bronze medal; E. Hale, hon. mention.

STUDIO SIDE.—Division I.: V. Wilkins, silver medal and certificate; T. Bee, bronze medal; R. H. Spalding, hon. mention.

Division II.: W. H. Ward, silver medal and certificate.

ORDER OF MERIT.—Division I.—Greek and Roman Orders.—C. Brée, certificate; H. White, J. E. Franck, *Elementary Construction and Materials*—C. Brée, certificate and book; W. C. Butterworth, W. J. Davies, *English Architecture*—Alexander Wood, certificate; J. E. Franck, R. H. Spalding, *Elementary Physics, Formulas, and Calculations*—J. E. Franck, certificate and book; R. H. Spalding, H. White, *Plane and Solid Geometry*—R. H. Spalding, certificate and book; R. C. Hall, J. E. Franck, *Mensuration, Land Surveying, and Levelling*—J. M. D. Hunter, certificate; L. G. Detmar, R. H. Spalding.

Division II.—History of Architecture.—G. S. Nicol, certificate and book; H. Badcock, S. E. Barrow, *Materials, their Nature and Application*—H. C. Trimmell, certificate and book; H. Badcock, G. S. Nicol, *Stresses and Strains*—G. S. Nicol, certificate; F. J. O. Smith, T. W. Aldwinckle, jun., *Construction*—P. Morris, certificate and book; H. C. Trimmell, G. S. Nicol, *Hygiene (Drainage and Water Supply)*—F. J. O. Smith, certificate and book; T. W. Aldwinckle, jun., H. C. Trimmell, *Hygiene (Materials and Construction, Ventilation, Lighting and Heating)*—F. J. O. Smith, certificate; G. S. Nicol, T. W. Aldwinckle, jun., *Specifications and Estimates*—S. E. Barrow, certificate; H. C. Trimmell, T. W. Aldwinckle, jun., *Professional Practice*—T. W. Aldwinckle, jun., G. S. Nicol, S. E. Barrow.

Elementary Class of Design—F. N. Reckitt,

silver medal with scholarship value 5*l.* 5*s.* and certificate; C. L. Brierley, bronze medal and certificate; T. S. Green, hon. mention and certificate; J. S. Lee, hon. mention.

A Presentation.

The Chairman said there was one other pleasant duty he had to perform, for a few friends—members of the present and past Committee and the instructors—had united together and subscribed and purchased a silver tea and coffee service in order to present it to their friend Mr. D. G. Driver, Assistant Secretary and Registrar. The immediate occasion for the presentation was Mr. Driver's marriage, and the subscribers thought that a fitting opportunity had occurred for showing their regard for Mr. Driver, and their appreciation of his faithful services to the Association. Mr. Driver had been with them for six years, and during that time he had done a large amount of work for the Association.

The Chairman then presented the testimonial to Mr. Driver, who suitably replied.

President's Address.

The President then delivered the following address:—

Gentlemen,—There are certain periods in the history of an institution when it is convenient and customary, not to say interesting and instructive, to look back and trace the course of events, in other words, to review the past, also to consider the present, and look forward to the future. For fifty years the Architectural Association has striven to supply the needs and promote the welfare of the architectural student, and it must be very gratifying to the founders of the Society, a few of whom happily survive, to look upon the flourishing body that still bears the name of the Architectural Association.

The object of establishing the Association was "to enable young men who are studying architecture to meet for general improvement in the various branches of their art." In a circular issued at the origination of the Society it was pointed out that "the great advantages a scheme like this, if carried out, would offer to the architectural student must be obvious at a glance. By this institution all the future members of the profession, their objects, their labours, their studies, would become known to each other. The incalculable advantages this knowledge and acquaintance would afford to those engaged in the same study, the mutual instruction and valuable assistance each could afford, the honourable spirit of emulation that would be engendered, the furtherance of their art in general, and the happy effect that must be produced by all the future architects becoming a band of friends, intimately associated with each other in their plans and projects, *must and will* prove of the greatest advantage to all those connected with the scheme." This forecast has been fulfilled to the letter, and we may truly say that the bonds which unite us to-day are as strong and as powerful as ever they were, and no one but a Hercules could sever or destroy them.

There is scarcely anything recorded of the early years of the Association; its proceedings were not reported as they now are, and it is mainly through the unpublished minutes of its meetings that we are able to glean something of its history. As we turn over the pages of its log-book, we may note the chief incidents of the voyage, and trace its progress from year to year.

The question of public competitions seems to have been early considered, for in 1850 a code of regulations was drawn up and issued; this interesting document was published in the Jubilee number of *Architectural Association Notes*, and contained some excellent suggestions which the agitation of many years has not succeeded in satisfactorily settling. As evidence of a desire to enlarge its scope, we find that Mr. R. Kerr, in 1852, laid before the Committee a scheme for the formation of an architectural academy, comprising courses of study, professorships, lectures, graduation, &c., and a resolution was passed to the effect that "the proposition is well worthy the consideration of the profession generally, and that any assistance toward the furtherance of this object that can be rendered by the Association shall be liberally given."

Unfortunately, financial troubles proved a stumbling-block to the smooth working of the Society, chiefly owing to the members getting into arrears with their subscriptions—an experience not confined, by the way, to the

infancy and youth of the Association, as subsequent treasurers can testify; but at the outset it was a serious matter, and led to the appointment of a Committee of Investigation in 1855. This Committee reported that they "found the Association in a state of apathy, torpor, and depression unparalleled in former sessions," the financial statements had been misleading owing to the concealment of heavy liabilities, and the management of the Society called for improvement. It was further suggested that a lending library should be formed, and an "Architectural Association Magazine" might, if published, be expected to pay its own expenses. The report concluded with an earnest appeal for a renewal of the enthusiasm which characterised the members at the formation of the Society. Following closely upon the reception of this report came a proposal to memorialise the Institute "for the establishment of an examination which should eventually serve as the basis for the issue of such a diploma as shall certify that the holder thereof is fully qualified to practise as an architect." A reply was received from the Institute in 1856 to the effect that the Council felt it was premature to pronounce an opinion upon so important a subject, and that before they could recommend the Institute to undertake such a charge it would be necessary to ascertain the opinion of the profession generally, at the same time they would be able to come to a sounder judgment after some experience of the district surveyors' examination recently instituted. Disappointment followed this decision, interest in the Society continued to flag, and in May, 1856, a special meeting was held at which a resolution was brought forward to terminate the existence of the Association; this, however, was defeated by a large majority, thus indicating that there was at any rate some vitality amongst the members. In the following month an important letter was received from the Institute suggesting an amalgamation of the Association with that body. This communication was duly considered, and a resolution passed to the effect that it is not expedient for the Association to join the Institute on the terms suggested. The crisis through which the Association passed in 1856 was followed by an awakening interest in its welfare, and a committee was appointed to take into consideration the defective means of architectural education, and the desirability of forming classes for the special study of subjects immediately connected with professional practice.

In January, 1857, a conversazione was held, at which Mr. Ruskin was present and read a paper on "The Use of Imagination in Modern Architectural Design," and though forty years have passed since then it is interesting to recall and record some of the words of a master in art whose times past has kindled so much enthusiasm in the architectural breast. Mr. Ruskin said: "If they were asked abruptly, and required to answer shortly, what were the qualities which distinguished great artists from mean artists, he believed they might reply—first, their imagination; second, their industry. Some of them might doubt the justice or the necessity of attaching so much importance to this latter quality, because there might be dull men who were industrious, and clever men who were indolent; but though the industrious man might be dull, and the indolent man might be clever, he had never known a great man who was not industrious. But though this quality of industry was essential to an artist, it did not make an artist; for many people were always busy whose doings are of little worth. Neither did feeling make the artist; but the gift which distinctively made the artist—without which he would be feeble in life and forgotten in death—was that of imagination. Imagination was not manipulation, or calculation, or attention; it was something more, something higher than all or any of these. If an architect lays his bricks and stones well, we praise him for his manipulation; if he keeps well within his contract, we praise him for his calculation; and if he arranges his beams so that nobody drops through his floors, we praise him for his caution. But, if he is to be a great architect, he must do something more than possess and exercise these qualities." After referring with regret to the separation between sculpture and architecture in modern times, and to the field opened to the fancy by the junction of sculpture with architecture, he remarked that "nearly every other art was limited in its space; but was there anything within the range of sight, or thought, or conception

which might not be of use to the architect, or in which an interest might not be awakened to the advantage of his art?" Concluding an eloquent address, Mr. Ruskin said, "So soon as they desired to build largely, they would find that their work must be associative; one could not carve a whole cathedral himself; either their own work must be disgraced, or they must raise their fellow-designers to some correspondence of power. They would take the lead in disposing of their building, but they must trust to the genius and invention of others in the disposal of its detail; and in doing this, too, they must rejoice in the very powers that may promise to rival them. If they endeavoured to depress or disguise the talents of their subordinates they were lost to their art, for it was their own prosperity they were seeking, and their own skill that they were striving to perpetuate. He placed no Utopian standard before them; he had said that they must surrender their own pre-eminence to their love of building, and whomsoever they found better able to do what would adorn it than they were, that person they were to give place to, and rejoice at seeing their edifice growing more beautiful under his chisel, and next rejoicing that they had done kindly. The man who sees capacity in another, and does not acknowledge it, or assist in bringing it forth, is not the refuser of a kindness, but the committer of an injury. They had the sweet consciousness that as their art embraced a wider field than all others, so it was more profound and holy than all others. The artist, when his pupil is perfect, must see him leave his room that he may pursue his destiny perhaps as an opponent in toil; but architects alone were called by kindness to fraternity of toil. Those massive piles which rise above the domestic roofs of our ancient cities have a meaning more profound and true than is commonly attached to them. Men say they are good for worship—but so is every mountain, glen, and rough sea shore; they have the indisputable and distinguished glory that their mighty walls were raised by men who have given aid to each other in their weakness, and the strength of their structure has its foundations on manly friendship, which conduces to awaken the sweeter cadences and symmetry of the human soul."

What effect Mr. Ruskin's eloquent address had on the members is not recorded, but it is pleasing to find that the Committee were able at the commencement of the next session to congratulate the members on the general improvement which had taken place in the prospects and financial position of the Association, which was at length freed from its embarrassments, a fund having been raised for the purpose. A movement was on foot at this period to provide a home for architectural bodies in London; the Architectural Union Company had been formed and was erecting a building in Conduit-street, and after prolonged negotiations the Association arranged terms and removed from Lyon's Inn Hall, holding its first meeting at 9, Conduit-street, on April 1, 1859. In that year, for the first time, a Prize was awarded in the Class of Design, and a Prize Essay instituted, the subject being "Street Architecture and its Proper Treatment." The acquisition of new premises might have been expected to mark a renewal of vigour in the work of the Association, but strange to say only twelve months had elapsed when a resolution was passed regretting the want of support afforded by the members, and asking the Committee to consider and report whether there was any course short of closing its operations. The Committee recommended that all office bearers, with the exception of three, should for the next session be members who had never held office before; accordingly, some new blood was introduced into the direction of affairs.

A circular having been issued by the Royal Institute of British Architects, inviting suggestions on the establishment of a voluntary examination, the Association held two meetings at the close of 1860, and, after fully discussing the matter, passed two resolutions: 1. "That in the opinion of the Architectural Association a strictly voluntary examination should be instituted with a view of guiding the student in architecture to such a course of study as would enable him to arrive at competence in his profession." 2. "That in the event of a professional examination being insisted upon, it should be limited to those subjects which bear directly upon the practice of the profession, and this Association is apprehensive that any examination upon the principles of taste might

lead to results unfavourable to the progress of Art."

In 1860, Botany and Modelling Classes were formed, the latter proving very successful. In 1862, the Library, which had been in course of formation for some time, was at length opened. In the same year, Saturday afternoon visits were organised, the first being to Westminster Abbey, a prize being given for the best account of the visit. At the conversazione in October, 1862, a musical programme was introduced for the first time, the services of the artists being gratuitous. In 1863, the Voluntary Examination Class was established for the study of practical subjects with special reference to the examination then instituted, the Association having pledged itself to use all its influence to induce the members to qualify themselves for it. In the following year, a class for the study of Figure Drawing was formed, under the direction of Mr. E. J. Poynter, F.C.L., and was so attractive that fifty members joined it. A Water Colour Class was subsequently started. In 1867 the Architectural Association "Sketch Book" was commenced, the parts being issued monthly at a subscription of one guinea per annum, as now, and an excellent publication it has always been. At this time the Class of Construction was formed, to carry on the work formerly undertaken by the Voluntary Examination Class; and a year later the Elementary Class of Design was started. The Association had now settled down to steady work, for in Session 1868-69 a number of sub-committees were appointed and a balance-sheet published for the first time, showing an income of about 240*l.* and a substantial sum in hand; it became necessary also to compile a catalogue of the library, and this was issued in 1869.

We next come to an important report drawn up in 1869 by a Joint Committee of the Institute, the Academy, the Architectural Museum, the Association, and the Architectural Exhibition, on the question of establishing a "School of Art accessory to Architecture." This Committee carefully investigated the scheme of the voluntary examination, and arrived at the conclusion that its failure was due to: 1. The absence of a formal certificate of having passed the examination. 2. The want of such a stimulus or pressure as would make the passing of the examination professionally necessary. 3. Inefficient preliminary education. 4. Want of system in architectural education. They accordingly recommended: 1. That a text-book or pamphlet should be prepared containing a complete curriculum of study for the architectural student. 2. That a certificate be granted to all who pass the voluntary examination. 3. That at some future period the membership of the Institute be made dependent on the passing of the voluntary examination in the classes of proficiency. 4. That a preliminary examination be held in elementary subjects open to all students who have been at least one year in an architect's office. 5. That the Institute should assist the Association to carry out the proposed drawing school. 6. That a committee be appointed to compile the text-book referred to. As a result of the fifth recommendation architectural art classes were established at the Architectural Museum under the management of a committee composed of representatives of the Institute, the Museum, and the Association. These classes were commenced in 1870, and comprised Figure Drawing and Architectural Ornament, the latter being conducted by well-known architects as visitors. For two years the Association contributed 25*l.* annually towards the expenses of these classes, which, however, soon languished.

The first annual excursion took place in 1870, when Lincoln and district were visited, the party being conducted by the late Mr. Edmund Sharpe; and it may be remarked here that every year since then some fresh district has been visited. During the next ten years (1870-80) no important change or event took place; the membership grew from 500 to 800, two new classes were formed, viz., for the study of Colour Decoration and Architectural Science, the latter being subsequently called the Advanced Class of Construction; some courses of lectures were also delivered; special arrangements were introduced for the benefit of country members in connexion with the classes and library, and the Birmingham Architectural Association was admitted as a Provincial Branch. The Institute opened its library to members of the Association under twenty-three years of age. New and amplified rules were adopted in 1877, and four years later

the entrance-fee was raised to one guinea. Additional rooms were taken at Conduit-street in 1879; the Architectural Association medal was founded in that year and the Architectural Association Travelling Studentship two years after, when a sum of nearly 700*l.* was subscribed by past and present members to provide the necessary funds.

In 1881-82 the Committee thought it desirable to vary somewhat the arrangements of the classes, with a view to making them specially useful to members preparing for the new obligatory Examination of the Institute, which commenced in 1882. Courses of lectures on the History of Architecture and on Construction were given and a new class started for the study of Planning and Specification Writing.

In 1884 a Special Education Committee was appointed to inquire thoroughly into the general organisation of the Association, with a view to further systematising its working and extend its usefulness, and a scheme was adopted, in 1885, for amending and consolidating the work. The main feature consisted in forming two defined divisions of study, called the Elementary and the Advanced, the former comprising Elementary Classes of Design and Construction, preceded by lectures on History and Construction, and the latter consisting of Classes of Design, Colour Decoration, Advanced Construction, Quantities, and Surveying, but no lectures. The work was conducted by visitors, who were formed into a Committee of Advice. An attempt was made at this time to increase the subscription of members to one guinea, with the object of affording increased educational advantages, but the proposal was defeated by a small majority. In 1885 the Saturday Vacation Visits were first organised, and in the ensuing session many improvements were effected in the library, viz., a new system of registration, the addition of a reading room, and the opening of the library twice a week instead of once. In 1886-87, a practical class of Masonry was carried on as an experiment at the City and Guilds Institution, and a series of lectures started on Graphic Statics. A noteworthy step was the issue in April, 1887, of the first number of Architectural Association "Notes" at a small subscription, the desirability of providing a means of intercommunication amongst the members being at length realised, though it was not until four years later, when it was issued free to all members, that its purpose was more completely fulfilled.

The gradual increase in the number of members and the large attendance at the ordinary meetings forced the Committee to consider the necessity of providing better accommodation, and by the kindness of the Institute we were permitted to hold our meetings in their room during Session 1887-88, a privilege which has been courteously extended to us ever since. About this time rules were passed to facilitate a scheme of affiliation, with the desire of creating a bond of union between the Association and Provincial Societies; the Birmingham and Glasgow Associations joined us, but the arrangement did not long exist. An Elementary Class of Ornament and Colour Decoration now appeared, and was well taken up, and two years later the Sketching and Measuring Class was formed for the purpose of visiting buildings in the neighbourhood of London during the summer. At the same time an Architectural Association Cycling Club was organised with the object of making runs to places of architectural interest, but this club soon disappeared, and notwithstanding the growing popularity of cycling no attempt has been made to reconstitute the club. Another club was founded in 1888, viz., the Lyric Club, one of the objects being to promote friendly intercourse among the members; and those who appreciate the social advantages of music, dancing, and smoking are still provided for at this club. Reference may be made here to the Camera Club, though founded at a later date (1893). Apparently, this club is not so prosperous as it was at first, and a hope may be expressed here that some effort will be made to revive its usefulness.

We have now arrived at the last great movement in the Association. In 1889 a Special Committee on Education was appointed, and after exhaustive inquiries its recommendations were approved by the general body in May, 1890. Following this, a special committee was appointed to consider the revision of the rules, a new constitution and by-laws being adopted by the general body in the following January. These included the raising of the entrance fee

to two guineas, and the subscription to one guinea, to all members elected after 1890; and also provided for the appointment of paid officials. A Re-organisation Committee was next appointed to prepare the new Education scheme, and resulted in the new curriculum. In order to establish the new scheme, and provide for the extra cost and risk incidental thereto, as well as the outlay involved in obtaining suitable premises, an appeal was issued and generously responded to by members of the profession. The scheme provided for a complete course of study extending over four years, that being considered as the least time that should be given to the study of the subjects. It was laid down that the aim of the courses was to help members to fit themselves for their work as architects by providing the means by which they may supplement the training acquired in offices; the principal object not being to prepare candidates for the examinations, although the courses were chiefly based upon the programme of the examinations.

Premises having been secured in Great Marlborough-street, and adapted to meet our requirements, the new scheme was launched in 1890-92. From the outset the first and second years' courses were well supported, the third being thinly attended, and the fourth not fully started. In 1892-93 Divisions I. and II. continued to be well supported, and Divisions III. and IV. showed improvement. In 1893-94 there was a poor attendance in Divisions III. and IV., indicating the necessity of rearranging these divisions. In 1894-95 the complete course was arranged in three divisions, but the attendance in Division III. was again disappointing, and a special committee was appointed to inquire into the working of the classes. As an outcome of this inquiry the Institute agreed to alter the dates of the examinations so as to avoid interference with the working of the classes. In 1895-96 the curriculum was arranged in two divisions, the complete course extending over four years, and a School of Design started, being attended with considerable success. Last Session the work of the Classes and Studio showed a continued improvement, especially in Division I. The School of Design and Handicraft was most successful and encouraging; forty students joined the Elementary Class, and the whole Session was devoted to one subject, which produced good results. Eight students joined the Advanced Class, the syllabus of which was amended as it was found desirable to have more than one subject. The Technical Education Board arranged special handicraft classes for the School, and these were appreciated by the Students. The Discussion Section affords opportunities for the study and discussion of those subjects and difficulties which occur in actual practice; this is a most valuable part of our work, and it is gratifying to note its continued success.

A record of the Association transactions would not be complete without a reference to the special meeting held in December, 1893, when the question of the admission of ladies into membership of the Association provoked a lively discussion, and the proposal was defeated by a large majority. Since then no one has come forward to advocate the cause of the ladies, but we have, on several occasions, been reminded of the existence of such a class of students on the boards of the A.A. soiree stage.

We have now traced in outline the work and progress of the Association during the fifty years of its existence. There are, of course, many incidents and details that would have been interesting to enlarge upon, but on an occasion like this it would be impossible to do so. There are, too, many names that have been mentioned as identified with the course of events, but it would be undesirable to single out a few where so many have borne an active part. The history of the Association is marked throughout its career by a fixed determination on the part of its members to maintain its independence, to uphold its traditions, to overcome all difficulties, to grapple with changing circumstances, to keep abreast of the times, to seek the counsel of its best friends, to encourage and help the young student, to provide the best training and education at its command, to keep in touch with those who have passed through the student stage, to keep alive the memories and maintain the friendship of those who have retired from active service, and above all to advance the noble art of Architecture. May the same devo-

tion and self-sacrifice, the same enthusiasm and loyalty, characterise the men who are entering our ranks to-day, so that the Association may accomplish in the future greater things than in the past, and Heaven smile upon the works of their hands.

We have been looking into the past and rejoicing in our year of Jubilee at all that has been accomplished; let us turn for a moment to the present. We have entered upon a new session with the largest roll of members ever recorded, viz., 1,150. It may be interesting to note that of this number eleven have been members for forty years and upwards, sixty for thirty years and upwards, 110 for twenty-five years and upwards, 180 for twenty years and upwards, 302 for fifteen years and upwards, and 552 for ten years and upwards. Seven hundred and forty-eight of our present number joined before the subscription was raised in 1891, so that 402 have come in and remained since then. Various conclusions can, of course, be drawn from these or any other figures, but this at least may be said, that the Association has succeeded in retaining many of its best and most valued friends, who are ever ready to testify to the great advantages they have derived from its membership. On the other hand there is a solid army of young men, many as yet untried, who are destined to take up the reins of government before long, and who have opportunities which, if wisely used, may be productive of lasting good to their own and future generations in raising the status of the profession and in the advancement of Architecture as a living Art.

There is one point in our comprehensive scheme of education which demands attention, and continues to disappoint us. While the students in Division I. attend in very satisfactory numbers on the whole (and in fact the present accommodation is somewhat strained to properly provide for them), those in Division II. are comparatively few. What becomes of those who have passed through the first stage? It is very evident that a large proportion of them do not continue their studies and complete the course we wish them to follow. This is a problem that we have not succeeded in solving yet, and it suggests the advisability of making individual inquiries of those who have passed through Division I., to ascertain the causes which apparently lead them to abandon the higher and more advanced studies provided for them.

The combination of practical with theoretical instruction is also a subject which is exercising the minds of many. At present, the facilities we offer our students in this direction are very limited. In the handicraft classes last session the students were enabled to attend a course of manual training in masonry and leadwork, thanks to arrangements made by the Technical Education Board; and this session the board has kindly arranged for a series of workshop demonstrations in stone working, to be given at the Regent-street Polytechnic.

There appears to be a difference of opinion as to how far it is necessary or desirable that an architect should be able to put his own hand to the work of any trade. If it is an advantage that an architect should have actual manual experience, would it not be better that a student should be taught or apprenticed to one trade—say mason or carpenter—before he serves his articles? Such a course would seem to be the most convenient as well as the most practicable; later on he might with advantage gain considerable knowledge in other crafts, not necessarily by handling the materials and tools, but by observation either on works, in shops, or in craft classes; while later still the superintendence of works, either as clerk of works or otherwise, would be an experience of great practical value. After all, the years of a student are limited, and even if he should make the very best use of his opportunities, he cannot expect to accomplish very much in this department of his education. By far the most useful and appropriate thing for an architectural student is modelling, and it is a question whether this is not worth all the other crafts put together. The tendency of the times is, perhaps, to make too much of the manual work undertaken at the Technical Institutes. It is valuable as far as it goes, especially in the more scientific subjects, but it is a fallacy to suppose that it can in any degree supersede the training which an apprentice to his trade must and should acquire in the workshop, where the every day practical problems have to be dealt with.

You will have gathered from the report of the committee of last session that it has been resolved to commemorate the Jubilee of the Association by establishing a fund for acquiring new premises, suitable and adequate for the work carried on. It would be quite contrary to the wishes and feelings of all who have the interest of the Association at heart, to let so important an occasion pass, without making some special effort to permanently benefit a Society that has done so much to further the cause of architectural education, and in whose welfare the whole profession is concerned. Various suggestions have been made and discussed, but there seemed to be one predominant object which overshadowed all others. For the last few years the cry has gone forth for increased and better accommodation; numerous efforts have been made to obtain premises, but hitherto without success; and, seeing that our need is as great as ever, it has been determined to commemorate the Jubilee in the way mentioned. We have sought the advice and help of friends who have aided the Association generously in the past, and they have intimated their readiness to support us again, provided we are prepared with some definite scheme. This is a most reasonable attitude, hence we are now going forward in the matter with renewed energy and determination, and are hopeful that the way is opening up for obtaining a site on which premises could be erected to provide studios and class-rooms, library, reading-room and offices, a common-room, and last, but not least, a meeting-room, so that under one roof we may combine all the essential accommodation for educational and social purposes. The provisions of workshops might, with advantage, be arranged in a separate building more suitable for the purpose, if satisfactory arrangements could not be made with any of the public Craft Schools. This outline of a scheme may seem to indicate a large undertaking, but if carried out on the lines we have in view, and which it would be premature to discuss, there is little doubt but that it could be satisfactorily accomplished. Our desire is to formulate a definite scheme that is practicable and attainable within reasonable limits and a reasonable period, not forgetting, at the same time, that it should worthily commemorate our Jubilee.

The question of establishing a municipal school of architecture has been talked of and may yet come; but such an institution could never do the work that the Association undertakes, neither could the Association open its doors to outsiders and accept grants or subsidies from County Councils or other public bodies without sacrificing its freedom and ceasing to fulfil the objects for which it exists. It is an advantage that cannot be too strongly urged, that the architectural student should be trained in an architectural atmosphere, that he should have every opportunity of associating with kindred spirits and forming lasting friendships with them. The true spirit of comradeship will be best promoted by such intercourse, and the higher claims of Art will be more easily attained. If we would seek to stimulate the enthusiasm and fire the imagination of our fellow students, we must cultivate the love of the beautiful; we must continually strive for the advancement of our Art, our sympathies and powers must be directed to raising the standard of our attainments and keeping a high ideal ever before us. Let us go forward, therefore, with renewed energy to the duties and studies of another year, remembering that the opportunities, the advantages, and the privileges, which are now the inheritance of our students, have been obtained by the cordial co-operation, the self-sacrifice, the patient toil, and the brotherly love of men who, for fifty years, have joined hands in promoting the advancement of Architectural Education and upholding the first principles and honoured traditions of the Architectural Association.

In the discussion which followed, Mr. Cole A. Adams proposed a vote of thanks to the President, whose interesting address, he said, on the fifty years' work of the Association was most comprehensive. Mr. Pratt was one of their oldest members, and when he (Mr. Adams) first joined the Association, Mr. Pratt held office, and since then he had done many years' good work as their librarian and treasurer. The President had referred to the work in Division I. as being satisfactory, but he had mentioned the falling off in Division II. He (the speaker) endorsed the President's view as to the importance of learning the secret of the non-success of Division II. from those who had

passed through Division I. Upon the question of technical education, and its importance to the members, he shared a great many of the views of the President. He was not sure that it was good for the student to devote a great deal of time to technical education; in fact, when they realised the enormous amount of work that a student had to do, and the comparatively short time in which to do it, they would see the unwisdom of devoting so much attention to the manual crafts. Let them think of the great architects of the past! How many of them had taken up craft pursuits in detail? It was almost impossible! Life was too short! The President had quoted the words of Ruskin where he said that one of the great qualities—in fact the greatest quality that made a great architect—was imagination. Surely that had to be cultivated! And if too much time were devoted to other subjects it would not be possible to undertake all the work that would be involved. They all felt the necessity for the acquisition of new premises, but it would require a great effort, which, he felt sure, would be forthcoming, to accomplish that object, which had always been held up to the Association as a very desirable one. In conclusion the speaker expressed the hope that the President's year might be a prosperous one.

Mr. Beresford Pite, in seconding the vote of thanks, said they all desired to thank the President for what had been an exceedingly valuable and important address. They had listened to many previous Presidential addresses in that room, but he ventured to think that none had been so interesting to the audience as this very accurate and scientific address, in which the President had dealt with the past history of the Association. In listening to the President's summary they all must have felt what a great debt architecture in this land owes to their humble little body. Without the Architectural Association, it was not asserting too much to say that there would have been no architectural education. As the President had described the origin of the demand for an examination, so he had described the origin of the demand for education. Systems of various kinds for self-improvement had grown up, and they were conscious that in London, if not in the provinces, these systems had originated in the example and progress of their work. They might take a good deal of credit to themselves for this. Their constitution was a very healthy and vigorous one; they had not been hampered by Royal Charters, nor by gold chains round their neck, for they had periodically revised their rules and methods. There was a true liberality in the conservatism of the Association, and there had always been a strong tincture of the practical with their theories. The Association had invariably had a high aim. At no period of its history had it lost sight of its prime object—the object of promoting the production of fine architecture. He ventured to thank the President personally for the long extract he had given from Ruskin's remarkable address; he hoped that it would produce some effect upon the generation at present working in the classes. The question of imagination was really the question of questions for the architect. The cultivation of the imagination was not altogether a simple matter. Classes of design were but means; they really wanted classes of observation, classes of collection, classes that should excite conception in the mind. He could look back upon the many exhibitions of sketches, by such men as Mr. Brewer, and like that which they saw that evening, which had produced in the mind a rich harvest. Unless the architect saw, he could not imagine; then only by putting together the letters, syllables, and phrases of accomplished design, in his mind, was he able to weave a phrase or poem in the work he had in hand. He ventured to urge upon students the vast importance of properly using their eyes. In the early days of his articles he and his fellow students used to spend hours in looking at the illustrations in the building papers, half consciously chiding themselves for wasted time; but no time was better spent. The mind could accustom itself to seeing a large amount of architectural form, and unless the mind was so stored, poverty of design followed. Want of imagination produced a great distaste for the hard work of design, that is, for the proper use of india-rubber; students could not be got to understand that the art of design was not the art of rapidly sketching anything. He ventured to suggest that the falling off of reading and lecture sitting that ensued

after the student had been a year or two at his studies was, perhaps, a healthy sign. If students continued to give for three or four years the best part of their time to hearing and cramming the pernicious of architectural education, imagination would not and could not grow. There was food for fools and food for gods, and there was food for the imagination; and he cherished the idea that the student who had had a course of reading and classes and lecturing, appreciated the delightful freedom of reading for himself—enjoying the pictures in Fergusson much more than hearing the lecturer describe Fergusson in unpleasantly short phrases. Such a student gained an experience and a facility in design which did not necessarily come to a first or second year student, though it assuredly came to the industrious student, who in his freedom began by designing a sideboard, perhaps, or a cupboard, or something of that kind. He hoped that that was an accurate explanation of the shorter attendances in the higher divisions.

Mr. Owen Fleming, in supporting the vote of thanks, said that he thought the very able and careful examination into the history of the Association would enable them to look back upon the past half-century with wonder as to how the Association had gradually grown up to be the great organisation and institution that it is.

The people of the thirteenth century and the Greeks never had such an Association, and yet, somehow, our buildings—our railway stations, hotels, and our Charing Cross-roads—were not animated by the same feeling of love and reverence that influenced the builders of the beautiful abbeys, cathedrals, temples, and castles of the past. Many might be satisfied with present-day results, but some were not; and of these, some, he imagined, would build in the twentieth century and would help to make the architectural history of future times. Knowing, therefore, what the Association is, and remembering the character of the architecture of the day, he could not help wondering whether the education of architects at the Association was really being conducted on the right lines. In regard to education as a science, one noticed the movement that is going on—not only in England but throughout Europe, following on the lines of those famous educationalists, Froebel, Pestalozzi, and Herbart. These men had considered education as education, and not as instruction. He wished the English people would distinguish more between education, the drawing out of the individual, and instruction, the putting in. He thought that if we followed the lines of these great educational reformers we should, in the twentieth century, perhaps, be able to produce buildings like the wonderful old buildings of the past. This was being done now to some extent by students of the London Board schools, for at a recent exhibition of some Board school students' work there were some drawings and designs that some members of the Architectural Association would be glad to subscribe their names to. He specially referred to the work done by children at the school in Thomas-street, Limehouse, where there were children capable of producing some excellent line work—produced simply on the lines indicated by Pestalozzi, whose teachings were now influencing the educational authorities in Germany. The necessity for such teaching had been seen by Ruskin and William Morris; and Mr. Lethaby was now working out this ideal in London, at the Central School of Arts and Crafts. What position was the Association going to take in regard to this movement? He had listened to the President's address, and to Mr. Adams, and to Mr. Pite, and it seemed to him that the position that the Association was going to take was to have nothing to do with the movement. They were going to follow their own lines, and to be isolated. They were not going to be associated with the rest of the world, nor would they take their proper position at the head of the architectural schools in London; and yet, as the great central institution in London for the education of architects, it seemed to him that they must do so, if architecture in London were to be permanently improved. In keeping their schools private and in surrounding themselves with a high wall of paper and books, they were preventing themselves and their students from executing beautiful work. It was a matter of great regret to him that the Committee took this view so strongly. He only asked for the position to be honestly and thoughtfully discussed, and he was confident that the Association would do the right thing.

Mr. Cole A. Adams then put the vote of thanks, which was carried with acclamation.

The Chairman, in the course of a brief reply, said his difficulty had been to condense the interesting material which he had at his disposal. His principal object had been to put before them a birds'-eye view of the work of the Association, that they might take heart, and go forward with a determination to carry out that work. Those students who entered their ranks would see that the Association was not of recent growth, but that it had been developed gradually by those who desired to carry forward successfully the education of an architect. He hoped that their fifty-first year might be a very successful one, and that they might continue to make good progress.

It was announced that the next meeting would be held on the 22nd instant, when Mr. E. O. Sachs will read a paper entitled, "Lessons from the Paris Bazaar Fire." The Chairman announced that some prominent members of the County Council, and others interested in the subject, would be present on the occasion.

The meeting then terminated.

TECHNICAL EDUCATION AND THE BUILDING TRADES.

A CONFERENCE of representatives of the building trades was held on Wednesday evening at the Craft School, Globe-road, to consider the best way in which the school can supply the needs of the trades as regards technical education.

In welcoming the delegates, Mr. Llewellyn Smith (Chairman of the school), referred to the special objects of the Committee of the school, which was established seven years ago. They did not aim at large numbers in the classes, nor did they seek to train the amateur. Their object was to train the workman, and they had under instruction some sixty carpenters, cabinet makers and other artisans who attended the classes every evening. As they were anxious to make the instruction offered useful to the inhabitants, they invited suggestions from people who were competent to point out deficiencies in the building classes. They were comparatively new to the district, and the Committee wished to encourage students to take advantage of the opportunities offered to them. Such training as the Craft School gave could not be acquired in the workshop. The Chairman then invited discussion.

Mr. G. Dew, of the Society of Carpenters and Joiners, said that the system of apprenticeship had almost died out, and technical classes must be established so that young men could receive technical training. At one time he was opposed to these classes, as were some of the trades-unions, believing that a class of handy men would be produced, and he had always wanted a workman to be made a real mechanic—an efficient workman.

He now believed that those who had given the best thought to the establishment of technical classes were actuated by the best motives, and he thought the time had come when the trades-unions should do all they could to assist in getting their lads properly educated in their trades. This was desirable, for the workman who had mastered the scientific side of his trade felt a real pleasure in doing his work. The conditions in the building trade were much changed from what they were when he was a youth, and the change was inevitable. The employer was very often more of a financier, and in the nature of the case he could not take the same interest in his men or their work that he did when he had a few men under his control. Thanks to the technical classes a young man could now get a thorough training in his trade.

Mr. Henry Holloway said that he regretted that he was the only master builder present, but he must add that the absence of other employers did not arise from want of interest in classes of a technical character. In proof of that he need only mention the names of Mr. Stanley Bird and Mr. Thomas Rider, who had aided in developing that work. One reason for the apparent want of interest in meetings like the one he was addressing was of a physical character. A master builder frequently worked twelve or thirteen hours a day, and did not feel capable of doing much more. That technical institutions were of value not only to the building trade but to the public there could not be the slightest doubt. Every one rejoiced in the existence of the great Polytechnics throughout London,

and they believed that the coming generation would benefit very largely from them. They hoped that from the technical education of the present day technical work would be improved. With regard to the question of apprenticeship, he deeply deplored, as other masters did, that in recent years it had fallen out of practice to so large an extent. He did not know whether the masters or the parents of the children were to blame for the decay of that system. When he started business his desire was to do his duty to the building trade, and he thought that if employers would only take the trouble to look out suitable youths, and gave a little time and attention to the matter, there was no reason why the practice of apprenticeship should not be kept up, to the benefit of the building trade generally. His firm had tried that plan rather extensively, and they found that their apprentices made the best workmen. Those firms who did not avail themselves of such benefits were undoubtedly losers. One of the difficulties which masters realised with regard to apprentices was that if they were bound by indenture they became a great trouble. The lads got the idea that if they were bound for a certain number of years they could do as they liked, and that the masters could not get rid of them. He had got over the difficulty in the following way: His firm made a promise, and entered it on the indenture, that when a lad had completed the term of his apprenticeship, and his behaviour had been good during his term, they gave him £1. to set himself up with tools. That promise was an excellent policeman for the boys. He had noticed an apathy on the part of lads in the matter of apprenticeship; they would much rather get in a shop or on a job and take up roughly a trade, and as soon as they could nail up a few boards, or something of that kind, they entered a shop and demanded tenpence an hour. He had the following suggestion to make:—Could not some of the public institutions extend their generosity towards the parents of the boys by offering premiums? He knew that it was already done by some of the companies, who offered premiums to the employers on condition that the lads had a good wage. With such a premium the lad would have a larger wage, and would be induced to take up an apprenticeship. Technical institutions, excellent as they were, must always be looked upon as supplementary to apprenticeship, and they must not take its place. The technical class should be regarded rather as recreation than as serious business. They could not expect teachers in such institutes to turn out proper mechanics. But they could get students to do work which could not be done in the shops, for they had time to impart a thoroughly scientific and theoretic training. These institutions met a want which had been felt in years gone by. The lads got not only a practical knowledge of the handicraft but a theoretic knowledge and demonstrations which could not be got in the workshops. With regard to trades-unionism, at the present time the masters thought that the action of many of the unions did not tend to produce the best workmanship and best workmen. There was a system of levelling down instead of levelling up. In the old time a man was paid according to his skill; if he was a first-class mechanic he got first-class wages; if not, he got something less. The result was that every young fellow in learning a trade had very good reasons why he should make himself perfect because, until he did, the wages he received were not the highest possible. Things were very different to-day. When a young man came of age, whether he had served an apprenticeship or not, he received full wages. That was certainly not satisfactory to the best workmen themselves. As soon as that young man received his tenpence an hour he had no ambition to improve himself. There were certain men who were not worth their money. They could not do the best work, and yet they received the full rate of wages. The masters blamed the trades-unions to a certain extent for that state of things, and they said that the average mechanic was not so good a workman as he was some years ago. He was going to anticipate their argument in answer to this. They would say that if the old state of things should be made to apply to-day, the masters would employ, instead of properly paid mechanics, a lot of duffers, little more than labourers, in order to get the work done cheaper. That was not so. When a man was worth his salt he would always receive good

wages. It did not pay an employer to engage a duffer. He thoroughly believed in commencing an apprenticeship when a youth was quite young, and he believed that lads should start at the age of sixteen; but to say that any one should not learn a trade after he was sixteen was unreasonable and unfair. The door ought not to be locked against the many young fellows of eighteen or twenty who desired to change their occupation. What would the professions say if the same thing applied to them? He believed that insistence on this on the part of the unions was depriving the building trade of many useful men. He felt rather despondent that the technical institutions had not brought forward many capable young fellows who could act as foremen. It was his experience, and that of many other master builders, that it was a very hard matter to get general foremen, but he did not know why this should be so. One would have thought that young students would have had a desire to get on. An interesting point was how best to bring the interests of the institutions and the pupils into direct contact with employers of labour. He had previously suggested to the principal of a London polytechnic that a committee of visitors should be formed from amongst master builders, and that they should visit the institutions and interest themselves in the students and their work. Unfortunately, the masters did not very readily respond, and he now suggested that the builders' foremen should act instead. He believed that the masters would reap an advantage from this, for they would get to know some of the promising and likely young men at the institutions.

Mr. Gailey, representing the Plumbers, said that masters did not want to employ half-trained men, but the best men—and they were the men who had been properly trained. Masters, or their foremen, ought to be able to exercise some discretion in the employment of men, and if they were able to do so, the results would be much more satisfactory than at present. The decay of apprenticeship was to be deplored, but it was almost hopeless to attempt to resuscitate it. He wished that mechanics would see that their boys or their mates attended some of the technical classes, and that they would put aside all fear of being superseded by the young and technically trained men.

Mr. Coles, representing the Plasterers, said, in reply to Mr. Holloway, that it was quite true that his Society had inserted in their rules a clause to the effect that no lad should learn his trade after he was sixteen years of age; but they must remember that that really meant seventeen years of age, and he did not think that his Society had taken exception to a boy under the age of seventeen. They were satisfied that if they were to have good mechanics, their lads must be taught early in life. It was not possible to make a good plasterer of a fellow who commenced to learn his trade at the age of twenty. His Society had instituted a system by which the Union comes into direct contact with the boy. In the system of apprenticeship, the boy, when he was bound for five or seven years, was restricted, to a certain extent, by his employer in order to teach the boy his trade, and that was what his Society had determined to do. They thought that the employer did not teach the boys, but that the workmen did, for the boys were always under the observation of the men. His Society were going to try and make their boys efficient workmen in their own way, and they were going to offer inducements to the boys out of their own funds. The speaker then referred to the difficulty of giving technical education to boys who had been engaged all day in their trades, and he specially referred to the fact that Mr. Holloway allowed his boys to get their training in the day-time. Boys ought to have training in the day-time. It was a very difficult matter to get proper accommodation in which to carry on the education of the plasterer. In conclusion, the speaker quoted Ruskin in support of the equality of wage theory.

Sir Philip Magnus said he thoroughly agreed with Mr. Holloway and others in recognising the advantages that would accrue to the trade if some system of apprenticeship could be devised, but it must be remembered that the conditions of the trade were very different from what they were fifty years ago. There was far more division of labour, far more specialised work. He thought it would be acknowledged that the technical classes could

not do more than teach the scientific principles underlying the practice of a trade.

Mr. Purcell, representing the French Polishers, having addressed the meeting,

Mr. W. R. Lethaby said that unionism was a subject of interest all over the world. Architects were inclined to think of trades-unionism as a modern evil, but he did not think so. The more they studied the old methods of training workmen and the traditions of workmanship, &c., the more they would realise that unionism went back to the very gates of Eden. In Persia, India, and China we found workmen's unions, and it was these unions in one form or another which had built up the traditions of workmanship which we call architecture. At the same time he thought there was something in the view Mr. Holloway had expressed in regard to the fact that a boy or young man who had "picked up his trade," as it was called, could go to an office and earn full wages at once. Mr. Coles had told them that his union was thinking of teaching the boys engaged in their trade, and he, the speaker, thought that as a complement to that they would have to define "the boy who has learnt his trade." But names were nothing, and just as in the old guilds there were the stages of apprenticeship, companionship, and mastership, so there must be a fairly organised system of labour. He quite agreed with the Ruskinian doctrine of levelling of wages all round, but a Prime Minister had to some extent learned his trade, as had the doctor. He wanted to say a word to the young men there as to the extremely interesting nature of classes. There was no drudgery about them, but a good deal of amusement. That was one of the greatest discoveries which people were beginning to make, and it would be the greatest discovery of the age: the most interesting thing in life, the most interesting thing to be got out of life, was interest in good workmanship.

Mr. Wales, of the Stonemasons' Society, also spoke, remarking that very few masons were attending the technical classes in London. It was not quality, but quantity, that was required from the mason in the present day, and therefore the art and craft of masonry was being entirely lost.

Dr. Garnett, Technical Education Board of the London County Council, also addressed the meeting.

COMPETITIONS.

CONGRESS BUILDING, CITY OF MEXICO.—The Mexican Chargé d'Affaires in London requests us to state that he has received instructions from his Government to the effect that any architects engaged in the preparation of competition drawings for the above-named building must deposit their drawings with the Secretary of Communications and Public Works, Mexico, by November 30.

NEW LUNATIC ASYLUM, BIRMINGHAM.—The Lunatic Asylums Committee of Visitors, in their report for presentation at the meeting of the City Council, state that the formal approval of the Home Secretary has been obtained to the conveyance of the Holly Moor Farm land, the acquisition of which was authorised by the Council, and the purchase will be shortly completed. The Committee have had under consideration the next step towards the erection of the asylum—namely, the question of the appointment of architects. The Committee propose, with the approval of the Council, to offer the appointment to Messrs. Martin & Chamberlain, if fair terms can be arranged.

ARTISANS' DWELLINGS, BRIGHTON.—An ordinary meeting of the Brighton Corporation was held on the 7th inst., when Councillor Dewe brought forward the report of the Sanitary Committee on the competitive designs for artisans' dwellings. Nine sets of plans were sent in, and after deliberation they had come to the conclusion that the plans marked "Sanitas" were the best, and should be awarded the first premium. They recommended that the 25l. second premium should be divided between "O.K.," "Minimum and Maximum," and "Pax." The report was adopted. The envelopes containing the names of the authors of the plans were then opened, and it was found that the plans placed first were the joint work of Mr. T. Garrett, of Ship-street, and Mr. W. C. F. Gillam, of 162, North-street. The authors of other plans mentioned were "O.K.," Mr. T. Herbert Buckwell, North-street Colonnade; "Minimum and Maximum," Mr. E. Birch and Mr. W. J. Eade, 25, Dyke-road Drive (assistants

in the Surveyor's office); "Pax," Mr. C. Nye, Duke-street.

BREWERY, DARLSTON.—In a limited competition for a new brewery at Darlston, the designs of Messrs. J. H. Hickton & H. E. Farmer, architects, Walsall, have been placed first by the assessor, Mr. Wells, of Birmingham. Messrs. Hickton & Farmer have been instructed to proceed with the work.

Illustrations.

SCULPTURE: "AT THE GATES OF THE PAST."

THIS work, by Miss Esther M. Moore, occupied a prominent position among the sculpture exhibits in the Octagon Hall at the Royal Academy exhibition of this year, and we drew attention to it, in reviewing the sculpture of the year, as one of the best works by a lady sculptor which had been seen at the Academy for some time.

Miss Moore sends us the following note as to the idea embodied in the work:—

"'At the Gates of the Past' is wholly allegorical. The figure is intended to be thinking sadly of the Past, which is shut behind the gate, never to return. The small panel at the top represents dead Hope, with a broken lyre lying on the clouds of the setting sun. The poppies on the step at the bottom are intended to symbolise that the Past is asleep."

SCULPTURE: "THE AGE OF INNOCENCE."

THIS charming bust, the title of which explains itself, was exhibited in the Lecture Room at the last Royal Academy exhibition.

The bust, which is life-size and executed in bronze, is now in the possession of Mr. Franklin Thomasson, of Heaton, Bolton.

The illustration is from a photograph specially taken from the plaster model, which brings out the modelling better and avoids a too dark shadow under the chin, which was the drawback to some other published illustrations of the work.

CHURCH OF SAINT MICHAEL AND ALL ANGELS, LITTLE ILFORD.

LITTLE ILFORD is one of those places to the east of London, in the county of Essex, which has of late years grown from a small village with a population of a few hundred to a suburb of London with a population of some thousands. The old parish church will only accommodate a small number of worshippers; a new church is urgently needed, and the clergy have by dint of great effort collected a sufficient sum of money to enable them to undertake the building of the nave and aisles of a new church, which will when complete accommodate about 820 people.

It was an essential condition that the church should cost as little as possible, and also comply with the requirements of the Ecclesiastical Commissioners and of the Incorporated Church Building Society. The estimates for the complete building are under 7,000l. The church has a wide nave and aisles spanned by a single roof; a chancel with a narrow aisle on each side; side chapel on the south; vestries and an organ-transept on the north; and a baptistry and two porches at the west end, which faces the Romford-road.

The church will be lighted by a seven-light west window, and a large three-light window in each bay of the aisles. There will also be a fleche covered with cast lead. This will carry the bells, and a large automatic air-pump will be fixed in it to ventilate the church. The walls are of red brick, the roofs and weatherings of the buttresses will be covered with red tiles. The mullions, and jambs and heads of the windows, and the columns of the internal arcades, are of Bath stone, with red-brick arches and stone springers.

The nave is spanned by a hammerbeam roof framed of fir, and the principal rafters are continued across the aisles, and framed with a tie-beam truss at the back of each column. Internally the walls are plastered, and the benches will be painted.

The portion of the building at present being carried out reaches to and includes the chancel arch. The chancel and vestries and the side chapel will be added as soon as sufficient money has been collected to pay for the work.

Messrs. Cornish & Gaymer, of North Walsham, are carrying out the work, under the superintendence of Mr. Charles Spooner, the architect.

The drawing was exhibited at the last Royal Academy.

DESIGN FOR A MONUMENT TO SEBASTIAN CABOT.

THIS design was made in competition early in the year for a monument to commemorate the voyage of Sebastian Cabot to America, to be placed upon a hill at Bristol, overlooking the River Avon along which Cabot passed to the sea.

The monument, square in plan, was to form the pedestal to a bronze statue of Cabot, about 8 ft. high, and facing westward in the direction of his voyage.

On the four sides of the pedestal were to be placed life-size statues in bronze representing soldiers and seamen in the dress of Cabot's time; the figure of a man-at-arms on the westward face, shading his eye as if scanning the horizon, while that on the eastward side, towards Bristol, represents a seaman carrying a treasure chest ashore. On the four sides of the carved frieze below the principal statue were to be placed shields with the arms of England, Spain, Bristol, and of Cabot himself; while below the four minor figures are panels, three of which are intended to bear bronze bas reliefs illustrating the departure, arrival, and return of Cabot's ship, the fourth being occupied by an inscription. Immediately below these panels were to be four stone benches. The dressed stonework and all external masonry was to be in Portland stone, the steps in Pennant or some hard local stone. The total height of the monument as designed is about 38 ft. The illustration is from the authors' drawing.

BURY PUBLIC DRINKING FOUNTAIN.

THIS fountain is an anonymous gift to the town of Bury, and has been erected near Buckley Wells, on the Manchester road. It provides three horse-troughs and a man's drinking-place on the remaining side, with access to pipe chamber also, while our canine friends are provided for on three sides. The angle ball terminals are placed as "fenders" to keep off the heavy traffic from damaging the work, and are let down well into the concrete foundation.

The work has been executed in the materials described on the drawing by Messrs. Goad, of Plymouth, with spirit and care; the kind of lock-jointing of so much importance in a work like this fits with great precision. Messrs. Perry & Co. executed the central bronze figure which feeds the troughs. The gift was offered to the town through Mr. W. Noar, of Bury.

T. R. KITSELL.

SWILLAND CHURCH.

THIS church, which is dedicated to St. Mary, has recently been partly restored, the main feature being a new top to the tower. The church, consisting of nave and chancel, is a Norman structure, and possesses a very fine south door of that period. The tower is fifteenth century brick, and the upper part had fallen down and had been replaced by an unsightly wooden pyramid roof. This has been taken down, and the present work completed in solid oak framing with herring-bone brick-nogging. The roof is covered with Broseley tiles, and the whole is surmounted by a copper-covered fleche. The work has been carried out by Messrs. Gibbons & English, of Crowfield, under the superintendence of Mr. John S. Corder, of Ipswich.

The church internally has been beautifully decorated with frescoes, and some time ago an elaborate reredos was placed at the east end. All the works and decorations were carried out through the energy of the late Rector, the Rev. R. H. Faulconer.

WAYSIDE NOTES IN EAST ANGLIA:

PARHAM AND SMALLBRIDGE HALLS.

AMONG the many moated halls of Suffolk few can compare in charm of surroundings with the two specimens illustrated here. The situation of each one differs widely from the other, Parham being placed upon a bold eminence, and Smallbridge in the picturesque valley of the River Stour. Yet both have a separate and particular charm, and will well repay a visit.

As I described in a short paragraph in connexion with a sketch of Parham gate-way (see *note*, page 133), the leading points of Parham, I will confine myself to Smallbridge, the residence of a branch of the ancient family of Waldegrave.

The house, originally no doubt on the E plan, but now considerably altered, stands very near to the river, yet notwithstanding this a moat has been dug all round the house, and traverses the intervening space between the house and the river. This moat is crossed by a bold roadway flanked with substantial brick piers where the original gateway hung, and the entrance to the hall was immediately in the rear of the portion shown in the sketch. The house is entirely built of brick, portions being plastered to imitate stone, and the style is Tudor or very early Elizabethan. The virgin Queen stayed there on two occasions, in 1561 and again in 1579; a record of the expenses of the first visit being preserved in the Cottonian MSS. British Museum. On this occasion she made a two days' stay, and the expenses mounted up to £245. 14s. 2d. money of the time.

The family of Waldegrave is said to have flourished at Walgrave, in Northamptonshire, before the Conquest, and derived their name from that place. After the Conquest the Walgraves, or Waldegraves, received a re-grant of their lands from the Conqueror.

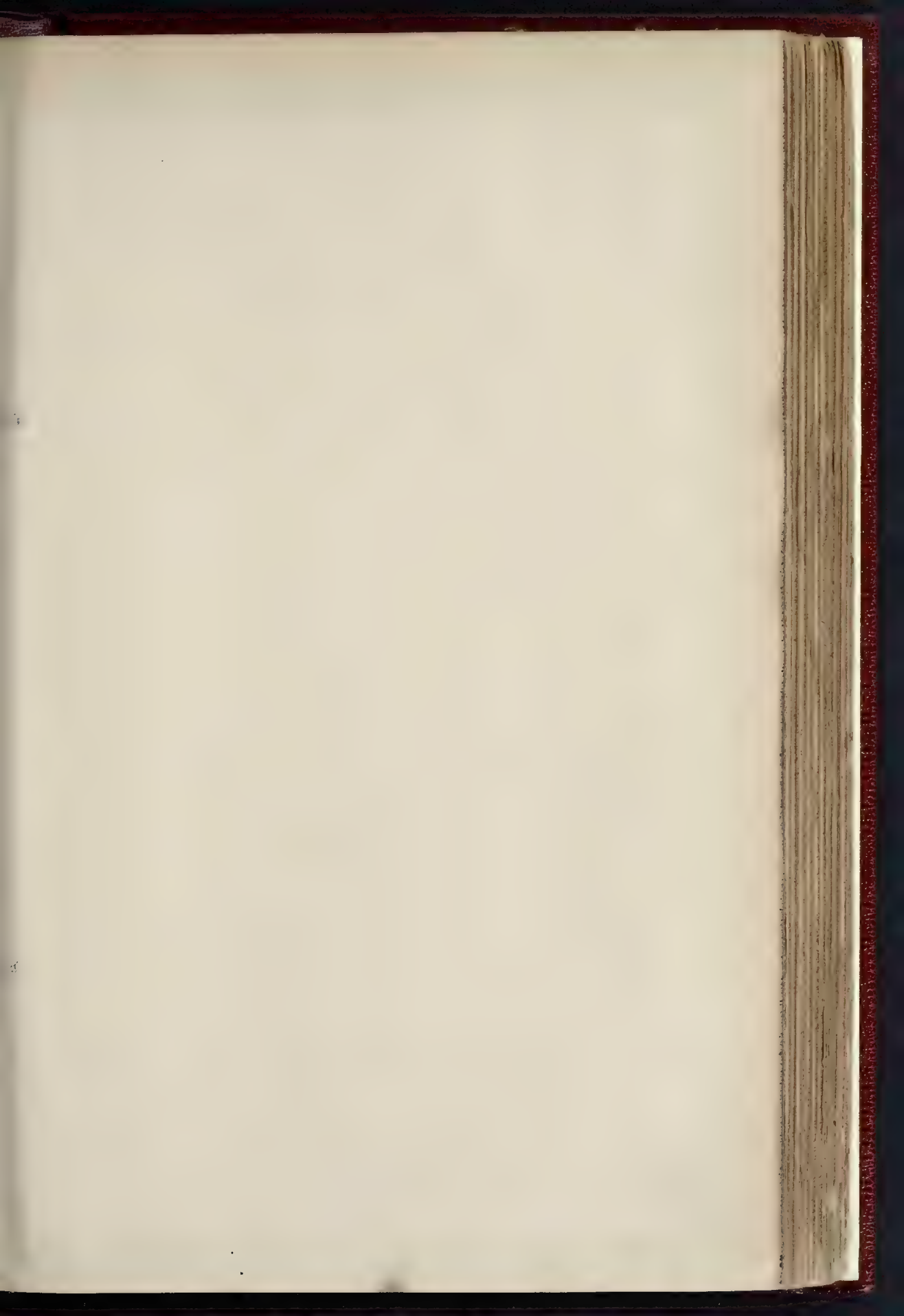
According to Stow, John de Walgrave was Sheriff of London in 1205. He was the direct ancestor of Sir Richard Waldegrave, of Smallbridge, who served as Knight of the Shire in the reigns of Edward III. and Richard II., and was Speaker in the House of Commons in 1381. He married Joan, heiress of the Silvesters, and by this alliance acquired the Lordship of Bures and Silvesters. He died in 1410, and was buried at Bures Church. A descendant of this John was Sir William Waldegrave, who married Elizabeth, daughter of Sir Thomas Midmay, and his arms, dated 1572, may still be seen in a window at Smallbridge Hall, showing by the numerous quarterings that they were allied to many great and noble families.

Many of the rooms are panelled in oak, and a sketch is shown of the fireplace in the state chamber, indicating in the elaborate detail the importance of the apartment. The mansion and estate passed from the possession of the Waldegraves in the eighteenth century, and the house is now turned into a farm dwelling.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL SOCIETY.—The opening meeting of the second half of the session of the Edinburgh Architectural Society was held in Dowell's Rooms on the 6th inst. Mr. J. A. Williamson, the President, gave his opening address, entitled "Architecture of the Victorian Era," in which he sketched in outline the various phases through which architecture had passed during the Queen's reign, bringing the history down to the latest date. The nett result, the lecturer pointed out, of the architectural activity of the last sixty years was that, compared with any former time, there was a greater wealth and variety of models to select from. But at present a stage of architectural licence had been reached in which Gothic and Classic forms and features were blended with surprising ingenuity, which the lecturer considered might defeat its own object, ending in reaction towards more archaic form.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The opening meeting of the session was held at the School of Art on Tuesday evening, the President, Mr. R. W. Fowler, in the chair. The President delivered his opening address. In the course of it he observed that they were desirous of securing a habitation of their own; but, so far, owing to want of funds, that had been impossible to obtain; and following that, the collecting together of a library of professional and scientific works, a commencement with which had already been made. The conditions of competition for School Board work were not at all satisfactory, and the Council appointed a deputation, consisting of Messrs. Hadfield, Gibbs, and Innocent, to discuss the matter with the Board. The result of their interview had been to obtain an increase in the architects' fee from 6s. to 7s. 6d. per head of school accommodation, and some alteration in the conditions. The Corporation made formal recognition of the Society by throwing open to the members of it practising in Sheffield a competition



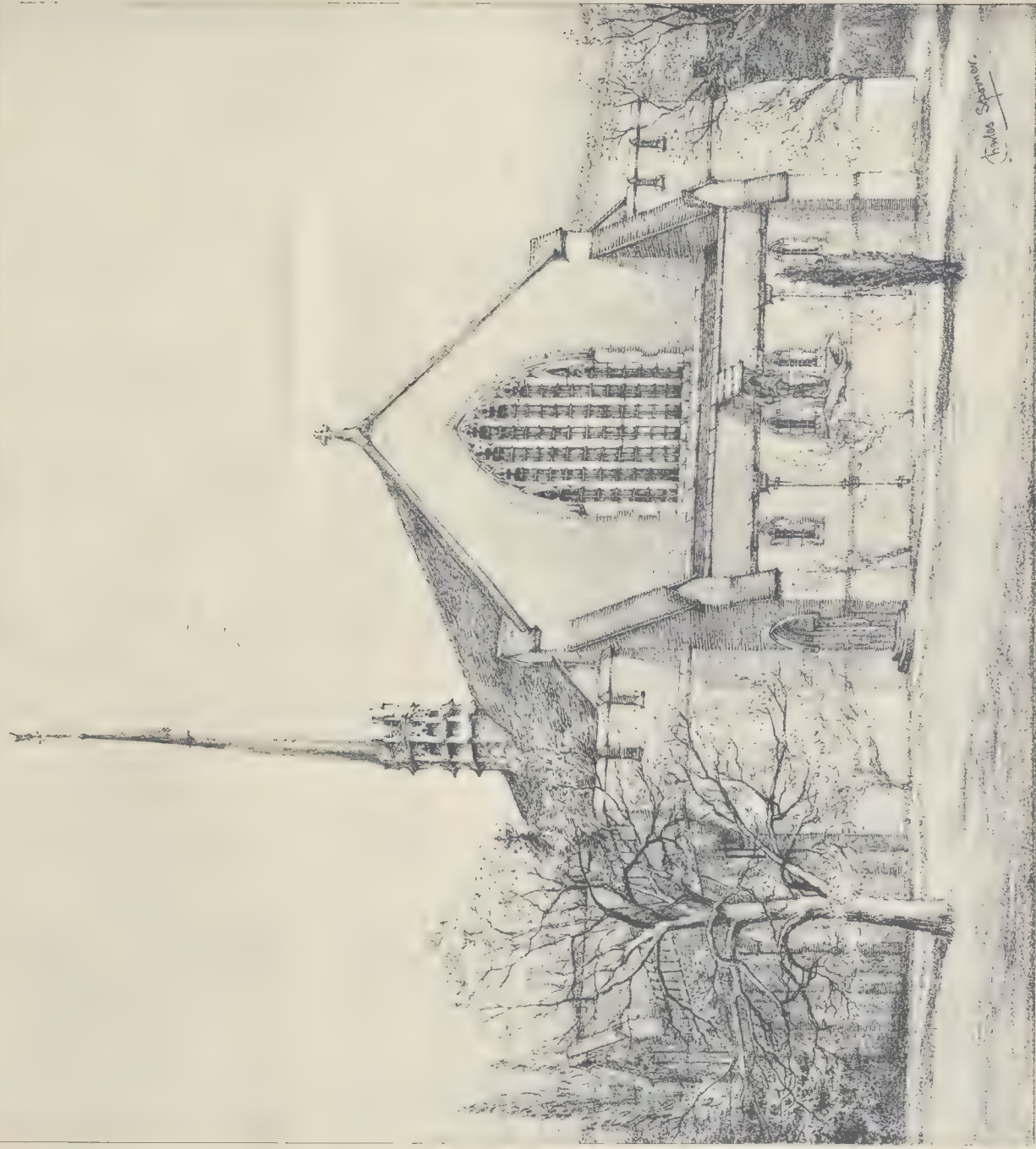
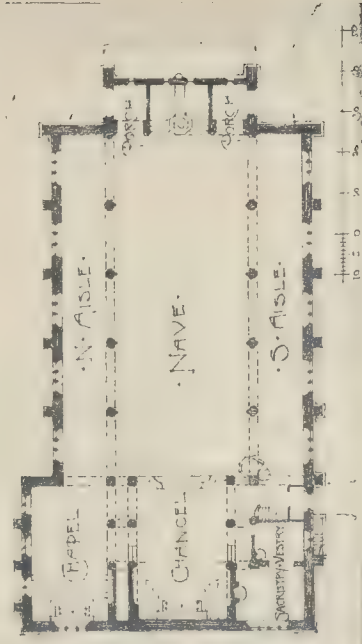


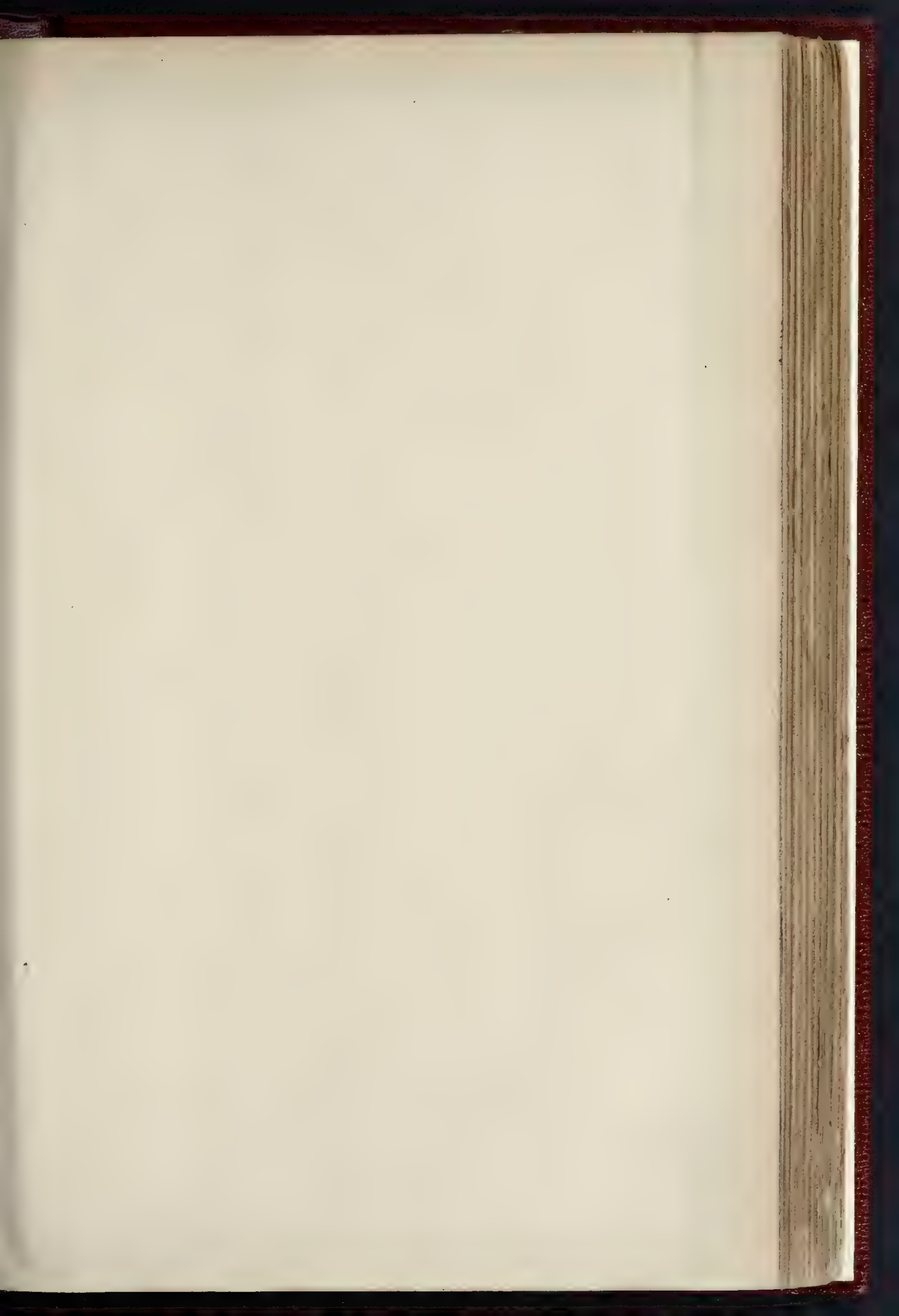
SCULPTURE AT THE GATES OF THE PAST BY MISS ESTHER M. MOORE



SCULPTURE "THE AGE OF INNOCENCE"—BY MR. ALFRED DRURY

CHURCH OF SS. MICHAEL & ALL ANGELS, LITTLE LARD.

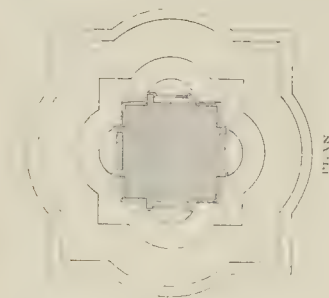


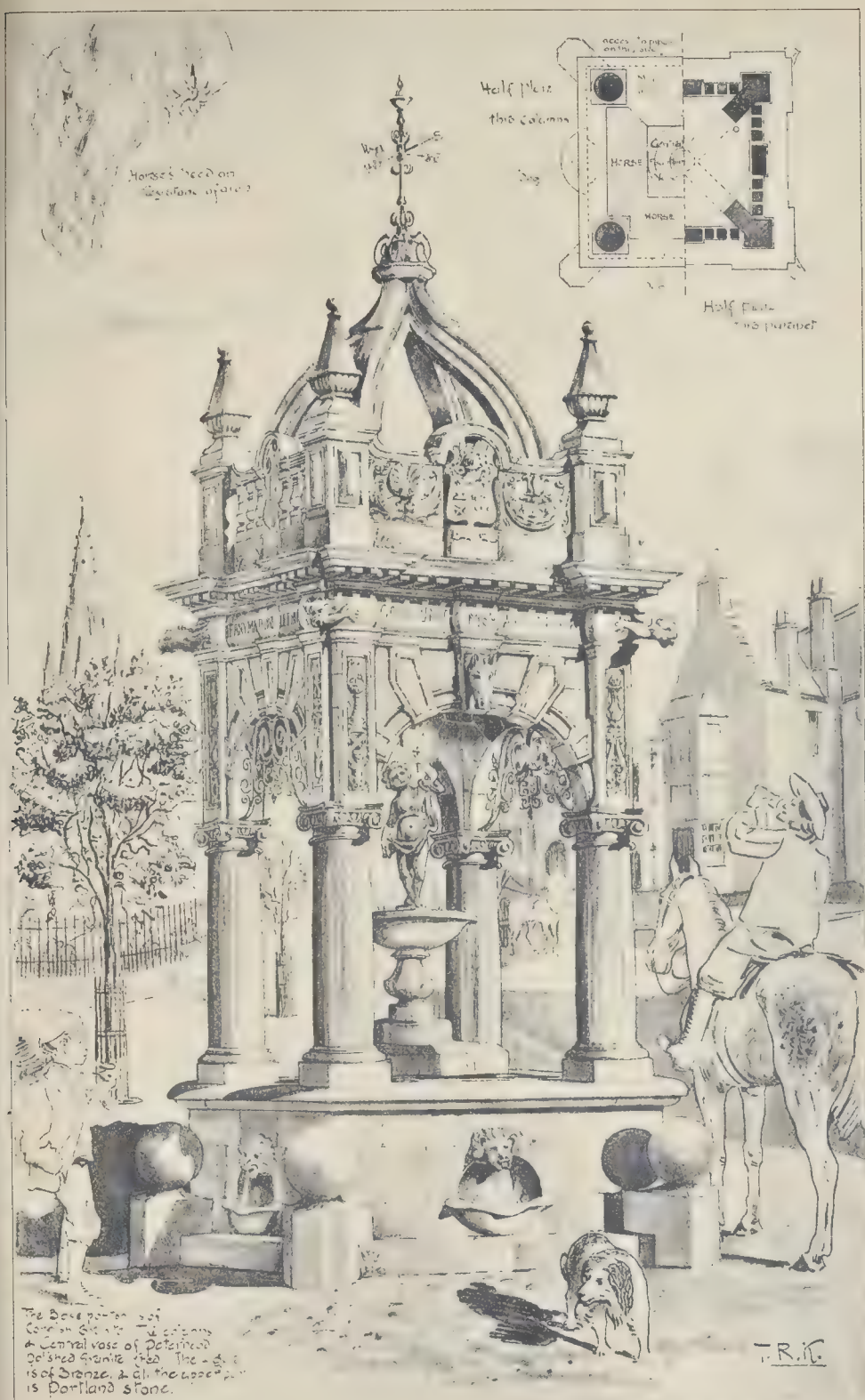


THE BUILDER, OCTOBER 16, 1897.

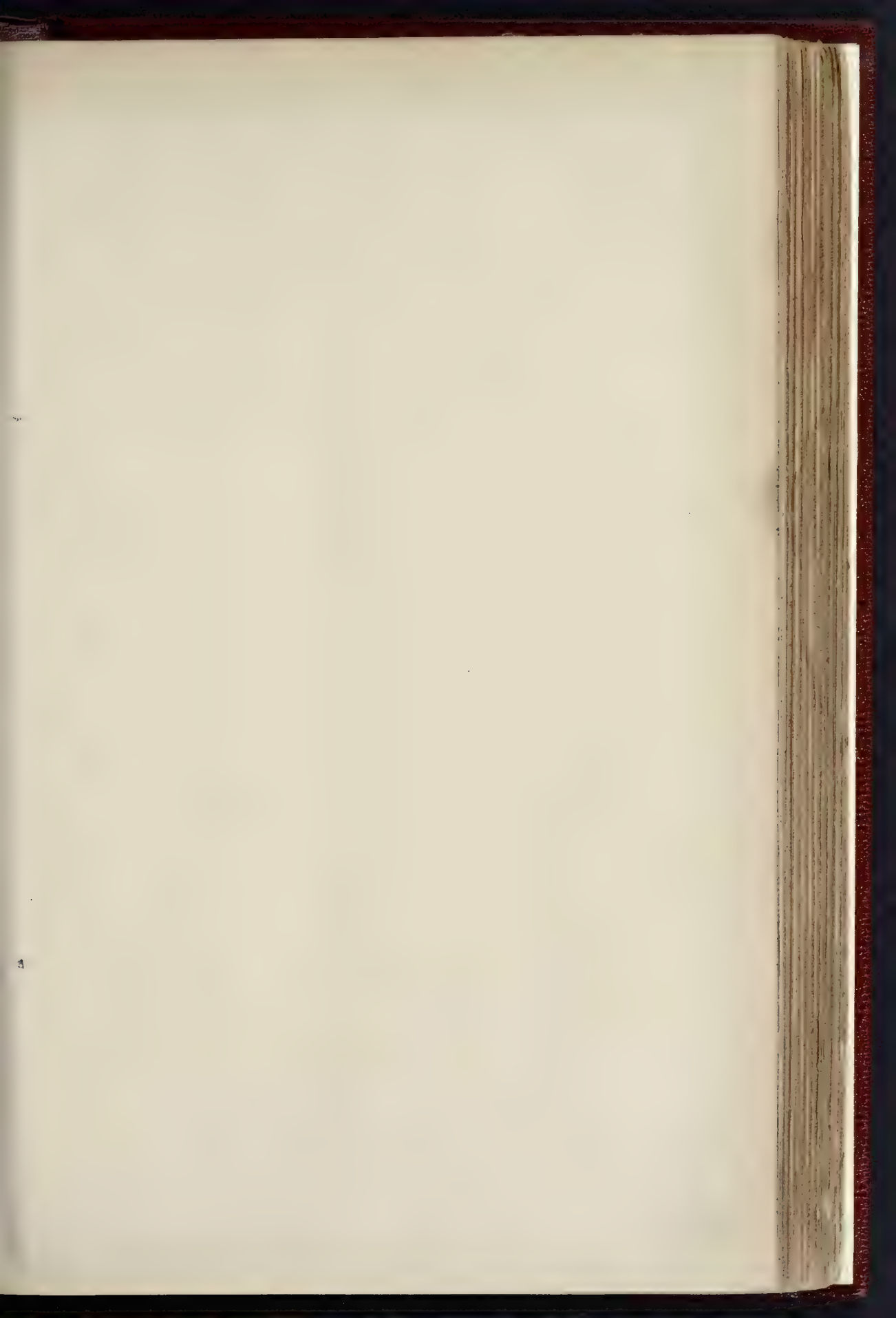
DESIGN FOR CAROT MEMORIAL AT BRISTOL
BY MR E P WARDEN.

Scale of Feet



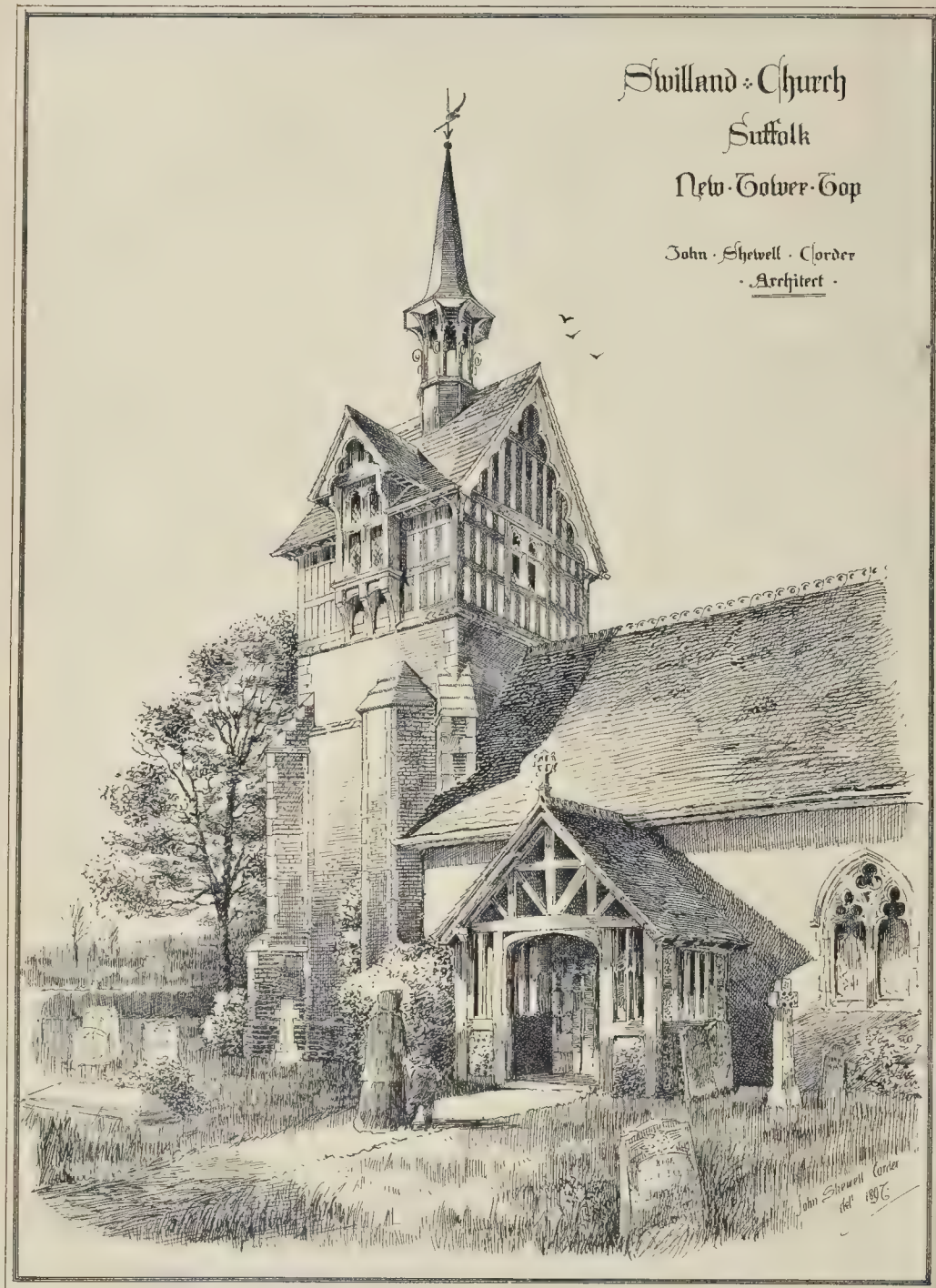


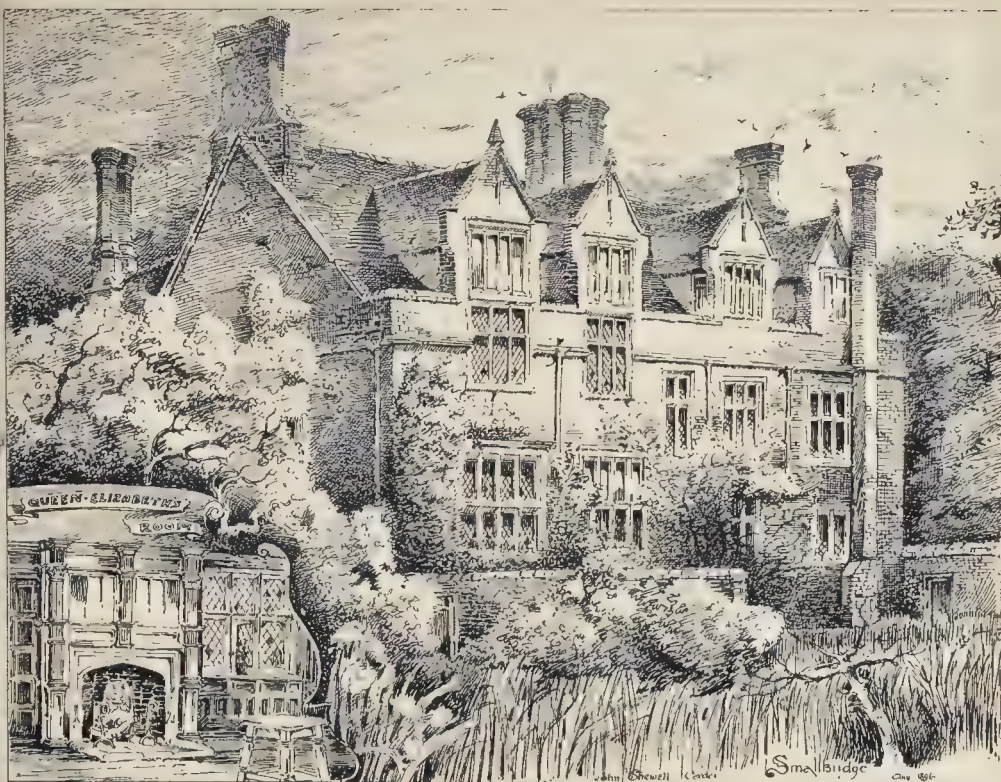
PUBLIC DRINKING FOUNTAIN, BURY, LANCASHIRE—MR T ROGERS KITSELL, A.R.I.B.A., ARCHITECT



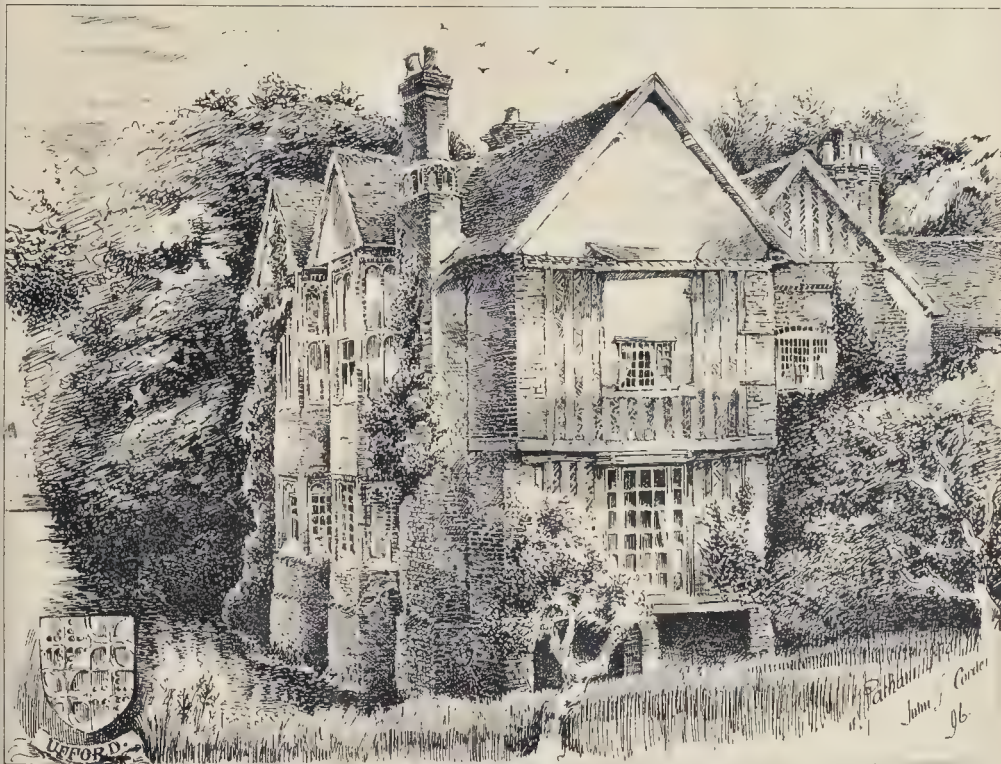
Swilland Church
Suffolk
New-Gotwer-Gop

John Shevell, Clergyman
Architect





SMALLBRIDGE HALL.



PARHAM HALL.

PHOTO LITHO "PAGUE & CO" 485 EAST HARDING STREET FETTER LANE E.C.

for a fire brigade station, and also appointed its officers as assessors, and he pointed out the advantage accruing to the Corporation from throwing open such competitions to their body, instead of employing an architectural staff of their own, whose services could not always be in requisition, and who yet must necessarily be a permanent expense. They thus obtained the talents of practically the whole architectural profession in the neighbourhood, with very beneficial results, not only to themselves, but to the ratepayers at large. He congratulated the Society on the decision of the Wohlfend trustees to throw open to competition amongst the whole of the members of that Society the designs for the erection of a convalescent home and almshouses. For that they were indebted to the good offices of one of the trustees, a member of their Society, Mr. Gibbs. After alluding to the excursions in the past sessions, and the lectures arranged for the forthcoming session, he paid a tribute to the work of the hon. secretary, Mr. C. J. Innocent. He proceeded to observe that the past year had been one of considerable prosperity in the city, in which, judging by the lengths of new roads opened out, and the number of new houses in course of erection, their profession had certainly had its share. Whether this prosperity would continue, or whether the present disastrous strike which was paralysing the engineering industry might retard it, was not wise to prophesy.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, the Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Battersea Vestry 8,321. towards paying the cost of widening Battersea Park-road; the Bermondsey Vestry 1,100. towards the cost of acquiring Guy's burial ground; the Hackney Vestry 37,100. for wood-paving works; the Newington Vestry 2,500. towards the cost of acquiring a site in East-street, Walworth, as a recreation ground, and 1,800. towards the cost of constructing an underground convenience; the Rotherhithe Vestry 6,000. for the adaptation of Bull Head Dock and Victoria Oil Mills as a wharf, and the erection of a dust-destructor; the Vestry of St. George's (East) 2,500. for the construction of a sewer in Watney-street; the Shoreditch Vestry 4,550. for the purchase of the site of the old fire station for use as additional Vestry offices; the Strand District Board 3,580. for an improvement in Portugal-street, Clare Market; the Holborn Union 1,200. for the erection and furnishing of epileptic wards; and the School Board for London 200,000. for the erection of new schools.

The New Chemist.—The General Purposes Committee recommended the Council to appoint Dr. F. Clowes, D.Sc., as Chemist, in the place of Mr. Dibdin, at 700l. a year. This was agreed to without discussion.

Olympia.—The Theatres and Music Halls Committee brought up a report containing the following paragraph:—

"We have considered five drawings, dated September 22, 1897, showing certain alterations which it is proposed to carry out at Olympia, Kensington, in connexion with Messrs. Barnum & Bailey's Show, which is to occupy these premises. The arrangements shown are, we consider, objectionable, as the division between the stage and the auditorium is unsatisfactory. The arrangements in connexion with the stabling are also unsatisfactory. We recommend:—That the five drawings, dated September 22, 1897, be not approved."

Major Probyn said he believed that if the Council adopted the recommendation it would prejudice the application. He moved to refer the paragraph back.

Mr. Bull seconded.
Mr. Roberts said he was sorry he could not take the report back. It would be most unfortunate to do so. It did not prejudice any further application in the least. The plans now submitted were such that they could not pass them. They disclosed a stage in the auditorium, a proscenium open 250 ft., with no fire-proof separation or wall, and the stage conditions were such as they had never before passed. It was also proposed to put up a stage in a stable with over 300 horses in it. The whole scheme was so novel, and seemed to the Committee so objectionable, that it ought to be emphatically rejected by the Council. There were many matters of construction

allowed in America which could not be permitted to come into this country. He hoped the Council would refuse the application as it stood. The Committee would be very glad to consider any fresh plans that might be sent in.

Mr. W. Emden supported the Committee's recommendation.

Mr. Lawson said time was the essence of the question, and therefore it was important that the Committee's decision as to what they required should be immediately communicated to the promoters, so that they might have an opportunity of doing the necessary work in time to enable them to keep faith with the public in regard to the opening of this enormous show.

The amendment was rejected, and the Committee's recommendation was adopted.

Proposed New Theatre, Charing Cross-road.—The same Committee brought up the following paragraph, the recommendations being agreed to:—

"We have considered six drawings, dated September 24, 1897, showing a theatre which it is proposed to erect for Mr. Charles Wyndham in the Charing Cross-road and St. Martin's-court. The site abuts on Charing Cross-road on one side, and on St. Martin's-court on the other three sides. St. Martin's-court on the south side will be widened to 20 ft. throughout its entire length to St. Martin's-lane, and the site will therefore comply with the regulations. The theatre will accommodate 829 persons, and the exit and other arrangements are satisfactory. We therefore recommend:—That the six drawings, dated September 24, 1897, be approved on the following conditions: 1. That the skew steps from the dress circle to the saloon and from the balcony to the exit staircase be arranged at right angles to the walls. 2. That the works be commenced within six months, and be completed in accordance with the Council's regulations and the provisions of the London Building Act, 1894; and that upon our reporting the completion of the building in accordance with the approved drawings and the above conditions, a certificate under the Metropolitan Management and Building Acts Amendment Act, 1878, be sealed and issued to the owner of the premises."

Sanitary and Drainage Work at Fire Stations.—The Fire Brigade Committee reported as follows:—

"The Council on December 22, 1896, and February 9, 1897, decided that some sanitary work required throughout the chief station, and the reconstruction of the drainage system of the Kentish Town station should be executed without the intervention of a contractor, and referred the specifications, quantities, and estimates to the Works Committee with a view to the Works Department doing the work in the event of the Works Committee being satisfied with the sufficiency of the architect's estimates of 665l. and 455l. The manager has now reported to us under the standing order passed on July 20, 1897, that he is satisfied with the estimates, and that he is taking the necessary steps to commence the work at the Kentish Town station, and that the work at the chief station is well in hand."

Mr. Westcott asked why there had been so much delay in the matter.

Mr. Corbett said that Mr. Westcott had overlooked certain words in the report. The work was referred to the Works Committee, which sufficiently explained the delay.

Mr. Westcott asked when the work was referred to the Committee.

Colonel Rotton, Chairman of the Committee, said he would make inquiries into the matter.

Fire Station at Lewisham.—As only one tender—that of Messrs. F. & M. Patrick—was received for the erection of a new fire-engine station at Lewisham, and that considerably in excess of the estimate, the Committee recommended the Council not to entertain the tender.

Mr. Lyon asked how much the tender was in excess of the Architect's estimate.

Colonel Rotton said that they were advised by the Architect that, as only one tender had been sent in, it would be better to send it back unopened; but the Committee were of a different opinion. He thought it was undesirable to state the amount of the tender.

Mr. Hoare moved, as an amendment, that the paragraph be referred back to the Committee, with instructions to state the amount by which the tender exceeded the Architect's estimate.

Mr. R. Spokes seconded.

Mr. Ward said he could not understand why the amount of a tender should not be made public when it exceeded the Architect's estimate.

Mr. J. Burns, M.P., said he could see no reason why the amount should not be stated. The Architect's estimate was 12,000l., and Messrs. Patrick's tendered at 14,200l. The Architect was really asking permission to take back the plans and water them down to the

12,000l. estimate. Builders were under the impression that so many members of the Council were opposed to the Council doing its own work, that they need not tender as they would in the ordinary course of events.

Mr. Bicker-Caarten said that Mr. Burns knew nothing about the matter. The new Chief of the Fire Brigade was considering the question of the protection of London buildings from fire, and it was thought desirable, when only one tender was received, which was so much in excess of the Architect's estimate, to send the plans back in order to have alterations made in accordance with the views of the new Chief Officer. The speaker also referred to the Council's conditions of contract, which, he said, prevented many of the best London firms from tendering for the Council's work.

Mr. W. Emden said that that was undoubtedly true. There was also such a feeling of uncertainty amongst the builders as to what was going to happen that they did not care about undertaking the Council's work. While the conditions of contract remained as they now are, it was little good inviting the best builders to tender for the Council's work.

On a division 50 voted for the amendment and 55 against.

Typhoid and the Water Supply.—Mr. Cornwall moved: "That it be referred to the Public Health and Water Committees to inquire and report whether the causes which have led to the typhoid fever epidemic in Maidstone have any parallel in the conditions of the London water supply, and what steps, if any, should be taken to prevent the propagation of the disease in London." He said that the example of Maidstone ought to ensure an immediate inquiry by the Council into the state of London's drinking water. He did not dispute that the water was day by day fit to drink, but it was quite apparent that London was in constant danger from pollutions of the rivers.

Mr. Idris, in seconding the motion, said, as a member of the Thames Conservancy Board, he knew that both the Thames and the Lea were being constantly polluted. As an instance, he quoted the case of Hertford. A foul ditch there had for a long time been running into the water of the East London Company, and the only way the company could stop it was by buying up the right of the Local Authorities to use this ditch. Another source of pollution was at Maidenhead, the Thames Conservancy inspector having reported that the condition of the water there from sewage pollution was very unsatisfactory. He described the pollution as of long standing. It was difficult to get the Conservators to take proper action because the River Purification Committee of that body consisted very largely of people interested in the land in the Thames Valley, and who thought it unjust that they should be compelled to purify at their own cost the effluents in order to provide drinking water for London. With regard to the pollution of the rivers by barges, it was a fact that the refuse of London was constantly being taken up and down in the most leaky and rotten barges to be obtained. The water which found its way into them was constantly being pumped out into the river. That was a great source of danger which merited earnest consideration.

Dr. Forman said the Public Control Committee had been watching the course of the epidemic at Maidstone, but had noticed no rise in typhoid cases in London.

Dr. Longstaff denied that there was any parallel between Maidstone and London. There was less danger of an epidemic in London from Thames water than there would be if the water supply were wholly dependent upon a conduit from Wales.

Mr. Boulnois, M.P., on behalf of the water companies, welcomed any inquiry, feeling sure that the companies would come out of it as well as they had of previous inquiries, and that the report would go to further assure the people that the water supply was a pure one.

Mr. Ward said it was generally supposed that sewage farms kept the sewage out of the rivers, but in times of flood all the sewage farms in the world would not keep crude sewage out. There were not keep crude sewage out. There were not keep crude sewage out. There were not keep crude sewage out. It was very clear that cholera and typhoid germs must sometimes go direct into the river, and the wonder to him was that with all this pollution London had kept so free from disease.

The motion was then agreed to, and the Council soon after adjourned.

Correspondence.

To the Editor of THE BUILDER.

ASSUMPTION OF THE INITIALS
"F.S.A."

SIR,—I have just had placed in my hands a copy at the list of officers and members of the Institute of Architects and Surveyors for 1897. The President is therein stated to be "J. Herbert Wilkinson, Esq., F.S.A., F.R.S.S." and the auditor to be "E. J. Farries, Esq., F.S.A., F.S.A.A." I do not know what "F.R.S.S." or "F.S.A.A." may mean, but will you please permit me to state that the name of neither Mr. J. Herbert Wilkinson nor Mr. E. J. Farries appears in the list of Fellows of the Society of Antiquaries?

W. H. ST. JOHN HOPE.

Soc. Antiq., Lond.,
Burlington House, Piccadilly, W.

SHEFFIELD ARCHITECTURE.

SIR,—In your description of Sheffield architecture in this week's *Builder* you refer to the late T. J. Flockton. We are pleased to say that Mr. Flockton is still taking an active part in his profession.

Mr. A. H. Holland's premises, No. 9, Fargate, should have been described as by Flockton & Gibbs and Alwyn H. Holland, joint architects.

We shall be obliged if you will kindly make these two corrections.

FLOCKTON, GIBBS, & FLOCKTON.

THE OPEN CHANNEL IN SANITARY
DRAINAGE.

SIR,—I beg to agree with all that Mr. Gritton states in his letter, published in last week's issue of the *Builder*, respecting the nuisance caused by the fouling of open channels when fixed beneath scullery sink wastes, in districts where certain sanitary by-laws are in operation. I also wish to state the difficulty found in practice of dealing with the grease discharged from scullery sinks of small private houses, where the expense of a flushing-rim grease-gully and tank are out of the question. In houses of the above description it is generally found that the ordinary gully provided is choked with grease and very foul, as the domestic will not trouble to raise and cleanse the small iron bucket which, to some extent, intercepts the grease; hence an accumulation of the latter takes place. Also, in the case where a small circular gully is provided, there is not always a sufficient flush of water from the sink waste to cleanse the gully.

It seems a pity that some means cannot be devised to make use of the grease discharged from scullery sinks, instead of allowing it to enter the drain and become a nuisance. If it could be collected in a satisfactory manner, it might be turned to account and prove useful in helping to light the kitchen fire on a dull day; or else, if clarified, might be used as a cart grease.

A. S.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XIII.—MODES OF MEASUREMENT.

Zinc and Copper Work. Hot-water Work, &c.
Zinc Work.

THE various thicknesses of zinc are denominated by "numbers," such as "12 gauge," "14 gauge," &c., but the matter is somewhat complicated by the fact that there are two distinct systems of numbering, the "English" and the "Vieille Montagne Zinc Company's." Zinc manufactured by the last mentioned company being generally considered the material for good work. It follows then that besides the number of the gauge the particular system of numbering must also be stated. In the event of "No. gauge Vieille Montagne zinc" being described, it will follow that the gauge is that of the "V.M. Company."

Another point to be mentioned—and this is the difference between the best and inferior work—is as to whether the work is to be executed "without solder." This allows for the expansion and contraction of the sheets, and thus prolongs the life of the work.

Zinc being made in sheets about 2 ft. to in. by 8 ft., the rolls are usually taken at about 2 ft. 8 in. centres, and the drips 7 ft. 6 in. apart, it being thus possible to get each bay out of one sheet without joints. The rule as to drips also follows in the gutters.

Flats, per foot superficial, stating the "gauge." It was formerly the practice to measure zinc work in the same manner as lead work, but owing doubtless to the fact that more attention has been given of late years to the laying of

the former material, by which the work is of a much higher class than formerly, the following is the system usually adopted—Measure the full width of the flat and, after allowing for "turn ups" next walls, add the *extra* for turn ups next rolls; the length being measured as for lead work, but the allowances for drips being more numerous on account of their being a less distance apart.

The cappings to rolls are measured at *per foot run*, stating the girth of the zinc and including the clips.

The ends to rolls are numbered as "capped ends," and "saddle pieces," as are also mitres, stating if "solid," i.e., out of one piece of zinc without solder, or "soldered," as the case may be.

Whereas, in lead work it is usual to bill gutters, flats, and flashings together, in zinc work each item is kept separate.

Gutters, per foot superficial, stating the gauge, measure generally as described for lead.

Flashings, per foot run.—Stating the gauge and the width, and if "stepped." The bottom edge of zinc flashings are frequently "beaded" for strength. If this is so, mention with the description of the item.

Soakers.—Number these, stating gauge and size. Zinc is frequently used instead of lead for these on account of the lesser thickness of the former material, thus working in between the slates and tiles without the tilting caused by the greater thickness of the lead.

Rain-pipes, per foot run, stating gauge and diameter and the description of joints—"beaded" or otherwise—and how fixed. Number shoes, knees over plinths, &c.

Eaves gutters, per foot run, stating gauge, shape and size, and how fixed; whether screwed through to fascia or fixed with iron brackets; in the latter case give description of brackets and the distance apart. Number ends, outlets, angles, &c., as described to iron gutters.

Coverings to Cornices, &c., per foot run, generally; stating the gauge and the girth of moulding, numbering the angles, &c.

Labours, &c., per foot run.—Weld, double weld, zinc nailing, &c. Number extra labour to cesspools, also labour and materials to finials, rain-water heads, &c., giving sizes and full descriptions.

Copper Work.

The system of measuring zinc work applies also generally to copper work, with this exception, that whereas the thickness of zinc is distinguished by "gauges," that of copper is by the number of ounces per foot superficial, as "14 oz.," "16 oz.," &c.

Hot Water Work.

Tubes, per foot run.—State diameter, the full description of tubes, whether "wrought iron welded," "steam," and if galvanised, and state that the item includes short pieces. Number bends, elbows, springs, tees, connectors, nipples, &c. Note that it is advisable to take "disconnecting pieces" and long screws in long lengths of pipes to enable the work to be disconnected for repairs in the case of stoppage, &c.

Cylinders, Tanks, &c.—Number these, stating whether copper or galvanised iron, with the thickness and also the capacity. They are frequently described as "tested up to lbs. per square inch." Number the connections between pipes and cylinders and tanks and boiler, including the holes and the back nuts.

Valves, &c.—Note that these must be screwed for iron, and if no p.c. or l.p. is given, give full description and state that they are for "hot water." If baths or lavatories come fitted complete with valves, &c., take an item of "connecting hot-water pipe to bath valves, &c.," as the case may be.

At the end of the "Hot Water Work" in bill, take an item of "testing the hot water system," frequently described "at lbs. pressure."

Gas-fitter.

The gas-fitting is frequently put in as a "provisional sum," but as it has sometimes to be measured, a few notes as to the system employed will be useful.

Tubing, per foot run, stating diameter, and whether "composition" or "wrought iron." If the latter, it is usual to include all bends, elbows, tees, short pieces, &c., stating this in the item. Where it is proposed to put in only the pipes, take "nipples" at the different "points" to stop off.

The Gas Company usually lay on the gas up

to the meter without charge. If the meter is supplied by the contractor, number this, describing the number of lights, and whether "wet" or "dry." If the meter is supplied by the company at a rental, take an item of "fixing only meter," including with it the length of lead pipe connecting the meter with the main.

If a small meter, take a wood bracket for same. Fittings are usually given at a p.c. or l.p., and if given as a lump sum, take an item of "number, of fixing 'wall brackets,' 'one (two or three) light pendants,' as the case may be.

Number blocks for brackets.

Take an item of "attendance" on gas-fitting to "No. points," including with this holes through floors and walls, and fixing floor boards with screws for removal.

At the end of the gas-fitter's bill take an item of "Allow for testing gas services with gas-bag."

Bell-fitter.

Bell-fitting is also frequently put in at a "provisional sum," but if to be billed in detail the following system may be adopted:—

In the case of *Swing Bells*, number these, stating the weight to each, and whether pendulums are included, and take the wires as *numbers*, also including brackets, &c., and describing the wire, i.e., material, B.W.G. &c., and stating if in tubes, and the material, and if bedded in plaster. Bill these as "No. pull from 'to ring bell in,' and so on. This, of course, necessitates reference to the drawings, but a glance at the drawings will give a bell-fitter a better idea of the extent of the work than any measurement.

Number pulls (at p.c. or l.p.), also bell-boards (stating for No. bells).

In the case of *Electric bells* somewhat the same system can be adopted, but frequently one bell or gong answers for a number of points, in this case an "indicator" is required. Number this, stating for how many bells, and also the description of bell or gong. Describe the wires by B.W.G., and the covering of same. Number pulls as described for swing bells.

Take an item of attendance on "No. bells."

Speaking Tubes.

These are generally put in the bill as a "provisional sum," but if to be measured, the following system may be adopted:—

Tubing, per foot run.—State diameter and material and the weight per foot or per yard run, including the bends. Number the brass bends or elbows at ends, and also the mouth-pieces (the latter at a p.c. or l.p.).

Take the cutting away and making good for the in detail, numbering holes through walls and floors and making good the plastering around.

Electric Lighting.

As this item is so much a question of quality of material, it is usual to obtain a price for this from some reliable fitter. Take, however, an item of attendance to "No. points."

SURVEYORSHIPS.

SURVEYORSHIP, FLEETWOOD.—Mr. Robert T. Hayes, A.M.I.C.E., the chief Assistant Borough Engineer and Surveyor to the Corporation of Rawtenstall, was on Thursday last week appointed Surveyor to the Fleetwood Urban District Council. There were seventy-five applications for the position.

SURVEYORSHIP, SHERINGHAM.—At a meeting of the Erpingham Rural District Council, held on the 11th inst. Mr. Charles D. Watts, of the firm of Watts & Carter, architects and surveyors, of Sheringham and Cromer, was appointed Surveyor to this Council. It was at first proposed to include Mundesley and Overstrand, but it was ultimately decided to consider this addition to the surveyorship later.

GENERAL BUILDING NEWS.

JUBILEE MEMORIAL CHAPEL, GIGGESWICK SCHOOL, YORKSHIRE.—The memorial stone has just been laid of a new chapel, which is the gift of Mr. Walter Morrison, M.P., to Giggeswick School, in commemoration of the sixtieth year of her Majesty's reign. The plan consists of a Latin cross, with a dome over the crossing, surrounded at the four angles by turrets, which are crowned by small cupolas. The choir is placed under the dome, and the shallow transepts contain each a gallery, that in the north transept being intended for the organ. The school will occupy the nave, which is lit by a lofty clearstory, and has a narrow and low aisle on each side for access to the pews. The materials will be chiefly the local stone of various kinds, including a black limestone, which

will be used in bands with the lighter coloured masonry. The dome will be surmounted by a stone lantern and a cross of solid metal, resembling those on Oriental churches. The principal dimensions are:—Length, 10 ft.; breadth of transept, 54 ft.; of nave, 46 ft.; height of dome above the floor of nave, 85 ft.; and above the vestry floor, 92 ft. The plan shows seats for 344, with a good deal of free space. The architect is Mr. T. G. Jackson, R.A., and the work is being carried out by the Lord Mayor. The contractor, by Mr. Evans, his clerk of works. The chapel will be heated with hot air by Messrs. Haden, of Trowbridge.—*Bristol Observer.*

HOMES FOR AGED POOR, SHEFFIELD.—The Homes for the Aged Poor, erected by the Sheffield Guardians in connexion with the scheme for the classification of paupers, were opened on the 7th inst. by the Lord Mayor. The building fronts to Smelter-lane. At present only eight of the "homes" have been built, with room for extension to 24. In the centre is the administration block, and on each side there are four domiciles. They are for married couples, and vary somewhat in design from those intended to be built for other single men or two single women. At present, they are married people's homes. Baths are provided, and among other arrangements for the comfort of the inmates there is a large club-room, in which they can all meet together. The ground has been laid out with a walk and terrace in front of the row, and flower beds and grass plots, with seats. The central block includes bedrooms and stores-room for administrative purposes. All the apartments to be used by the aged couples are now on the ground floor, and there is also provided a long ambulatory for walking exercise in wet weather. Mr. George Carr was the contractor for the buildings; and Mr. S. H. Utley fitted the baths and did all the plumbing; Mr. C. J. Innocent is the architect.

CO-OPERATIVE STORE, SCOTSWOOD, NEAR NEWCASTLE.—The Blaydon Co-operative Society recently opened a new store at Scotswood. The buildings comprise business premises, reading and recreation rooms, and lecture hall, and have been designed by Mr. Glover, of Newcastle, and built by Messrs. Mason, Dawson, & Bolam, of Blaydon, at a cost of about 4,000l.

BUSINESS PREMISES, THE HAVES, CARDIFF.—New premises for Messrs. David Rees & Co., Ltd., have been erected on the site of the old Haves market. The architects of the building were Messrs. Jones, Richards, & Budgen, and the contractors and fitters were Messrs. W. Thomas & Co.

TECHNICAL SCHOOLS, LLANERNIS.—The estimate of Messrs. Thorp & Son, contractors, Llandudno, amounting to 2,700l., has been accepted for the erection of new technical schools, the plans being prepared by Mr. R. G. Thomas, architect, & Co., Menai Bridge.

GOLF HOUSE, BATHGATE, LINLITHGOW.—The new golf house erected by the Bathgate Golf Club was opened recently. The building was designed by Mr. J. Russell, architect, Bathgate, and was carried out under his superintendence. The contractors for the various branches of the work were as follows:—Mason work, Wm. Roberts & Sons; joiner work, John Hamilton; plaster work, James Easton; plumber work, John Marr; painting work, Peter Stewart.

ADDITIONS, &c., BERWICK INFIRMARY.—Various works of improvement have been carried out at this building, formerly known as the Berwick Dispensary, and situated in the Millers' archway, Hide Hill. The contractors were:—Mason, Mr. J. Russell, Berwick; plasterer, Messrs. James Turner & Sons, Horncastle; joiner, Mr. John Ord, Berwick; plumber, Mr. George Macadam, Berwick; and heating, Messrs. Emley & Sons, Limited, Newcastle.

CATHEDRAL, LOUGHREA.—The foundation stone of the new cathedral at Loughrea, Ireland, was laid on the 10th inst. The architect of the new building is Mr. Byrne, of Dublin.

BIBLE CHRISTIAN CHURCH, BRIGHTON.—On the 7th inst. the foundation stones were laid of a new church for the Bible Christians of Brighton. The building is situated in Stanford-avenue. Mr. E. J. Hyslop is the architect. The church will consist of a central nave with two transepts and an apse for the accommodation of the organ and choir. It will seat 400. Below will be the main schoolroom, and a large class-room for infants, and five other class-rooms, four of which are to be divided from the schoolroom by swivel partitions. There will also be minister's and stewards' vestries. It is proposed to light the building by electricity. The entire outlay will be about 5,000l.

CHAPEL, LEWES GRAMMAR SCHOOL.—The Lord Bishop of the Diocese (Dr. Wilberforce) dedicated recently a new chapel which has been built at the Lewes Grammar School. The chapel is constructed on brick piers, and is of corrugated iron outside. The building has been designed by Messrs. Powell & Co.

METHODIST CHURCH, ST. ALBANS.—The foundation stones of a new Methodist Church have just been laid in the Marlborough-road, St. Albans. Mr. J. Gunton (Messrs. Gordon, Lowther, & Gunton, London) is the architect, and Mr. Dunham is the builder.

ALTERATIONS, EAST FIFE CHURCH, PETERHEAD.—Alterations to East Fife Church have just been completed, the architects engaged in the work being

Messrs. D. & J. R. McMillan, Aberdeen. The contractors were:—Mason work, W. Hadden; joiner work, J. B. Dickie; slater work, W. Simpson; plumber work, John Ferguson; painting and decorative work, George Cran—all of Peterhead; glazier work, Edward Copland, Aberdeen.

RESTORATION OF NEWBURN CHURCH, NORTH-UMBERLAND.—The restoration and renovation of this building has been carried out during the summer, and the work has just been completed. The carved woodwork in the interior was executed by Mr. Ralph Hedley, Newcastle, the marble by Messrs. Beall, of the same city, and the carved stone figures by Messrs. Milburn, of York, the marble floors by Messrs. Emley, Newcastle, and the paintings by Messrs. Bacon Bros., of London, while the whole of the artistic work has been supervised and directed by Messrs. Hicks & Charlewood, Newcastle.

CHURCH, STECHFORD, WORCESTER.—The foundation stone of the new church of All Saints, Stechford, was laid on the 4th inst. by the Viscountess Newport. The new church will take the place of an iron building. The church will consist of a nave, north and south aisles, baptistry, chancel, chancel aisle, and vestry. The nave, including the baptistry, will be 87 ft. long and 20 ft. 2 in. wide, the aisles to be 37 ft. and the chancel 30 ft. by 10 ft. The total length of the church will be 117 ft. 3 in., and the width across the body of the church 44 ft. 8 in. The church when completed will accommodate 504 adults. The eastern portion of the church and three bays of the nave are to be erected first. The west end, with tower and spire, will be erected as soon as funds will permit. The exterior will be of brick with terra-cotta dressings, the interior of brick with Bath stone dressings. Messrs. Collins & Godfrey, of Tewkesbury, are the contractors, and Mr. J. A. Chatwin, of Birmingham, is the architect.

PRESBYTERIAN CHURCH, BELFAST.—The memorial stones in connexion with Donegall-road Presbyterian Church, Belfast, were laid on the 2nd inst. The frontage occupies about 140 ft., and the building will seat about 600 on the ground floor and 440 in the galleries. At the rear of the church will be found session and minister's rooms and a heating chamber, which will form a part of an extensive suite of buildings to be erected afterwards. Mr. Robert Corry is the contractor for the works. The architects are Messrs. Young & Mackenzie.

LIBERAL CLUB, HALIFAX.—The new premises erected by the Claremont Liberal Club, Halifax, were opened on the 2nd inst. The designs were prepared by Mr. J. F. Walsh, architect, Halifax. Northdown stone, pitch faced, has been used throughout. In the basement there is a cellar, with boiler for the heating apparatus, and from here a lift is provided, which extends to the rooms above. On the first floor is the assembly room capable of accommodating from three to four hundred persons. There is also a billiard-room on the same floor. There are also reading-rooms and card-rooms. On the walls in the passages and staircases is a rather deep dado formed by the insertion of glazed bricks in buff, brown, and blue. The contractors to whom the work has been intrusted are: Messrs. Messrs. Ephraim Balmforth & Sons; joiners, Messrs. W. Ratcliffe & Sons; plasterers and slaters, Messrs. Bancroft & Sons; plumbers and heating apparatus, Messrs. J. Naylor & Sons; wood block flooring, concreting, and mosaic work, Messrs. G. Greenwood & Sons; painting and decorating, Messrs. Hinchcliffe & Hainsworth; and ironwork, Mr. Mackrell, Elland.

NEW TECHNICAL SCHOOL, HANDSWORTH.—The new technical school at Handsworth has just been opened by Mr. J. H. Pearson, Chairman of the Technical Instruction Committee. The site of the new building has a frontage of 120 ft. to Golds Hill-road, and of 200 ft. to Safford-road. The builder's contract amounts to 10,147l. The designs for the school have been prepared by Mr. William Henman, and the external architecture is an adaptation of Renaissance, carried out in brick, with stone facings. On the east side of the entrance hall the following accommodation is provided:—General office, library, and committee room, two large class-rooms (one of which is specially fitted up for machine drawing) and the science principal's room. On the west side are two smaller class-rooms for science teaching, the chemical laboratory, balance and preparation room, and a science lecture room and male teachers' cloak-room, &c. Ascending the principal staircase, the upper hall is gained. At the end of the upper hall is the art principal's room, and a room for design on the south and one for life on the north. Next to the latter are three rooms for antique and elementary drawing. At the end of the west corridor are the modelling and casting rooms and art lecture room. Centrally placed is the women teachers' retiring and cloak-room. Right and left of the main staircase doors lead out to a splendid flat roof, where outdoor sketching may be practised. There is access to each floor from the caretaker's staircase, with a lift suited for taking large casts, and there are lavatories at each end of the corridor. The rooms will be electrically lighted, the District Council having arranged for an installation which will supply both the school and their own offices. The ventilating and heating of the buildings were undertaken by Mr. W. Key, of Glasgow. The contract for the buildings was placed in the hands of Messrs. Horton,

of Brierley Hill. Mr. E. W. Adkins has acted as clerk of the works. Messrs. A. R. Dean supplied the furniture and fittings for the art section, and the Midland Educational Company those for the science department. The electric light installation has been carried out by Messrs. Verity, from the specifications of Mr. J. C. Vaudrey, the power being furnished by two of Tangye's gas-engines.

HOME FOR CHILDREN, GOSFORTH, NORTH-UMBERLAND.—The new Home for Destitute Crippled Children, which has been erected in Salter's-road, Gosforth, was opened on the 30th ult. by Mrs. Hilton Philipson. The new Home has been erected on a site two acres in extent. The buildings will afford accommodation for 110 children (73 boys and 37 girls), and the necessary staff of officials and servants. On the right of the entrance are the master's and matron's sitting-rooms, girls' play-room, work-room or class-room, and beyond a school-room. To the left is the committee-room, reading-room, and library, and boys' play-room. These rooms face south, overlooking the playgrounds, and are connected by a main corridor, 6 ft. wide and 123 ft. long. There is a similar corridor over, and both have fireproof floors. The first floor of the main building over the rooms before enumerated contains two dormitories for twenty-seven beds each, and four for ten beds each; master's, matron's, and nurses' bedrooms, and linen store. Behind the main corridor on the ground floor are lavatories and cloak-rooms for boys and girls, dispensary, and matron's stores, and the boys' and girls' staircases; and on the first floor four bath-rooms, supplied with hot and cold water. In the centre, and behind the main buildings, is the dining hall and kitchen block (with dormitory on first floor for thirty-six beds), scullery, bakehouse, larders, servants' hall, and tradesmen's entrance, and along the north front on the one side is the laundry, and on the other workshops and store-rooms, approached by covered ways through the cloak-rooms opening out of the main corridor. Each of the three large dormitories has attached thereto an annex for sanitary offices, disconnected by cross-ventilated lobby, and a fire-escape staircase leading to the open courtyards. The contract for the erection of the new buildings was entrusted to Mr. S. B. Burton, Messrs. Barford & Perkins, of Peterborough, supplied the cooking and laundry work. The work has been carried out under the superintendence of Mr. Edward Shewbrooks, architect, of Newcastle. Mr. Codling was clerk of works.

PRUDENTIAL ASSURANCE COMPANY'S OFFICES, DUNDEE.—The block of buildings which has been erected in Albert-square, Dundee, by the Prudential Assurance Co., Limited, is now all but completed. The building is four stories in height, with sunk and mezzanine floors. The material used in its construction is red Dumfriesshire stone mixed with terra-cotta bricks, while Peterhead granite has been employed. The contractors for the work were as follows:—Builders, D. & A. Povrie; joiners, John F. Shaw & Son; plumbers, William Mitchell & Son; plasterer, James Laburn; slaters, Ramsay & Reid; painters, P. & A. Davis; electric light installation, bells, telephone, and window blinds, J. Pullar & Co.; falience work, Burnmantofts & Co., Ltd., Leeds; mosaic work, Ebner & Co., London. Mr. T. M. Ponton was the clerk of works. Messrs. A. Waterhouse & Son were the architects.

POST OFFICE, BEXHILL-ON-SEA.—A new General Post Office has just been opened at Bexhill. The builder was Mr. H. Noakes, of Eastbourne, and Mr. G. H. Gray was the architect.

RESTORATION OF ST. PAUL'S CHURCH, SHEPLEY, YORKSHIRE.—St. Paul's Church, Shepley, which has been closed for some time for restoration, and in regard to the chancel might be enlarged, was re-opened recently. The enlargement of the chancel has been effected by extending westwardly into the nave beyond the existing chancel arch, and to emphasise the division of the nave from the chancel an oak screen has been erected. The spaces on the north and south sides of the part extended are fitted with oak benches set apart for the lady members of the choir. The floor of the chancel is of marble mosaic. In the nave the whole of the old-fashioned pews have been removed, new benches of solid oak taking their place. A new staircase and approach has been made to the end gallery. The main entrance to the church is now shielded by a new vestibule of oak, the upper portion of which is filled in with stained glass. Tiled pavements are laid down in spaces formerly flagged. The works have been completed from the designs and under the superintendence of Mr. W. Cooper, architect, Huddersfield, by the undermentioned contractors:—Mason, Mr. Harris Wood; joiners, Messrs. T. & J. Hawley; plumber, Mr. G. Lindley; slater, Mr. W. E. Jovitt; plasterer, Mr. A. Jessop; mosaics, Messrs. Patterson; tiling, Messrs. Shaw; decorating, Messrs. Lunn & Cardno; heating, Mr. J. W. Thornton.

METHODIST CHAPEL, ILFRACOMBE.—The memorial stones of a new Methodist chapel have just been laid at Ilfracombe. Mr. W. H. Gould, Ilfracombe, is the architect, and Messrs. Britton & Pickett, Ilfracombe, are the builders. The chapel is to be built in the Gothic style, with Torquay stone, and the windows and quoins with Bath stone. On the ground floor, on a level with the road, will be six schoolrooms, opening out by sliding partitions. In addition to this there will be a church parlour, to be used for Bible-classes, and two of three

vestries. The church will be entered by two doors from Market-street and from the new approach on the west side. The building will be cruciform in shape, the organ-chamber being at one corner and the minister's vestry at the other. An end gallery is to be erected, while a tower will be built, surmounted by a spire, rising to a height of about 130 ft. The building will seat 650. The estimated cost is 5,000l.

CHURCH, PAIGNTON.—On the 5th inst. the new Church of St. Andrew's was consecrated at Paignton. The church has been built by stages as the growth of the parish demanded. A portion of it has been used for several years past. The building is French Gothic in design, and it will now accommodate about 400 persons; but arrangements have been made for extending it at the west end when the number of worshippers demand it. The shafts supporting the arcades that divide nave and aisle are of Purbeck marble, and the clerestory windows have also pillars of the same material. The floors of the nave and aisles are of wood blocks, with red tiles in all the avenues and approaches. The chancel floor is of mosaic, and that of the sanctuary polished Devonshire marble. The roofs of the chancel and chapel are of oak, and that of the tower is groined stone vaulting. The ribs are of carved oak. The new marble pulpit is of Byzantine character. The body of the rostrum is supported by a group of polished marble columns, and the canopies are inlaid marbles. At each angle are canopied niches in marble, having golden tesserae inlaid backgrounds. These niches contain sculptured statues of St. Augustine, first Archbishop of Canterbury; St. Boniface, once of Crediton, but afterwards the Apostle of Germany; Bishop Lacey of Exeter; St. Columba, the Apostle of the Northern Picts; and last, Frederick Temple, the present Archbishop of Canterbury. In the panel immediately beneath the preacher's desk is a carved representation of the crucified Christ, also in white marble. The pulpit is the work of Messrs. Harry Hems & Sons, Exeter. The old font which was recently placed in the parish church of Paignton, has been restored and placed in the church. The carving of the choir stalls was done under the supervision of Mr. Tann, by the following pupils of the Art Schools:—Miss Jarvis Cooke, Mrs. Richmond, Miss Schofield, Miss E. Moseley, Miss Pritchard, Messrs. W. Binmore, P. Horsham, Perrett, Wyatt Sherwill, Battershall, and Laphorne. The architects are Messrs. Tait & Harvey, Exeter. The first portion of the church was built by Mr. E. P. Bovey of Torquay, and the final part by Messrs. Stephens & Son, contractors, of Exeter. During the greater part of the work Mr. James Baldwin was the contractor's foreman, and Mr. C. Noble the clerk of works.

REOPENING OF LONGDON CHURCH, WORCESTER-SHIRE.—This building has been repaired and renovated by Messrs. Collins & Godfrey, under the direction of Messrs. Prothero & Philloft, architects, of Cheltenham.

WESLEYAN CHAPEL, CHURCH GRESLEY.—On the 6th inst. the stone-laying ceremony in connexion with the new Wesleyan Chapel at Church Gresley took place. The new chapel is to be 47 ft. long by 40 ft. wide, and is intended to be extended another 40 ft. There will be galleries round the end and sides, and the building will be heated by hot-water. The contract for the chapel (amounting to 14,757l.) has been let to Mr. Chas. Venning, of Swadincote, and Mr. Earp, of Newhall is doing the brickwork, and Mr. Geo. Mason, of Swanlincoote, the plumbers' work. The building has been designed by and will be erected under the supervision of Mr. Robert C. Clarke, architect, of Nottingham.

PLYMOUTH COUNCIL CHAMBER IMPROVEMENTS.—Colonel A. G. Durnford, R.E., Local Government Board Inspector, held an inquiry at Plymouth Guildhall, on the 6th inst., respecting the application of the Corporation for powers to borrow 1,600l. for alterations and improvements to the Municipal Buildings. The improvements had been tendered for and accepted at 1,405l. Mr. Hine (Messrs. Hine & Odgers, architects) showed plans of the suggested alterations, and described the proposed renovation to the Chamber. The Mayor (Mr. C. H. Radford) having supported the application, the inquiry closed.

PROPOSED MODEL DWELLINGS, BRADFORD.—At a meeting of a sub-committee of the Bradford Sanitary Committee, held on the 7th inst., it was decided to instruct the City Surveyor (Mr. J. H. Cox) to prepare sketch plans of blocks of model dwellings.

WESLEYAN CHAPEL, CARDIFF.—The foundation-stone of a new Wesleyan Chapel was laid recently on a site acquired off the Albany-road, Cardiff. The main elevation will be towards Albany-road, with entrances from Bangor-street. The nave, which will be the width of the site, has a length of 78 ft. by 28 ft., with side aisles 10 ft. wide on each side. The transepts will be 28 ft. wide on each side, with aisles the same width as the nave. The only galleries will be over the transepts, with seats for about 140. The accommodation in the body of the chapel will be for about 710, with further accommodation for about 15 in the choir. For the present the tower will not be erected. In addition to the chapel proper, the following further accommodation is provided:—Organ chamber, two vestries on the ground floor, and a large parlour; on the first floor another parlour, and a smaller class-room. Kitchen

and scullery accommodation is provided. The contractors for the building are Messrs. E. Turner & Sons, the architects being Messrs. J. P. Jones, Richards, & Budgen.

THE CAIRD HOSPITAL FOR WOMEN IN DUNDEE.—At a meeting of the directors of Dundee Royal Infirmary on the 7th inst., the plans of the new hospital for women, which Mr. J. K. Caird, manufacturer, offered to erect, were approved. The plans were prepared by Mr. Murray Robertson, architect, and the cost was estimated at about 6,000l. The central block will be used for administrative purposes and for the residence of the staff. One of the other blocks will be used as a maternity hospital, and the other for the treatment of diseases, there being altogether thirty beds for the accommodation of patients.

METHODIST CHURCH, GOOSE GREEN, LANCASHIRE.—The memorial stones have just been laid of a Free Methodist Church at Goose Green. The new building is erected on the old site in Northumberland-street. The chapel will seat 270, and with the addition of the class-rooms 330. The front of the chapel is faced with Ruabon bricks and terra cotta, with Cefn stone dressings, the sides of the same and the front of the class-rooms with local pressed bricks, and the base course with blue Staffordshire bricks. The work is being executed by Mr. Alfred Bywater, of Pemberton, from plans and under the supervision of Mr. R. Pennington, architect, Wigan.

GOLF CLUB HOUSE, WAKEFIELD.—On the 9th inst. the new club house, which has been erected at Heath-common, was formally opened. The building has been built by Messrs. Latham & Bell to the plans of Mr. A. H. Newbold.

SANITARY AND ENGINEERING NEWS.

THE WEST RIDING SEWERAGE SCHEME: PURIFICATION OF THE CALDER.—The Mayor and Corporation of Brighouse met in a special inspection recently of the work the Corporation have in hand for intercepting the sewage of the Borough and surrounding districts, and for clarifying the sewage so as to prevent the same polluting the river Calder. About twenty members of the Council, along with the Engineer for the scheme, Mr. Alfred M. Fowler, of Manchester and Westminster, and the contractor, Mr. George Taylor, journeyed on to the works. The line of the part already built for about a mile and a half. The work is composed of a brick sewer varying from 5 ft. to 5 ft. 6 in. diameter, and varying in depth from 9 ft. to 43 ft. 6 in. below the surface. The party afterwards examined the land in course of preparation for final treating the sewage. The system intended to be applied to treat the sewage with lime and sulphate of alumina in tanks, the effluent from which will flow on to and through the land (forty acres having been acquired for this purpose). The main drainage, when completed, will form upwards of seven miles of main sewers, and will extend over a populated area of upwards of fourteen square miles. The total cost of the work will be about 110,000l., including the land purchase.

PROPOSED SEWAGE WORKS, ROTHERHAM.—Mr. George W. Willocks, M. Inst. C.E., the inspector appointed for the purpose by the Local Government Board, held a public inquiry on the 20th ult., in the Bingley Court Room, Rotherham, in reply to an application by the Town Council of Rotherham to borrow 55,269l. for sewerage and sewage disposal. There were present amongst others, Mr. R. E. W. Berrington (engineer, Wolverhampton), Mr. Holmes (West Riding Sanitary Inspector), Mr. B. Godfrey (Surveyor to Rotherham Rural District Council), Mr. H. H. Hickmott (Town Clerk), and Mr. G. Jennings (Borough Surveyor). The Town Clerk said the population of the borough was computed now to be over 50,000.—Mr. R. E. W. Berrington, the engineer, gave evidence explaining the scheme, from which it appeared that the sewage would be picked up at four points, and conveyed to the land at Aldwarke for treatment. All storm water was intended to be excluded as far as possible, but at present this question did not come in. At the outfall works the sewage would pass by gravitation into two or three tanks of an average depth of 5 ft. 8 in. The effluent would flow to the filters, the filtering medium being coal, varying in size from one quarter to three quarters of an inch. If the coal became useless it would afterwards be burnt. The sewage would subsequently be treated by downward intermittent filtration. The sludge would pass to a tank, and would be pressed into sewage cakes. It was not anticipated there would be any difficulty in disposing of this refuse. In reply to Dr. Wilson, Mr. Berrington said they had taken the daily flow to be dealt with at 30 gallons per head. The population, which would mean 1,500,000 gallons. Blackthorn, Thorpe Hesley, and Templeb'ro were not included in the scheme, and there was also no proposal with regard to any portion of the rural district. The Borough Surveyor was also examined as to the existing drainage system.

WATER SUPPLY, NEWPORT, MONMOUTHSHIRE.—A special meeting of the Newport Sanitary Council was held at the Town Hall recently to consider the whole question of the Wentwood water undertaking, at which failures have from time to time occurred during construction. The chief defect now

reported upon by the Waterworks Committee (after examinations by two experts—viz., Mr. Baldwin Latham and Mr. D. B. Butler) was with reference to faulty concrete filled into the puddle trench. The Committee regarded their Chief Engineer (Mr. Conyers Kirby) primarily responsible for the defective work, and the Resident Engineer (Mr. Curry) largely to blame for the present condition of affairs with respect to the trench, in that he did not report to the Committee direct the serious doubts which appeared he had entertained for some little time previously as to the manner in which the work of making the concrete and filling it into the trench was being proceeded with. Both these engineers have resigned. The Committee in their report to future operations remarked:—"With regard to the future, your Committee propose to ask Mr. Baldwin Latham, now that the excavation is in accordance with his recommendation of facing the existing concrete with an inner wall of concrete 6 ft. thick, to have the trench carried out sufficiently to show a section of the concrete exposed and enable its composition to be examined, to come down and again examine with a view to further considering whether this is the only remedy, and whether the great expense and delay which it necessitates cannot be reduced by some other method also read. In view of the importance of the preparations for the course recommended by Mr. Latham will be proceeded with, so that all unnecessary delay may be avoided." The voluminous report of Mr. Baldwin Latham was read by the Town Clerk. In this the consulting engineer gave many details as to the leakages which had taken place. Some question had been raised in the district, he said, as to whether the quality of the water did not act injuriously upon the concrete. He appended an analysis of the water as made by the late Dr. Tivy, of Bristol. The water was much the same as that which is now supplied to Newport. It was a little softer, and contained a little less solid matter. The concrete was not injured by being submerged in this water, but it was injuriously affected by being over watered in mixing. He generally attributed the faulty work to inattention to details, and to the trench being filled in too great a hurry. The report of Mr. Conyers Kirby to the reports of Mr. Baldwin Latham and Mr. D. B. Butler was also read, as well as a report from Mr. Curry. A long report was also read from the manager, Mr. Macdonald, who said there was no foundation for Mr. Baldwin Latham's statement that the concrete was disgracefully made. Alderman C. Lyne, as Chairman of the Waterworks Committee, moved the adoption of the Committee's report. The outlay up to date at Wentwood was 100,408l.

The adoption of the report having been agreed, Mr. W. H. Brown moved as an amendment to the Committee's report a recommendation to pay Mr. Kirby such sum, together with the 3,500l. already paid, as represented 4 per cent. on the outlay, after deducting the cost of lands, the purchase of plant, and the sum paid to Mr. Young, the former contractor, to give up his contract. Mr. Willocks seconded the amendment, and thought the failure of the works so far had been largely the fault of the Water Committee itself. After considerable discussion a vote was taken, and the amendment was defeated by 17 votes to 16. The report was ultimately adopted.—*Western Mail.*

PROPOSED DRAINAGE OF WILSDEN, CULLINGWORTH, AND HARDEN, YORKSHIRE.—Mr. George Waller, Willocks, M. Inst. C.E., Inspector for the Local Government Board, continued his inquiry at Bingley on the 1st inst., into the appeal made by the Wilsden District Council and certain of the electors in the Harden Ward of the Bingley Outer District against the inclusion of the districts of Wilsden and Bingley Outer within Bingley. The day was occupied with hearing evidence on behalf of the appellants. The principal point brought out in the evidence was the proposal of Mr. E. W. Ives, C.E., of Derby, for the drainage of the villages of Wilsden, Cullingworth, and Harden, according to the Ives patent system, known as the Universal. He advocated the establishment of separate works for each of the villages, and put in the estimate of the costs as follows:—Wilsden, 2,117l.; Cullingworth, 1,818l.; and Harden, 978l. 15s. He claimed that separate schemes would be less costly than a combined one, and urged that they would prove efficient.

WATER SCHEME, BEDFORD.—Mr. W. H. B. Walker, C.E., of Bingley, has prepared a scheme for waterworks at Bedford, and this has been accepted by the Local Government Board. The total cost of the works is estimated at 9,640l.

WATER SUPPLY, KIRKCALDY.—Mr. Sang, C.E., has now completed the plans for the extension of the Kirkcaldy water supply. The new works are roughly estimated to cost about 200,000l.

SEWERAGE SCHEME, KIRBY-IN-ASHFELD.—On behalf of the Local Government Board Colonel W. L. Coke, M. Inst. C.E., conducted an inquiry at the Board Schools, East Kirby, recently, relative to the application of the Urban District Council to borrow 7,805l. for a sewerage scheme. Messrs. Walker (Sanitary Engineer), Dr. McKenzie (Medical Officer), and others were in attendance.

STREET IMPROVEMENT, WEYMOUTH.—Mr. Frederick H. Tullock, an inspector of the Local Government Board, recently held an inquiry at the Guildhall in consequence of the Town Council

having applied to that authority for sanction to borrow 2,800l. for works of street improvement in the borough. The Borough Surveyor is Mr. W. B. Morgan.

ELECTRIC LIGHTING NEWS.

ELECTRICAL FAN FOR HOT CLIMATES.—The October monthly sheet of the General Electric Company contains an illustration of "a silent slow-speed ceiling fan motor" for driving round a horizontal two-bladed fan to be fixed near the ceiling of a room, with a self-contained direct current motor. This may prove a useful substitute for the hand-worked punkah in Indian houses.

MANUAL OF ELECTRICAL UNDERTAKINGS.—The Manual for 1897, the second year of issue (London: P. S. King & Son), is compiled under the direction of M. Emile Garcke, and contains full statements of the work and expenses of the electrical industries of the United Kingdom, with maps of the electricity supply areas within the county of London. The information is classified under the heads of Telegraph, Telephone, Electricity Supply, Electric Traction, Electrical Manufacturing, Miscellaneous Undertakings.

WATER-TIGHT ELECTRIC BELLS.—Messrs. Mercier (Manchester) send an illustration and description of their water-tight electric bell, which it is claimed is not only dust-proof and damp-proof, but will ring when submerged in water.

ELECTRIC LIGHTING, HAMMERSMITH.—On the 30th ult. the ceremony of inaugurating the installation of the electric light in Hammersmith by the Vestry took place at the Town Hall, when Dr. Collier, Chairman of the London County Council, opened an electric exhibition, and the current for the arc lamps erected for lighting the streets was turned on by Mr. W. J. Searle, Chairman of the Electric Lighting Committee. According to the *West London Observer*, instructions having been given to Mr. A. H. Preece, electrical engineer, of Victoria-street, S.W., to prepare a report upon the thirteen schemes which were submitted in 1895, he reported in favour of the alternating current transformer system, and that the tenders of Messrs. Siemens & Messrs. Ferranti were the lowest respectively for high and low speed plants, but that for several reasons it would be better to invite both firms to submit revised tenders. Messrs. Ferranti's tender was subsequently accepted, and Mr. Preece was appointed consulting engineer to prepare the necessary plans for the completion of the installation, and to superintend the carrying out of the same. In the meantime the Surveyor, Mr. H. Mair, had been instructed to prepare plans and specifications for the necessary buildings and chimney shaft; he had also been instructed to have the site excavated and the sand removed preparatory to the concrete foundations for the buildings and plant being put down, this work being carried out by men directly in the employ of the Vestry. The plans were submitted to the Vestry, and Messrs. Leslie & Co., of Kensington, were accepted. This portion of the work is now complete. The front block consists of engineer's and clerk's offices, with store-clerk's office, and a number of rooms that can be used for storing lamps, &c.; there are also workshops on the same level at the engine and boiler-houses for the execution of small repairs to the plant. The engine-house is 65 ft. long, 26 ft. wide, and 24 ft. high to the springing of the roof, and is faced on the inside with white glazed bricks, having a dado 5 ft. 9 in. in height of salt-glazed bricks all the way round, except the northern end, which has been temporarily framed and lined with match boarding. The boiler-house is 60 ft. 6 in. by 26 ft. 6 in., and has a similar dado in salt-glazed bricks carried round. The chimney is built octagonal in shape, 8 ft. internal diameter, and large enough to take another set of four boilers. The engine-house plant consists of three main engines and dynamos, one small engine and dynamo for working during the day-time, the arc-lighting apparatus, and the switch-board. The three main engines and dynamos are of Messrs. Ferranti's special design. Each set is capable of lighting about 4,000 8-candle power lamps at one time. The engines, made for Messrs. Ferranti by Messrs. McLaren, of Leeds, are vertical sets, there are in all four dynamos, three of 125kw., and one of 15kw. capacity. The latter machines are of the Ferranti disc type, in which the armature coils are carried by holders securely bolted to and insulated from the fly-wheel. The day load set is capable of lighting 750 eight-candle power lamps at one time. The engine has been made by Messrs. Belliss. It is their patent closed in high speed with forced lubrication. The speed of the plant is 450 revolutions per minute. The arc lighting apparatus consists of three of Messrs. Ferranti's patent rectifiers, which change the alternating current produced by the main dynamo into a continuous current. Each rectifier is designed to light 50-12 ampere arc lamps. At present quite too lamps are installed, so that one rectifier is used as spare. The rectifiers are driven by alternating current motors, and the current required by the arc lamps is kept constant by means of a special automatic regulating transformer. The current generated in the works is conducted to the various portions of the parish included in the Provisional Order as the compulsory area by

means of concentric cables laid throughout in cast-iron pipes. The whole of the contract for trenching, supplying, and laying pipes, providing cables, &c., has been carried out by Messrs. Callender. The high-pressure cables, which are concentric and protected by lead sheathing, are of Messrs. Callender's patent jute impregnated type. The high-pressure cables are connected to certain districts where sub-stations are placed, and in these sub-stations the high-pressure is transformed, and the low-pressure current produced is conducted by a network of low-pressure mains along the various streets in the district. There are altogether four main circuits. These main circuits are interconnected, so that the failure of any one circuit will not interfere with the supply to the particular district. Branch circuits are provided at the distributing points to feed the ends of the various districts. Beside these circuits, spare pipes are provided to the principal points, so that the future circuits may be easily added. The low-pressure cables are laid on both sides of all the streets included in the compulsory area, except Shepherd's Bush-road. The arc lighting cables are laid in a separate system of pipes throughout the area served, and in order to provide for the eighty-five lamps at present fixed, it was necessary to lay five circuits. They are laid on opposite sides of the streets. There are at present six sub-stations provided for transforming the high-pressure current to the low-pressure current. The street lighting at present is by arc lamps. The arc lamps, posts, &c., for whom Messrs. Siemens were the contractors, are placed between 70 and 110 yards apart along the streets comprising the compulsory area. The posts are of ornamental character, those placed in the centre of the streets having the lamps placed in central carriers, and those at the side of the streets having projecting brackets. The arc lamps are of the Brookfield type, made by Messrs. Johnson & Phillips, each giving about 1,200 candle-power, and fixed 20 ft. above the ground. On each post there are two glow lamps of 32 candle-power each, placed about 14 ft. above the ground, and connected to the low-pressure mains. An automatic switch of Mr. Edmunds' patent design is placed in each of the posts, and it is arranged that if, by design or accident, any of the arc lamps go out, the glow lamps are automatically lighted by means of this switch. All private consumers will be connected to the low pressure mains by means of a joint box. The vestry will lay a short connecting cable into each house. Two scales of charging have been adopted, both of which are based on the maximum demand system. The scales adopted in Hammersmith are:—(a) 6d. per unit for two hours' maximum demand, and 4d. per unit for all units in excess; (b) 2½d. per unit, and in addition a fixed charge of 1s. 3d. per quarter per lamp demanded. The buildings have been designed and superintended by the Surveyor to the Vestry, with Mr. Randall as clerk of works. Mr. Bell has acted as Resident Engineer, and now takes charge of the running of the station. Mr. T. H. Whiteford represented Messrs. Ferranti; Mr. Proctor represented Messrs. Callender; Mr. Collings represented Messrs. Siemens. The total cost of the scheme has been about 40,000l.

ELECTRICITY WORKS, BRADFORD.—The new municipal electric lighting and power works at Bradford were opened on the 8th inst. by the Mayor (Mr. T. Speight). Among those present were Mr. A. H. Gibbins (City Electrical Engineer), and Mr. J. H. Cox (City Surveyor). The works are situated at the corner of Valley-road and Lion-street, and are built of local stone in the Renaissance style, the total cost, with equipment and extensions, having been 40,000l. Of this, the buildings have absorbed 11,500l., plant 14,800l., and cables 13,700l.

FOREIGN.

FRANCE.—A new gallery for casts of antique sculpture will shortly be opened at the Louvre. The ceiling decorations have been modelled by M. Fremiet. The King of Siam has commissioned M. Jules Patey to make a model for a medal commemorating his visit to Europe. M. Pontrémoli, who gained such a success not long since by his "envois de Rome," has been appointed "Inspecteur des monuments civils" in connection with the Louvre and the Tuileries. The Minister of Commerce inaugurated last Sunday the buildings of the new "Ecole des Hautes Etudes Commerciales," in the Boulevard Malesherbes; and on the same day the first stone of the new Marée at Asnières was laid. The architect is M. Emmanuel Garnier, who gained the commission as the result of a competition. A canal is to be made between the Seine and the Loire, from Neuilly-Plaisance to Epinay-sur-Seine. A competition has been opened for a group of schools at Fécamp. An important fragment of the ancient Roman wall of the city has been discovered at Toulouse. M. Jas. Tissot is to paint a figure of Christ as a decoration for the Chapel of the Dominicans in the Rue du Faubourg St. Honoré. The painting, which is on a large scale, will be placed behind the altar. M. Charles Devergues, architect and former holder of the Prix de Rome, has obtained the first premium in the competition for the erection, at Orleans, of a monument to the soldiers who fell in defence of the city in the war of 1870. The municipality of Bordeaux has opened a competition for a monumental fountain to be

erected in a public square in the city. M. Monfort has been appointed architect to the Department of the Loire Inférieure, in place of M. Etève, resigned. A new railway line is to be made, in the Department of Haute Vienne, between Russiere-Galant and Saint-Yrieix. The line will require the construction of a tunnel 400 metres long and a bridge 15 metres high, in masonry, in a single arch 18 metres wide. Work is going on actively at the new pier at Dunkerque, to replace the old jetty, and the canal giving access to the port is being enlarged to a width of 210 metres. The materials of the Porte Limbert, which formed part of the old fortifications of Avignon have been sold by auction, the structure having been demolished by the municipality, though classed among "Monuments Historiques." A larger gateway is to be erected in its place, of which the plans are to be prepared by the department of "Monuments Historiques." We fear this looks like the production of a piece of sham-antique.

GERMANY.—There is a great improvement in the design of posters in Germany, mainly due to the several competitions which have been recently opened among artists for advertisements in connexion with exhibitions, public festivities, &c. We may notice, for instance, a recent competition of this description for a poster announcing a National Fête, for which 50l. was offered as a premium, and an influential committee act as assessors. We regret to record the death of Herr Ernst Wasmuth, the well-known leading architectural publisher at Berlin, who died at the age of fifty-two. Nearly all the more important architectural works produced in Northern Germany were issued by his firm, and he was particularly noted for the large collections of photographs which he published of the modern architecture of foreign countries. A number of experts in regard to fire prevention consider that the new Building Act of Berlin does not sufficiently cover the modern requirements of safety from fire. One of the various competitions recently decided, one for an extensive Casino at Gelsenkirchen, has been decided in favour of a design by Herr Buchmen, of Hanover. Among new competitions we hear of one for a County Hall at Herford, and for a gymnasium at Hanau. A competition for a new art museum at Riga (Russia), is also advertised among the German competitions. We are under the impression, however, that this is an "International" competition. The sending-in day is in February, 1898, and the designs are invited under the auspices of the Town Councillor of Riga. Premiums to the extent of 1,600 rubels are offered. Our Berlin contemporaries really seem to at last show greater interest in English work. No. 40 of the present volume of the *Centralblatt der Bauverwaltung* is practically entirely devoted to the doings of our Kingdom. There are two pages about English architectural education, a description of the Tate Gallery, and three pages on "Sewage Treatment in England." This is indeed an improvement on what used to be the case, when, as far as our German contemporaries were concerned, English doings in architecture and surveying were apparently non-existent.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. Scamell & Colyer, architects, have removed from 18 Great George-street to 14 Victoria-street, Westminster.

WANDSWORTH TECHNICAL INSTITUTE.—We have received the prospectus of this Institute, the course of instruction in which includes practical physics, magnetism and electricity, theoretical mechanics, building construction, plane and solid geometry, geometrical drawing, carpentry and joinery, brickwork, plumbing, &c. The college is in High-street, Wandsworth.

"DICK'S," FLEET-STREET.—We notice that this old coffee-house closed, and are informed that the premises are to be pulled down. A part of the house was renewed about twenty years ago, but one may yet see the earlier portion of the premises from Hare-court, Temple. Originally "Richard's," the house was let to one Richard Turver, or Torvor, in 1680. It was to "Dick's," that Steele, in the character of Isaac Bickerstaff, conducted the deputation of "travellers" from the country who had called on him at his rooms in Shire-lane, and there Cowper read a letter, in a newspaper, which he imagined was written in order to impel him to commit suicide.

GAIETY RESTAURANT, STRAND.—It is stated that Messrs. Spiers & Pond have agreed to sell their interest in the lease of the restaurant and the Gaiety Theatre refreshment bars. The Gaiety was opened on December 21, 1868, the theatre having been converted, by the late C. J. Phipps, from the Strand Music-hall as designed by the late E. Bassett Keeling, who died in November, 1886. The music-hall took in the site of the arcade—leading out of Wellington-street into Catherine-street—that was named after the original name of the theatre. Subsequent enlargements for the theatre and restaurant have been made by acquiring premises at the rear and sides of the former site.

A NEW STEP-FACING.—Messrs. Addison Potter & Son (Willington, Northumberland) send us a description of a new material for steps for heavy wear, consisting of concrete with a top facing of

emery concrete. It is stated that this has lasted very well under several years' traffic, and that the street telephone box covers for the Post Office, both in Newcastle and Sunderland, have been faced with this material with good results. The cost is not much beyond that of good stone.

HERNE BAY AND NEIGHBOURHOOD.—Millgate's Herne Bay Guide (W. F. Millgate, Herne Bay) contains a great deal of information about objects of interest in the neighbourhood, accompanied by a number of sketches.

SUBSIDENCE IN THE CITY.—Considerable excitement was caused on the 8th inst. in the neighbourhood of the Mansion House by a rumour that a deep subsidence had taken place which seriously affected the safety of the Mansion House-chambers, and this was intensified when a force of City police appeared and erected a barricade outside those portions of the chambers which abut on Bucklersbury and Queen Victoria-street. It appears that a subsidence did take place, but it was of a very slight character, and did not in the least endanger the safety of the building.

LISKEARD CHURCH TOWER.—The vicar and churchwardens of Liskeard received the written judgment, on the 5th inst., of the Chancellor of Truro (Mr. R. M. Paul) on their application for a faculty to take down the existing tower of the parish church and erect a new tower in harmony with the church. The petition was heard by the Chancellor and his assessor (Mr. C. E. Ponting) in open Court at Liskeard Guildhall on 23rd ult. In his judgment, which is dated September 20th, the Chancellor first recapitulates the progress of the negotiations previous to the Court, and mentions that Mr. Ponting "made a thorough examination of the tower and the foundations, the petitioners having most courteously permitted pits to be sunk on two sides of the tower. It was found that although the rock formation exists at a depth of 10 ft. from the surface, the foundations are only carried down 4½ ft., without any proper projection beyond the face of the wall, and are composed of small rubble stones laid dry, as is so often the case with Norman foundations. The result of this is a serious settlement of these foundations and cracks in the superstructure, and this movement, which probably commenced at a very early period, has now undoubtedly reached a critical stage." The Chancellor goes on to say, however, that he is advised by Mr. Ponting, that, notwithstanding the defects enumerated, the tower and its many points of interest can be restored, that it "can be underpinned and repaired without the addition of buttresses" (as recommended by Mr. Fellowes Pryme), "and put in sounder condition than when first built." Churches in an equally dangerous condition are enumerated, which have been secured under Mr. Ponting's supervision, and so confident is that gentleman of the feasibility of restoring the tower of Liskeard that he has expressed his willingness to gratuitously give to the petitioners written directions as to the methods adopted, and, if required, to send them a builder to carry out the work. In giving his decision at the close, the Chancellor says the court is bound to consider future as well as present parishioners, and "it is, moreover, the duty of the court to discourage, so far as possible, the demolition of all such ancient and interesting ecclesiastical buildings as are within the limits of the jurisdiction of a diocese where Norman work is comparatively rare, no effort should be spared to preserve every link that connects the present age with the far distant past." Mr. Paul, therefore, rejects the prayer of the petition so far as it involves the demolition of the existing tower and the erection of the proposed new tower, and if the tower be restored, a vestry-room may be erected on the south side, in accordance with Mr. Sansom's plan. And if it will meet the wishes of the petitioners, the Chancellor adds that he would be prepared to sanction the necessary work recommended by Mr. Ponting for the preservation of the existing tower, and the erection of the proposed new tower (with such modifications as the altered circumstances render necessary) at the N.E. or S.E. corner of the church.

SANITARY SCIENCE IN LIVERPOOL.—The inaugural lecture of a series of lectures on sanitary science was given on the 6th inst. in the Arts Theatre, University College, by Dr. Hope, the medical officer of health for Liverpool. The Lord Mayor presided, and in opening the meeting said he thought in no centre of population had greater advantage accrued from sanitation than in Liverpool, because they must all reflect with great pleasure on the enormous benefits which had arisen and which were evidenced by the decrease in the death rate of the city.—Dr. Hope, in the course of his paper, referred to the objects of the Sanitary Science Instruction Committee, which had been organised by Alderman Houlding and his colleagues, as most laudable and useful. These lectures, which were promoted by this committee, would place within reach of all the means of obtaining a knowledge of the subject. It had also a second aim, to give the necessary training to candidates who were qualifying as sanitary inspectors. Since health was the greatest boon men could enjoy, knowledge of how to obtain it was most important. The lecturer dwelt on the advantages which country had over town dwellers, remarking that the tendency of town life was to degenerate, unless the conditions were very carefully watched. He

hardly need emphasise the importance of providing as many parks, gardens, and open spaces as possible, as they were the most valuable adjuncts to health that the city possessed. The Maidstone epidemic emphasised the importance of a pure water supply, which should be entirely in the control of the municipality. The unrestricted supply of water was most essential to the health of a community, and it was not judicious to depend upon a water company subservient to the payment of dividends to the shareholders. Proceeding, he emphasised the necessity of cleanliness in private houses, schools, and laundries, and the efficient flushing of the streets of the town. Amongst other causes of disease they had to combat were ignorance, improvidence, and intemperance, which no laws could remedy—the remedy must be applied by the people themselves. He considered that the progress of the city had amply repaid the large amounts of money expended upon it in works and sanitary improvements, having for their object the promotion of public health.

CAPITAL AND LABOUR.

THE STRIKE OF PLASTERERS IN LIVERPOOL.—The strike of plasterers in Liverpool has now lasted for a considerable time, causing a great deal of inconvenience in the building trade. So far as plasterers' work is concerned the building trade in Liverpool is practically at a standstill, and very little progress is being made in completing the public buildings in the course of erection. At the new post-office in Victoria-street, the new fire station in Hagston-gate, and the new School Board offices there has been very little advancement made towards getting the necessary plasterers' work accomplished, and the completion of the buildings is, therefore, very much delayed. A number of Continental plasterers have been imported to do the work of the men who are out on strike. They are now busy at work, but they have not been employed in such large numbers as to attract attention. Some of the masters are having urgent work done by a few non-society men.

THE BUILDING TRADE DISPUTE AT LISKEARD.—The requests of the carpenters and masons of Liskeard have been met by their employers, and in future the men will be paid 6d. per hour, and will leave work at one p.m. on Saturday, but whether the full fifty-four hours per week will still be worked will depend on circumstances. The masters, it is understood, have agreed to give more than the men asked for, and are willing to pay their employees ¼d. an hour extra for walking time for distances under three miles, and 1d. an hour over that distance.

LEGAL.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS AT CHELSEA.

COUNSEL applied to Mr. Justice Ridley, sitting as Vacation Judge, on the 8th inst., in the case of Keane v. Metcalfe and Another, for an *interim* injunction to restrain the defendants, until trial or further order, from interfering with plaintiff's ancient lights.

Counsel stated that the plaintiff was the lessee of a house in Chelsea, the defendants being the owners of premises at the rear and north-east of it, the back of the plaintiff's house facing east. The windows at the back of the plaintiff's house were ancient lights. Before the defendants commenced building operations, a very short time ago, there was only a building about 30 ft. high on the site. The defendants, as a matter of fact, had commenced erecting on the site enormous flats, and the building was to be 70 ft. high. He (counsel) had an affidavit by a surveyor stating that if building operations were allowed to continue for another week, a great injury would be done to the plaintiff's lights.

His Lordship: What is the distance between the plaintiff's windows and the flats?

Counsel replied about 30 ft., and that the defendants proposed to erect a building 70 ft. high, and more than double the height of the old building.

His Lordship asked what the height of the defendants' building was then?

Counsel said that the building was already over 30 ft. high.

His Lordship said that he did not like granting an *interim* injunction without hearing what the defendant had to say.

Counsel said that if an injunction was not granted the defendants would probably "rush" up their building before next Motion day to 50 ft.

His Lordship: How long is it since you got information as to these things?

Counsel replied that he thought that the plaintiff first heard of what was to be done by the defendants about two days ago.

His Lordship, after some further discussion, granted an *interim* injunction, as asked, over the 13th inst.

LIGHT AND AIR CASE SETTLED.

THE case of Dawes v. Kent came before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division on the 8th inst., it being an

application by the plaintiff to restrain the defendant by injunction from erecting a building so as to obstruct the access of light and air coming to his (plaintiff's) building.

Counsel for the plaintiff now stated that he had arranged terms with Mr. Green (the defendant's Counsel), and an order would be taken by consent on those terms, which would be signed and handed in to the Registrar of the Court.

Order accordingly.

ALLEGED OBSTRUCTION OF LIGHT AND AIR.

MR. JUSTICE RIDLEY, sitting as Vacation Judge in the Chancery Division on the 8th inst., directed, by the consent of both parties, that a motion for an *interim* injunction in the case of Ward & Goldfinch v. McBlain & Freeman (a light and air action) should stand till the trial.

MEETINGS.

SATURDAY, OCTOBER 16.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Express Dairy Company's Farm, College Farm, Finchley. 3 p.m.

MONDAY, OCTOBER 18.

Sanitary Institute (Lectures for Sanitary Officers).—Professor A. Hestock Hill on "Factories, Workshops, and Offensive Trades." 8 p.m.

Liverpool Architectural Society.—Mr. J. H. McGovern on "Compensations." 6 p.m.

WEDNESDAY, OCTOBER 20.

Builder's Foremen and Clerks of Works' Institution.—Quarterly meeting of the members. 8 p.m.

Edinburgh Architectural Society.—Paper by Mr. W. A. Mellon. 8 p.m.

THURSDAY, OCTOBER 21.

Sanitary Institute (Lectures for Sanitary Officers).—Professor W. H. Corfield on "Water Supply, Drinking Water, Pollution of Water." 8 p.m.

FRIDAY, OCTOBER 22.

Architectural Association.—Mr. E. O. Sachs on "Practical Lessons from the Paris Bazaar Fire." 7.30 p.m.

Institution of Junior Engineers.—Annual General Meeting, Westminster Palace Hotel. Report of the Council, Election of Officers, &c. 8 p.m.

SATURDAY, OCTOBER 23.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Southwark and Vauxhall Waterworks, Hampton.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

22,234.—VENTILATORS AND CHIMNEYS: T. Sherman. The invention consists in the employment of one or more auxiliary draught producers of any convenient form, and which may, when desired, be provided with a movable cowl.

23,452.—JOINER'S BENCH STOP: H. Davies. The invention relates to a bench stop consisting essentially of a spring plate adapted to be fixed to the bench at one end, and being toothed at its other end, and of a screw threaded into a block and engaging with free end of spring plate.

24,095.—COLOURED FLOORING, &c.: T. W. Knight. Invention relates to the manufacture of tiles consisting of hydrate of calcium (slaked lime), silica, and colouring matter, formed by pressing the ingredients, mixed in the form of a semi-dry powder, into slabs, and subsequently subjecting them to the action of an alkaline silicate solution.

24,624.—COWL OR CHIMNEY PIPE: J. H. Bonhill. Invention consists of a cowl having two unequal sized galvanised tubes, the smaller one being one-half fixed within the larger. Above mouth of smaller tube is suspended a movable saucer-shaped disc of iron.

25,225.—MANUFACTURE OF BRICKS, TILES, &c.: A. W. Fuller and Another. Consists in the manufacture of bricks, &c., by mixing and combining chalk, marl, and silica in certain proportions, viz., for fire bricks one part marl and three of sand, and for glazed bricks six parts marl and five sand, &c.

16,897.—OUTBUILDINGS: J. T. Crawford and Another. Deals with timber structures, with silks with upwardly curved ends, posts, cross braces, &c., which shall be rat, vermin, and snake proof.

17,051.—ATTACHMENTS FOR BLINDS, WINDOW SASHES, &c.: J. J. James. Invention consists in producing the screw attachment part of knot-holders for cords, &c., from two screwed together component parts, viz., a screw and a cap band.

NEW APPLICATIONS FOR LETTERS PATENT.

September 27.—22,090, J. & S. Dibble, Combined Water closet and Sink.—22,093, J. Muson, Water-closet Tank and Connections.

September 28.—22,149, J. Baxter, Caps, Buttons, &c., for covering Screw Nail Heads, and in Fastenings thereof.—22,210, A. Souther, Self Fasteners.—22,220, A. Boulton, Flushing Apparatus for Water-closets, &c.—22,271, R. Kunze, Artificial Stone.

September 29.—22,304, W. Dickson, Chimney Cans.—22,115, D. Black, Brick-making and other Moulding Machines.—22,328, H. Mason, Lintel for Detachable Doors or Windows.—22,334, E. Smith, Stoneware or Earthenware Pipes.

September 30.—22,417, A. Mitchell and J. Bolger, Sewer Traps.—22,428, L. Ashworth and J. Taylor, Water-closets.—22,451, C. McClellan, Hinges.—22,461, G. Maxted and F. Knott, Bricks for Building Purposes, &c.—22,466, H. Heald, Locks for Window Sashes, Doors, &c.

October 1.—22,572, W. Cottrill, Sanitary Earthenware Pipes.—22,526, J. Carlisle, Glazing, or in Securing Glass in Roofs, Domes, Frames, Windows, &c.

[illegible]

FOREST GATE —For the erection of Masonic hall, buffet, &c., at the "Princes Alice" hotel, for Mr. James Copper. Mr. Henry Poston, architect, 39, Lombard-street, E.C.	£780	
M. J. Madison..... £829	T. W. C. & Co. £780	
G. Todd & Co. 799	" Accepted.	
HARROW —For alterations to the "Roxboro' Hotel, Harrow-on-the-Hill, for Mr. J. H. Baxter. Mr. W. M. Bruton, architect, Trafalgar House, Strand, London, W. Quantities by Mr. F. Hopkins	£150	
HAWARDEN —For the erection of county school. Messrs. Grayson & Co., 31, James-street, Liverpool. Quantities by Mr. W. Webb:— H. Wilcock & Co. £346 W. T. Renny £347 A. & P. Turner £591 Jones & Sons 570 G. Woods & Sons 597	W. & T. Bailey £548 S. 548	
HEWORTH —For the erection of a cake-maker's house, Feltham Shire School, for the Heworth School Board. Mr. H. Smith, architect, Fellinging	£736	
HUDDESFIELD —For erecting a dwelling-house, William-street, Grosford Moor. Mr. J. Berry, architect, 9, Queen-street, Rotherham	£150	
Mosley, 11, H. Brook, Paddock, Alnwick	£150	
Brimming—Sanderson Bros., Lockwood	£150	
H. B. Mansfield	£150	
Planting—T. Cartwright, Grosford Moor	£150	
Slatting—Pickles Bros., Huddersfield	£150	
John Cook, Blake Road	£150	
H'UDDESFELD —For the erection of new offices and extensions to mill for Messrs. B. Vickerman & Sons, Limited. Mr. J. Berry, architect, 9, Queen-street, Huddersfield— Hall	Felly	
Plumbing—J. N. Jessop & Son, Berry Brown	£150	
Painting—H. B. Sturtard, Huddersfield	£150	
Ironwork & Scaffolding—B. Berry Brown	£150	
Ironwork & Scaffolding—B. Berry Brown	£150	
Ironwork & Scaffolding—B. Berry Brown	£150	
H'UMBERTON [Leicester]—For excavating and foundation works for additions to Borough Asylum, for Committee of Visitors Leicester Borough Asylum. Mr. G. F. Hine, architect, 35, Fawcett-street, Leicester	£150	
H. Lovatt	£150	
Rentley & Lock	£150	
E. Fox	£150	
Haycock & Son	£150	
(Schedule prices.)	Accepted.	
LEYTON —For constructing g.p.s. and r.e.m. pipe sewers, with all necessary manholes, &c., in Quarter-mile-road, and for supplying and laying down water pipes, &c., in Quarter-mile-road, also for building up hedge forming footpath, &c., in Lee Bridge-road, for Leyton Urban District Council. Mr. W. Dawson, M.Inst.C.E., Town Hall, Leyton	£150	
T. Adams	£150	
J. Jackson	£150	
LISBELLAU [Ireland]—For building a vestry room and for internal repairs of church. Mr. T. Elliott, C.E., Enniskillen	£150	
W. Dunan	£150	
D. Dunstan	£150	
Possibility	£150	
LLANDUDNO —For the erection of electric lighting and destructor buildings, for the Urban District Council. Mr. P. J. Jones, Engineer to the Corporation, 10, Gravel-lane, Llandudno	£150	
Gledhill & Thomas, 759, 8 to 8 R. Luther Roberts	£150	
Evans Roberts & Son, 639, 8 to 8 R. Luther Roberts	£150	
Samuel Warburton, 559, 8 to 8 R. Luther Roberts	£150	
(Schedule prices.)	Accepted.	
LONDON —For the erection of residence chambers, &c., Ormond square, for Mr. George Lawton. Mr. W. M. Bruton, architect, Trafalgar House, Strand, London, W. Quantities by Messrs. Wall & Co. £506 L. Hunter	£506	
Liscales & Co. £506	Burnman & Sons £506	
T. Hooper	£506	
L. Cooper	£506	
H. L. Holloway	£506	
LONDON —For the erection of new shops, flats, &c., at 24, King Street, St. James's, S.W., for Mr. W. J. Pursur. Mr. Walter Heam, architect, Grove Park West, London, W. Quantities by Mr. W. Thompson	£506	
Lordon & Sons	£506	
Bowyer	£506	
LONDON —For rebuilding the "Cotton Chambers" public-house, Chesham-street, near the Victoria Theatre, for Mr. J. J. Camber. Mr. W. M. Bruton, architect, Trafalgar House, Strand, London, W. Quantities by Messrs. Wall & Co. £506 Structural. Codrington & Son	£506	
W. Smith	£506	
Wall & Co. £506	Edwards & Medway	£506
(Schedule prices.)	Accepted.	
LANGLIS & CO.	£506	
Ansell & Co. £506	Brown & Co. £506	
Liscales & Co. £506	Burnman & Sons £506	

LONDON.—For rebuilding the "Royal Oak," Whitton-street, Highbury, N., for Messrs. F. Hurdle & Co., Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 R. E. Clarke £3,300
 W. Smith £6,000
 W. Rowe £2,923
 Lascelles & Co. £3,159
 P. Richard & Renwick 3,986
 Burman & Son 3,441
 Courtney & Fairbairn 7,843
 H. L. Holloway 2,923
 Accepted.

Painting.
 J. W. & Co. £34
 R. Heath (accepted) £279
 R. E. Lane 88
 H. & F. Warne 80

LONDON.—For billiard saloon and lounge at the "Woodman Hotel," West-wind Hill, Sydenham, S.E. for Mr. W. Dowling, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 Mr. Byrne £605

Painting and Gilding.
 Brown & Co. £535

Buckley & Beach £240

LONDON.—For alterations to the "Phoenix Distillery," Norton Road, N.E., for Messrs. Wesson & Lyon, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 Brown, Kruse & Co. £4,150
 Burman & Son £3,300
 Lascelles & Co. 3,594
 W. Rowe 3,856
 P. Richard & Renwick 3,186
 Burman & Son 3,345
 Stevens Bros 3,143

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For rebuilding the "Earl Russell" public-house, York-street, Oxford-street, W., for Messrs. G. & Co., Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 H. Hopkins £5,070
 Courtney & Fairbairn £4,795
 H. L. Holloway 4,700
 W. Smith 4,862
 Whitehead & Co. 4,862
 Tyreman 4,550
 Richard & Renwick 4,550
 Accepted.

Painting.
 J. W. & Co. £106
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Smiths Arms," New Church-street, Bermondsey, S.E., for Mr. A. C. Locke, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 Burman & Son £1,500
 Courtney & Fairbairn £1,136
 H. L. Holloway 1,193
 W. Smith 1,167
 Godson & Son (accepted) 1,110
 W. Winn (accepted) £107
 9 6

Painting.
 Buckley & Beach (accepted) 96 0 0

LONDON.—For alterations to the "General Hawlock," Park-road, Peckham, S.E., for Mr. D. Wyborn, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £1,460
 Courtney & Fairbairn £1,441
 H. L. Holloway 1,484
 Tyreman 1,484
 Richard & Renwick 1,484

Painting.
 Tyreman (accepted) £3,775

Fitting.
 Brown & Co. £775

LONDON.—For structural rebuilding of the "Falcon" public-house, office, Falcon-square, E.C., for Mr. A. C. Locke, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 H. Hopkins £4,650
 Courtney & Fairbairn £4,776
 H. L. Holloway 4,700
 W. Smith 4,650
 Richard & Renwick 4,650
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Gipsy Queen" public-house, High-street, West Norwood, S.W., for Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,841
 Courtney & Fairbairn £4,800
 H. L. Holloway 4,700
 W. Smith 4,650
 Richard & Renwick 4,650
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "King and Queen," Newington Butts, S.E., for Mr. W. H. Burney, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 H. Hopkins £3,380
 Courtney & Fairbairn £3,147
 H. L. Holloway 3,087
 W. Smith 3,150
 Burman & Son 3,150
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Essex Arms" beer-house, High-street, Plumstead, S.E., for Messrs. Courne & Co., Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 H. Hopkins £3,380
 Courtney & Fairbairn £3,147
 H. L. Holloway 3,087
 W. Smith 3,150
 Burman & Son 3,150
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Coach and Horses" public-house, Strand, W.C., for Mr. W. F. Day, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 W. Rowe £3,700
 Courtney & Fairbairn £3,406
 H. L. Holloway 3,331
 W. Smith 3,331
 Burman & Son 3,331
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

LONDON.—For alterations to the "Bankers Arms" public-house, Bankers-road, Acre-lane, E.C., for Mr. Henry Guy, Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Structural.
 H. Hopkins £595
 Little & Seneca £590
 B. Crook 679
 Phamali 475
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—Accepted for alterations to the "Green Dragon," Maddox-street, Regent-street, W., for Mr. W. J. Purser, Mr. Walter Heath, architect, Grove Park West, London, W.—
Structural.
 J. W. & Co. £156
 J. W. & Co. 159

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations to the "Nag's Head Tavern," Leather-lane, Holborn, Mr. Chas. R. Winter, architect, 119, Finsbury-pavement, E.C.—
Structural.
 H. Hopkins £1,847
 Todd & Co. £1,783
 Lawrence & Sons 1,845
 Lascelles & Co. 1,780
 Burman & Son 1,837
 Elington & Co., Dalston 1,800
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For the erection of stabling and horsekeeper's house at Turner-square, Hoxton, N., for the Hoxton Brewery Company, Ltd., Mr. Chas. K. Winter, architect, 119, Finsbury-pavement, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

Painting.
 J. W. & Co. £156
 J. W. & Co. 159

Gilding.
 Monaghan £250
 W. Winn £150

LONDON.—For alterations in converting shop and premises, South Kensington, into a house, for Lord Rayleigh, Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
Structural.
 H. Hopkins £1,173
 Jarvis & Sons, Hackney-road £1,086
 Lascelles & Co. 1,173
 Accepted.

The Builder.

VOL. LXXIII. No. 2855.

OCT. 23, 1897.

ILLUSTRATIONS.

The Roman Bath, Bath : as architecturally treated from the design and under the direction of Mr. J. M. Brydon, F.R.I.B.A. Double-Page Ink-Photo.
Design for Bronze Gates.—By Mr. J. J. Shaw Double-Page Ink-Photo.
Design for New Girls' Schools, Hammersmith.—By Mr. Reginald Blomfield Double-Page Photo-Litho.
The Ellen Badger Memorial, Shipston-on-Stour.—Mr. E. W. Mountford, F.R.I.B.A., Architect Single-Page Ink-Photo.
Two Houses, Harrow.—Mr. T. Phillips Figgis, A.R.I.B.A., Architect Single-Page Ink-Photo.

Blocks in Text.

Sweetheart Abbey: Bay of Nave	Page 321	Carved Stone Cross at Clonmacnoise	Page 371
Arbroath Abbey: Interior of South Transept	322	North jamb and orders of Chancel arch, Clonmacnoise	373
Arbroath Abbey: Lenda Cathedral	323	Cap from Western door of principal church, Clonmacnoise	373
Arbroath Abbey: West Doorway and Gallery over	324	Doorway at Freshford, co. Kilkenny	373
Arbroath Abbey: South Side of Nave	324	Chancel Arch, Tuam	373
St. Giles's Collegiate Church: Junction of Vault of South Transept	324	Half ground plan at Freshford, co. Kilkenny	373
Incised Cross on Soffit of door lintel, "Our Lady's" Church, Glendalough	322	Carved impost from Killeslin Church, near Carlow	373
From the gable of "Trinity" Church, Glendalough	372	Soffit of outer arch of Doorway, Freshford	373
Final from Holy Well, by Freshford	322	Girls' School, Brook Green, Hammersmith (plan)	378
Kendall's Reverend Window Sash	322	The "Ellen Badger" Memorial House (plan)	378

CONTENTS.

Ecclesiastical Architecture of Scotland	219	Design for Girls' School, Hammersmith	328	Surveyorships	331
The Ancient Architecture of Ireland—V.	321	Memorial Hospital, Shipston-on-Stour	328	General Building News	331
Notes	324	Two Houses, Harrow	328	Sanitary and Engineering News	333
The Jubilee Presents	325	National Association of Master House Painters	329	Electric Lighting News	333
The Royal Institute of British Architects	326	Applications under the 1894 Building Act	329	Stained Glass and Decoration	333
The London Building Act	326	Liskeard Church and the "S. P. A. B."	329	Foreign	333
Competitions	326	"Design for a West Country Church"	329	Miscellaneous	334
Architectural Societies	326	London Signs and Inscriptions	329	Legal	335
Biological Societies	326	Flashings in "Quantities"	329	Capital and Labour	335
The London County Council	327	References for Tenders	329	Meetings	335
Sketches for Bronze Gates	328	Municipal and County Engineers' Examination	329	Recent Patents	335
		Student's Column: Quantities and Quantity-Taking. XIV.	329	Some Recent Sales	336

Ecclesiastical Architecture of Scotland.*

The second volume of their elaborate work on the ecclesiastical architecture of Scotland Messrs. MacGibbon and Ross deal with the Scottish remains of churches of the Early and the Decorated periods, the word "Early" standing of course for the phase of Gothic usually styled "Early English," a nomenclature which would naturally seem out of place in connexion with remains on Scottish ground. And though the main characteristics of the period are the same in both countries, there are certain details peculiar to Scottish Early Gothic which distinguish it from Early English, besides a difference in general character and appearance which is obvious enough, though not easily defined.

The authors' preface touches on some of the general questions in regard to Mediæval architecture, such as the comparison between French and English Gothic, and between wooden roofs and stone vaulting, in pretty much the same language as we are familiar with in other recent writings on Gothic architecture, and which does not apply to Scottish Gothic in particular. But while the authors deprecate the use of the timber roof in English and Scottish churches alike, as a departure from the complete principle of Gothic building (as it certainly is), they draw attention to one or two instances in which the Scotch architects may claim the merit of having accepted the constructional principle of the timber roof more completely than the designers of our English cathedrals, in dispensing with the vaulting shaft, which in not a few English transitional buildings is used in conjunction with a timber roof in a manner which seems to argue either that the builders copied the vaulting shaft from the French without appreciating its meaning, or else that they set out with the intention of constructing a vaulted roof and shirked it when the walls were up. Now some of

the Mediæval Scottish architects evidently recognised the fact that the vaulting shaft had no function apart from the vaulted roof, for they avoided its use altogether, as at Sweetheart Abbey (fig. 1), leaving only a continuous blank wall above the nave arcade, as if realising the fact that the timber roof, even when used without a horizontal tie-beam at the base, nevertheless belongs to the beam order of architecture, and has not the same statical relation to the substructure as a stone vault. At Dunblane, again, although a triforium arcade is introduced (and the arrangement of Sweetheart Abbey certainly looks rather bare with the blank wall above the arcade), it is not divided into bays with main piers corresponding to the main piers of the nave arcade, but the triforium design is continuous; the same pier occurs over the pier and over the apex of the arch of the nave arcade, without any distinction; the division into constructional bays is obliterated above the main arcade. This is a point worth notice, for in some respects it is a more consistent method of building, and may serve to remind the student that the vaulting shaft, rightly considered, is something more than a conventional division of the wall into vertical slices.

In some further critical remarks in the introduction we should surmise that the authors have been rather influenced by the clever but one-sided and bigoted treatise by Mr. Moore, the American critic, noticed in our pages some time since, who like all "good Americans," wished to "prove" that no Gothic architecture except French Gothic deserved the name at all. The authors seem to follow rather in his track; they share his contempt for the English circular and moulded capital (in some respects and in some situations a more graceful and artistic form than the French square abacus), and rather condescendingly admit that English architecture is "in many respects very charming." This kind of tone is evidently the result of American influence. It seems to be forgotten that the Early English style was really invented by the English, and has beauties for which the contemporary French architecture showed no pattern.

Yet the Scottish architecture of the same period shows in some ways more affinity with French than English work, in its massive plain style and deep reveals. The

difference may have partly resulted from local influence—from the sterner character of Scottish taste, and perhaps the difficulty of getting the best class of workmen; but there may have been direct French influence even then. When we come to consider the style of Arbroath Abbey, one of the first works illustrated in the book, it is significant to find that King William the Lion, who founded it, after being taken prisoner at Alnwick in 1174, had been confined at Falaise in Normandy for two years, and immediately set about founding the Abbey on his return to Scotland in 1176. He may have tempted some French masons over with him; certainly there is something Continental about the look of the south transept (fig. 2) with its tall windows and thick masses of wall. The authors point out a resemblance to something even further afield in their comparison of the arch mouldings of the west doorway with those of Lerida in Spain (fig. 3), taken from Street's book. But this can hardly be more than a coincidence. The persistence of the round arch in Scotland, after it had been practically entirely abandoned in England, is another "note" of Scottish Gothic, seen in the west doorway of Arbroath (fig. 4), which exhibits another very curious and almost unique peculiarity in the deep flat soffit, forming almost a kind of tunnel, within which the moulded and ornamented doorway is recessed, and which, according to our usual ideas, is so exceedingly un-Gothic in appearance. The explanation given by the authors in regard to this curious architectural episode is that the gallery over the west doorway, originally terminating on the plane of the three pointed windows over the doorway, was subsequently brought further out westward to obtain more floor space, the additional space being carried by the tunnel arch, the small pointed arches in the jamb of which belong to a later period than the main doorway; and this seems to explain the facts, especially when compared with the plan given in the book. There would have been shafts over the outer plane of the tunnel arch, carrying the roof over the added portion of the gallery, and which have now disappeared. The view of the interior of this gallery, given on page 40 of the book, is equally curious. The shafts on the side towards the church are octagonal, with the height divided into two parts by a large belt

* "The Ecclesiastical Architecture of Scotland from the Earliest Christian Times to the Seventeenth Century." By David MacGibbon and Thomas Ross, Vol. II. Edinburgh: David Douglas. 1896.

moulding; the roof is formed partly by corbelling over in horizontal courses, and additionally supported by heavy cross lintels of stone, jointed on the top of exceedingly plain shafts with only a kind of apology for a capital and base. Altogether this is one of the most curious corners of mediæval building to be found, perhaps, either in Scotland or elsewhere.

The illustrations of the remains of Holyrood Abbey are numerous and interesting, and here we are again introduced to a French coincidence. The elegant triforium of the nave, very English in design and rather reminding one of part of that in Lincoln choir, was evidently felt to be, with the open passage behind it, somewhat weak, and strong relieving arches are turned over each bay, visible on the exterior of the wall; the authors call them "saving arches" (is that the usual term in Scotland for what we call in England a relieving arch?), and they note that "a similar strengthening arch exists in the outer wall of the triforium gallery at Amiens." It is worth note that the constructional arch is a plain semi circular arch, quite Roman in appearance, in odd contrast to the acutely-pointed



Fig. 1.—Sweetheart Abbey: Bay of Nave.

windows, like nothing either French or English.

Kilwinning Abbey, what little is left in it, contains some curious points, especially in the entrance and side windows to the chapter-house, with round-headed arches very boldly moulded, and moulded eaps or rather abacus mouldings of the English type of profile, but with no cap or necking, and no adjustment to the profile of the arch mouldings; they simply form moulded blocks against which the shafts butt, while the side windows were divided into two lights by a "plate" filling in the head of the arch, in one stone, the lower portion cut into two semi-circular arch heads; it looks as if the windows had been divided by a flat bar or mullion which has disappeared. This singular and clumsy jumble of detail contrasts oddly with the fine and refined character of the south end of the south transept, the only portion left standing in tolerable completeness.

Pluscarden, much ruined, is one of the most curiously original buildings illustrated in the book. The manner in which, at the west side of the south transept, the heavy deep jambs of two of the long windows are carried on thin legs of shafts, standing quite



Fig. 2.—Arbroath Abbey: Interior of South Transept.



Fig. 4.—Arbroath Abbey: West Doorway and Gallery over.

arcade of the triforium which it shelters. Holyrood, though much more English in its detail generally than Arbroath, still shows in some places an odd mingling of French with English type of detail. The arcade on the lower part of the tower, for instance, has the circular caps and foliage of Early English work, while the large two-light windows above, with the square abacus to the cap of the shaft and the flat soffits to the windows, might pass for Early French work, except for the curious ornament of a series of semicircular knobs on the jambs of the

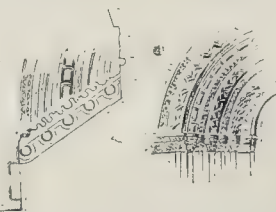


Fig. 3.—Arbroath Abbey. Lerida Cathedral.

free with the weight of this mass of wall on them—apparently at least, is a singular though very effective freak of building. We say "apparently" carried, for probably the jamb stones are tailed into the outer walling sufficiently to take a good deal of the weight off the shafts. The architecture of the frater, with its central octagonal shafts with the vaulting-ribs springing off their faces without any impost, is another characteristic bit. The authors, by the way, write "monks' hall or frater" as if they regarded the frater as the day-room, wherea

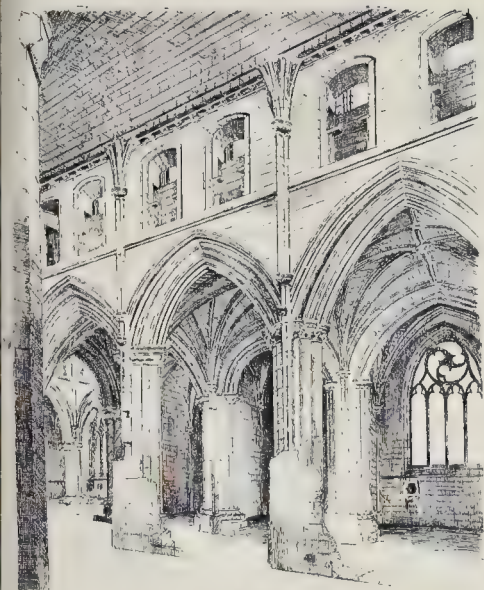


Fig. 5.—Melrose Abbey: South Side of Nave.



Fig. 6.—St. Giles' Collegiate Church: Junction of Vault of South Transept.

there is no doubt that the word is only another form of "refectory."* The important monuments of Elgin, Glasgow, and Brechin Cathedrals, to which a large space in the book is naturally devoted, have been fully described and illustrated in the *Builder*.†

This development of the architecture of the Decorated period in Scotland was delayed by the turbulence of the times and the wars with and raids from England, which checked all architectural work for nearly a century, so that Scottish Decorated is very much in the rear, in point of time, of English Decorated, the imitation of the style in Scotland only commencing about the time that English architecture was resolving itself into the Perpendicular style, which style is nearly non-existent in Scotland. One peculiarity to which the authors draw special attention is the frequent employment, during this later period of Scottish work, of a pointed barrel vault in masonry carrying a stone roof. At Melrose such a roof was built in the early part of the seventeenth century, the vault being demolished, while the vaulting shafts and springers remain. Melrose the authors compare to York, and though there is little enough resemblance in the interior of the nave (fig. 5) with its rather mean-looking segmental-headed clearstory windows, yet it is true that the exterior, both in its general proportions and lines and

in the design of the windows, reminds one very much of the choir of York. The important cathedral of St. Giles, Edinburgh, has been illustrated and described in our series of Cathedrals of Scotland,* but from the numerous sketches in Messrs. MacGibbon and Ross's book we reproduce one (fig. 6) which gives a view of the curious arrangement of vaulting in the extension of the south transept; the whole has rather an awkward and makeshift appearance.

Architectural students will find a great deal to interest them not only in the accounts of the large and more important buildings described in the book, but in the plans and sketches of some of the smaller and less known examples, many of which have special characteristics quite unlike anything to be found in England. The authors are doing a valuable piece of work for the architectural history of their own country; and though the illustrations are not such as we are accustomed to find in an architectural publication *de luxe*, they are sufficient to give a good idea of the character of the work; plans are given in all cases; and the moderate size of the volumes is a convenience, and will lead to their being more generally studied than would be the case with a larger and more sumptuous form of publication.

THE ANCIENT ARCHITECTURE OF IRELAND.

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

BY PROFESSOR BALDWIN BROWN.

THE phase of architecture known as Irish Romanesque is of interest from the decorative rather than the constructive side. The structures in which it appears are of the same

type as those we have been already considering. The difference resides in the introduction of a system of ornamentation, as rich as it is tasteful, which is totally different from anything which appears in earlier times. The buildings hitherto dealt with are, as we have seen, plain even to austerity. Of ornamental features, besides an occasional incised cross like that at A, fig. 24, we find at times] curious gargoyles-like projections jutting out east and west from the ends of the long walls of the building just at the spring of the gable (B, fig. 24). The apex of the roof is often adorned by a sort of finial or acroterion, which some have compared to a pair of wings. C, fig. 24, shows one that originally surmounted a small building over a holy well by Freshford, co. Kilkenny.

These simple ornaments seem to exhaust the architectural decoration of the single-celled oratories or the normal nave-and-chancel churches spoken of in preceding papers, although many of these are contemporary with the richly-carved stone crosses of monumental size, like that shown in fig. 25, and the various masterpieces in the minor ornamental arts that have won deathless fame for the early Hibernian decorator. On this simplicity the Irish Romanesque enrichment was superinduced at a date that we may provisionally fix at about 1100 A.D., and at once imparted a new character to the native architecture. It has been said of it that it is but the repetition in stone of the illuminated pages of the scribe of the Irish manuscripts, but this does not convey quite a true idea of it. Native Hibernian ornament counts for much in the result, but this is combined with elements of a severer, more purely architectural, kind that can hardly be claimed as of native growth. These elements remind us at once of a

* Latin *refectorium*; old French *refectoir* (twelfth century); old English *freilour* or *freyloure* (fourteenth century); English sixteenth century *frater*; thence *fratry* or *fratry*, a form perhaps arising from some idea that the word was the classical Latin *frater*, "a brother," with which however it has really nothing to do. We are indebted to Mr. St. John Hope for the philology. *Frater* was the general name, down to 1550, for the apartment now commonly referred to as the "refectory," and it never means anything else.

† Cathedrals of Scotland: see *Builder* for July 1, 1892 (Glasgow); February 3, 1894 (Brechin); and March 3, 1894 (Elgin).

* *Builder* August 5, 1893.

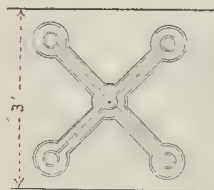


Fig. 24A.—Incised Cross on Soffit of door lintel, "Our Lady's" Church, Glendalough.



Fig. 24B.—From the gable of "Trinity" Church, Glendalough.



Fig. 24C.—Finial from Holy Well, by Freshford.

foreign style, in which architectural logic was the predominant element, and this style is the Norman.

The use of the word "Norman" in connexion with certain elements in Irish Romanesque has been objected to, partly on the ground that the Normans did not become politically active in Ireland till towards the close of the twelfth century, when Irish Romanesque had already achieved its triumphs. We used, moreover, to be reminded that we must not bring over to Erin architectural ideas derived from England or the Continent and think that they apply equally well to Irish conditions. The Hibernian craftsman, it was argued, had been accustomed for generations to carve in stone on his crosses, and to use all kinds of ornament in other materials, so that enriched architecture in Ireland might have grown up in independence of what was going on elsewhere. We were even asked to believe that a moulding, or similar feature, belonging to Western architecture generally to a certain period, might have been independently evolved in Ireland a generation or two previously. Such arguments would hardly be seriously pressed at present. There are, of course, local peculiarities in every land, and in Ireland, where a national artistic feeling was in the Middle Ages so strongly developed, these local peculiarities are especially conspicuous, but at the same time every land presents phenomena of a more general kind corresponding with what is appearing at the same time in other regions. That is to say, there is a general movement in architectural matters that affects areas far larger than separate countries, and that gives to each epoch over these areas a certain distinctive character. This character belongs to the epoch. The features that mark it are its possession. They do not wander aimlessly up and down the ages, appearing now here, now there, at this or that epoch just as it chances, but, within certain pretty narrow limits of variation, are constant facts that can furnish data for historical conclusions. In this way, in Western Europe generally, in the eleventh and twelfth centuries, Romanesque architecture was being gradually evolved, while the artistic activity of the period gathered itself round various centres and formed what may be termed Provinces of Romanesque. France had several of these Provinces, while Saxony, the Rhineland, Lombardy, Tuscany, were the seats of others. No Province was more fertile in great works, or more distinct in its local characteristics than Normandy. Norman architecture has the merits of great consistency. Both processes and forms are well understood, and employed in a practical and business-like manner, and this assurance and method would be likely to impress them-

selves upon neighbouring peoples whose work was more or less in the experimental stage. So Norman architecture achieved an easy victory in our own country over the interesting but irregular and tentative work of the pre-Conquest period. That the ideas and methods of Norman builders penetrated Ireland in the latter part of the eleventh century seems clear from the evidence of the monuments, and would indeed be quite in accordance with natural probability. However sharply divided in political matters from England and from the Continent, Ireland possessed in her Church an institution that implied a continuous connexion with the other regions of the West. When the general architectural movement that was creating the Romanesque styles was felt in its turn by the Hibernian island, Normandy, which by this time as an architectural province embraced a great part of Britain, was the region in which inspiration and guidance were found. This guidance came in the form of a system or scheme of architectural enrichment, which supplied a sort of framework to which the native carver could attach his own graceful and varied web of ornamental motives. Hence a style that is partly regular Romanesque in its Norman form, and partly native Irish.

The monumental proofs of this Norman influence are as follows: Irish Romanesque exhibits itself chiefly in the characteristic Norman forms of recessed chancel arches and doorways, with angle-shafts and arch-volt mouldings, the doorways projecting at times in the shape of shallow porches, crowned with a gable; and also, though more rarely, in wall arcading. By far the most conspicuous of the ornamental features employed in the decoration of the arch mouldings is the chevron, which might almost be termed ubiquitous, though it is absent in some cases, such as the west door of St. Flannan's oratory, Killaloe, and the chancel arch at Inniscarra. Students of Lord Dunraven's work will remember that it occurs on almost every one of the examples of the style given in his photographs. Now the chevron is so characteristically Norman that it occurs in none of the other Romanesque districts, while it penetrates wherever the influence of the Norman school can be traced. We find it at Monreale, in Sicily, at Trondhjem in Norway, at St. Magnus at Kirkwall, but we do not find it even in France outside the limits of the Norman Duchy. It may be objected to the ascription of the Irish chevrons to a Norman origin that the form is so simple that it might very well have been independently invented. This is true, and it is true, moreover, that the zigzag motive occurs in Early Irish decoration, as

at Newgrange, or on the magnificent gold ornament preserved at Trinity College, Dublin. It occurs equally, too, on late Norman altars, and in works of barbaric art of many places and epochs. None the less true is it that the particular use of the motive in architectural enrichment which we know as the chevron is quite distinctive of Norman work. Nowhere else does the zigzag, however common it may be, develop in this particular direction. Hence, when in Ireland we find chevrons that elsewhere would be considered Norman used in an architectural connexion that brings out the Norman character still more strongly, it is far more natural to look upon them as a adopted fashion than as an independent creation that would under the circumstances represent one of the most extraordinary coincidences known to architectural history.

If we accept the chevron in Irish Romanesque as a Norman feature, important consequences follow for the chronology of the style, for the use of the chevron is a definitely bounded in the matter of time and in that of place. Neither in Normandy nor in Normanised lands does the chevron appear in the work of the eleventh century while it is used in that of the twelfth with wearisome iteration. Its history is hard to trace. In Normandy it does not appear at Bernay, Jumièges, St. Etienne, and St. Nicholas at Caen, or Greville by Havre, to mention in order of time a few churches of the first rank reaching to the end of the century; in England the first generation of Norman churches, Winchester, the Lincoln of Remigius, the Durham of St. Carilef, do not show it, while it figures in Bishop Alexander's work at Lincoln and Stow and the nave vault at Durham, all of 1140-50. An early use of it occurs in the three doorways of the nave at Stow, for this part of the church is clearly earlier than Bishop Alexander's choir. The chevron in embryo may be detected in Normandy on the front of Meuvaines, ascribed by Ruprich Robert to the eleventh century, and in England on the arch moulding round the south door of the early Norman church of Wharrah-le-street, Yorkshire. We may safely say that it does not come into use in its distinct and matured form till after 1100 A.D.

The employment of the chevron, accordingly, sets the Irish Romanesque work in which it occurs within the twelfth century, and this consideration has not a little chronological significance. Accepting now the fact that there is a strong Norman element in Irish Romanesque, let us go on to consider those other features in which the style shows itself as an original and a native production. Such features, it needs hardly be said, give it its chief artistic and historical value.

It is useless to attempt to give, within the limits of a single paper, an idea of the multifarious forms in which the fancy of the Irish carver has exercised itself. A single recessed archway like that at the south-west corner of the Cathedral of Killaloe presents, as Mr. Westropp's elaborate drawings have recently shown,* material for considerable study. The utmost that can be done is to convey some general notion of the character of the work by comparing it with the normal Romanesque of England and the Continent.

In the arches the voussoirs are well cut and fitted, and the divisions between the

* Published in the "Journal" of the Royal Society of Antiquaries of Ireland for 1892, p. 398, &c.



Fig. 25.—Carved Stone Cross at Clonmacnois.



Fig. 26.—North jamb and orders of chancel arch, Clonmacnois.



Fig. 27.—Cap from western door of principal church, Clonmacnois.



Fig. 29.—Doorway at Freshford, co. Kilkenny.

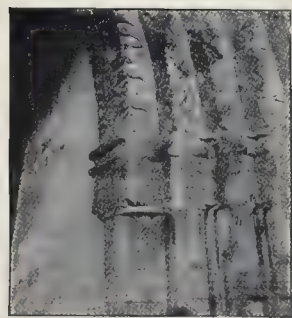


Fig. 31.—Chancel arch, Tuam.

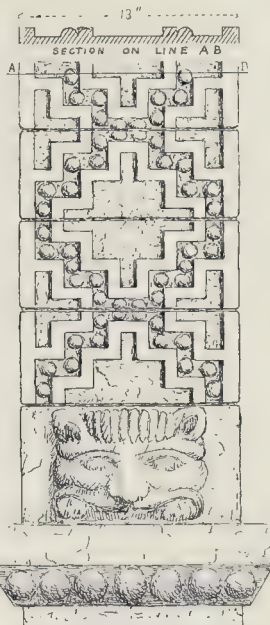


Fig. 30.—Soffit of outer arch of doorway, Freshford.



Fig. 28.—Half ground plan at Freshford, co. Kilkenny.



Fig. 32.—Carved impost from Killeslin Church, near Carlow.

stones are, as in Norman work, recognised in the patterns. In the treatment of the piers we find a less sharp accentuation of the forms than in Norman work. The angle-shafts are not monolithic or put together as independent members, but coursed like the walling, while we find them at times in process of formation out of the rounded and quirked corners of a square pier. Fig. 26, the north jamb and part of the archivolt of the chancel arch of the Nuns' Church, Clonmacnois, will show the bold and consistent use of the chevron above, while the jamb is still somewhat inchoate and lacks the distinct membering of a Norman design. Here, with the absence of definitely formed shafts, goes what Miss Stokes has called the continuous flat architrave in place of distinct individual capitals. In the cases, however, like the doorway at Freshford, presently to be noticed, in which there are regular shafts, the correspondingly formed caps appear in

their proper connexion. The caps are often of the scalloped form, and in the treatment of them the Irish carvers find new variations on this almost inexhaustible theme. Fig. 27, from the western door of the main church at Clonmacnois, gives a favourable example. As a native feature the fact must be noted that these doorways generally preserve the old tradition of inclined jambs, the early use of which has been noticed in a previous paper.

As an illustration of this phase of work in a typical though simple form we may take the enriched portal of the church at Freshford, near Kilkenny, shown in plan in fig. 28, and in general view in fig. 29. The actual doorway is 3 ft. 3½ in. wide below, but 3 ft. 1 in. at the top of the jambs, which are to this extent inclined. The caps are mostly scalloped, the bases too worn for much to be made of them; the chevron is used in the inner orders. The more pro-

nounced of the specially Irish features in the ornament are the following: 1. Grotesque heads or masks. 2. Geometrical ornament of a battlemented character. Fig. 30, which gives the lower part of the soffit of the outer arch, exhibits, in the lion's mask and the curious, almost Chinese-like enrichments above, specimens of both of these. Masks of the same kind, only human, adorn the caps of the pier of the fine chancel arch in the Cathedral at Tuam, 16 ft. in span, one of the noblest monuments of the style (fig. 31). At the Nuns' Church, Clonmacnois (fig. 26), carved heads appear in the same position. A more characteristic example, however, is shown in fig. 32, which is a copy of the impost of the northern pier of the outer order of the doorway at Killeslin Church, near Carlow. The head is modelled with boldness and skill, but the specially Irish feature is the hair, which is turned to interlacing strap work, after the

style of the illuminated manuscripts, a lacertine character being imparted to the ends. Interlacing work is, perhaps, not as common in this phase of architectural decoration as might have been expected from its frequency in other forms of Irish art. In any case its significance would not be great, as motives of the kind occur in Norman buildings both in England and across the Channel. The "battlement" ornaments are very popular in Irish work, but rare in Norman enrichment elsewhere. There is a specimen on one of the doorways of the Norman nave at Stow, Lincolnshire, and examples are spoken of as occurring in Wales. Such a piece of work as that shown in fig. 32 will, however, be found nowhere else but in Ireland.

The illustrations here given of Irish Romanesque enrichment offer but a poor idea of the wealth and fantastic charm of its varied forms. Some of the large compositions, such as the west front of the Cathedral at Clonfert, are so exuberant in their richness that they remind us rather of monuments like Notre Dame la Grande at Poitiers than of the more severe and self-restrained Norman work. The resemblance, though it is only a general one, between Clonfert and some enriched fronts in Touraine, such as Azay-le-Rideau, suggest a field for study and comparison that might profitably be worked. The connexion of Irish churchmen with this region of France was of course of very old date. The recent works of Miss Margaret Stokes upon the traces of the intercourse between the ecclesiastics of Ireland and those of different parts of the Continent are from this point of view of especial value.*

NOTES.

THE SITE OF MILLBANK. SOME correspondence has taken place in the Press in regard to the vacant land near the new Tate Gallery. The Secretary of the Metropolitan Public Gardens Association has written to point out that, up to and in 1893, this Association endeavoured to obtain the ten acres which remained over from the land required for the Gallery and for barracks as an open space. But this land has been sold by the Government to the London County Council for artisans' dwellings at 2,500*l.* per acre; in other words, for 25,000*l.* It seems, however, by no means yet too late, if public pressure is brought to bear, still to keep this land as a public garden or park. The Westminster Vestry offered to pay 10,000*l.* towards the purchase of the site; and surely the County Council and the public could provide the remaining amount. The importance of keeping this land as an open space cannot be overrated. It may be pointed out, apropos of the Tate Gallery, that there should be a cab-stand near, and if there is not sufficient custom for cabs to stand on a rank at the Gallery itself, that the stand should be placed nearer Westminster, yet within whistling distance of the Gallery. If a visitor comes out on a wet day, it is at present impossible to get a cab, and ladies may be soaked before they can get to Westminster.

NEW ART INSTITUTE IN FLORENCE. We are glad to learn from the *Archaeologischer Anzeiger* (1897-3) that a new "Kunst-historisches Institut" is about to be founded

* "Six Months in the Apennines" and "Three Months in the Forests of France." London: 1892 and 1895.

at Florence. The new institute is not exclusively, nor indeed principally, classical, it is to embrace the whole domain of the historical aspect of Italian and kindred arts. It will, therefore, in no way overlap the field of the long-established Archaeological Institute in Rome. The director is already appointed, Dr. Heinrich Brockhaus, extraordinary professor at the University of Leipzig. England is represented by Mr. Sidney Colvin and Dr. Waldstein. A sum of 15,000 marks has been already collected, but further contributions are invited, both in the form of money and "apparatus," i.e., books, photographs, catalogues of private collections, and the like. The organ of the new institute is to be the *Kunstchronik*. It is hoped that when the institute is fairly in working order a government grant will be obtained. The new director enters on his duties this autumn. The same number of the *Anzeiger* contains an article on the beautiful silver vessels discovered at Hildersheim, illustrated by many prototype plates. The Hildersheim treasures have recently been overhauled, repaired, and generally put in order.

THE INSTITUTE PROGRAMME. We are glad to find that the Institute of Architects has been able this session to do what the junior Architectural society has long done viz.: to announce in advance the subjects and authors of all the papers for the session, and the dates at which they will be read. The complete list will be found on another page. This is in every way an advantage. It enables those who are specially interested in a particular subject to arrange their engagements beforehand so as to attend the meeting, and gives opportunity also for studying the subjects beforehand; and a profitable and interesting discussion on a paper depends a great deal on whether those who take part in the debate have given any special attention to the subject. Among papers which have rather a special or a novel interest is that to be read by Mr. Flower on "Renaissance Architecture in Malta;" that by Mr. E. O. Sachs, who is a specialist in theatre architecture, on "The Housing of the Drama," and that by M. Harmand on "Artistic Copyright." During the session the Report on the third series of Brickwork Tests will be brought forward by members of the Science Committee.

PROPOSED GALLERY FOR THE NEW SALON. THE Council of the Champ de Mars Salon, or the New Salon, at Paris, by way of providing for their future exhibitions in a permanent manner, have applied to the Municipal Council of Paris for the site in the Bois de Boulogne at present occupied by the café known as the "Pavillon Chinois." It seems likely that the scheme will be realised, the Salon having engaged to avoid injuring the plantations and to submit a fine design for the building, by M. Formigé. The design will consist of a central pavilion a little higher than the rest of the building, surrounded by colonnades, and flanked by two rotunda pavilions. The building is proposed to be in one story, in an eighteenth century style based on that of the Trianon Palace a little modernised. There is to be a large glazed hall or winter garden in the rear, which will be arranged for the exhibition of sculpture; the building is also to include a concert hall. The situation, in close proximity to the gayest and most fashionable promenades of

Paris, has in that sense everything to recommend it.

THE BOARD OF TRADE ELECTRICAL LABORATORY. We read with interest the notice issued by the Board of Trade describing the tests they are now prepared to make on electrical instruments sent to their Standardising Laboratory at Whitehall, and the fees they charge for these tests. The scope of the work undertaken is very limited. They make no tests on ordinary commercial meters, preferring to leave this work to be done by the electrical inspectors appointed by Local Authorities. Except the mere routine work of a standardising institution, namely, testing ammeters, voltmeters, resistances, and Clark's cells, they do practically nothing. Large alternating current ammeters will not be calibrated as apparently they have no means of measuring currents greater than 500 amperes. As a substitute for a National Standardising Laboratory, we are afraid it will not be of much use. To get glow lamps standardised manufacturers will still have to send to the Reichsanstalt, and they will still have to send samples of iron to Cambridge to get them magnetically examined. The original object of the Board of Trade Standardising Laboratory was to make and preserve the three fundamental electrical standards, and this attempt to make the department profitable seems to have been an afterthought. The Board of Trade are careful that their officers have the minimum amount of trouble, as they refuse to test any instrument that requires to have wires soldered to it. They also say that they will not be responsible for any damage done to instruments being tested at their laboratory.

PRISONS AND COURT-HOUSES. THE Howard Association, in its Report for October, while observing that the construction of prisons and court-houses has immensely improved during the Victorian era, and pointing to the new prisons at Nottingham, Norwich, and Bristol, and the court-houses at Lewes as models of their kind, states that notwithstanding this general improvement, there are cases where the provisions in buildings of this class are still antiquated and unsatisfactory. The Association has been informed that at the Assizes both at York and Leeds the prisoners for trial are kept in large rooms, without due separation or without being boxed off from each other by partitions between each seat, which ought to be provided. It appears, however, from the wording of the sentence, that that is hearsay evidence, which rather surprises us. We thought it was the profession of the Howard Association to look into such questions through its own officers, and not by report.

DUNDEE INSTITUTE OF ARCHITECTS. We have received the Annual Report of the Dundee Institute, which, besides official information, includes a pretty long résumé of several papers read during the last session—the address by the President, Mr. Leslie Ower, a paper "On the Desirability and Possibility of a Revival of Gothic Architecture" (another revival?) by Mr. Alexander M'Gibbon; and one on "Heating by Hot Water and Steam," by Mr. Walter M'Gregor, Superintendent of the Dundee Public Baths; and one on "Progress in Architecture During the Queen's Reign" by Mr. Jas. A. Williamson, of Edinburgh. The latter is a very able and well-

written summary, if we except the extraordinary mistake of spelling an eminent architect's name as "Norman Shawe;" not a printer's error, as it occurs three times over.

It appears that on the 19th a poll was taken of the parishioners of this church to determine whether the parish should be united to another parish and the church (by Wren) be demolished, the site sold, and the sum devoted to the endowment of a church in another part of London. It is to the credit of the parishioners that eighty-seven votes were recorded against the scheme, and only thirty-nine in its favour, so St. Mary Aldermanbury will still stand. The *Daily Chronicle* observes, "as the annual value of the site and expenditure on church services is estimated at 1,250*l.* a year, and the average of worshippers is thirteen, there was some reason for hoping that the answer to the question might be an affirmative one." This is amusing on the part of a journal which was beside itself with indignation at the carrying out of necessary repairs to Peterborough Cathedral, and now is disappointed because one of Wren's churches is not going to be destroyed.

No provincial town in England, perhaps, possesses so many houses which are associated with the names of eminent persons who have had temporary or permanent residence there, as are to be found in Bath, at the period especially when it was the principal fashionable holiday resort. A Bath publisher, Mr. J. F. Meehan, has sent us a kind of directory to the houses which have thus acquired historical interest, the names being printed alphabetically and the houses named in a parallel column. Some of them have now disappeared, but the greater proportion are apparently still in existence. Among the names we find those of Jane Austen, whose residence (or lodgings probably) at 1, Gay-street has disappeared, but another at 4, Sydney-place, still remains; Burke; Goldsmith, in the same house; Gibbon, the historian; Dr. Johnson; Nelson; the Prince of Orange; Mrs. Piozzi; Sheridan; John Wilkes; General Wolfe; Wood, the architect to whom Bath owes so much; Wordsworth, and a number of other names famous in politics or literature. The pamphlet is accompanied by a plan of Bath in which the sites of the houses catalogued are marked by red dots. Visitors to Bath who wish to realise a little of the past social history of the place will find this catalogue and plan of much interest.

The exhibition of the Institute of Painters in Oil Colours is the best that we have seen within our recollection. It contains a considerable number of really striking and original works, and among these are some which have a special interest because they represent a class of subject which their respective authors have not been in the habit of treating. Mr. Wimperis, for instance, in place of his level moors with a vast expanse of sky above them, paints "A Dartmoor Storm" (65) in a mountainous landscape, and treats it as effectively as if he had been painting hill scenery all his life. The name of Mr. Kennington is attached to a large and beautifully composed classical scene of "Cephalus

and Procris" (68). Mr. Hugh Carter, in addition to some works in his usual style, which seems inspired by the work of Israels, surprises us with a nude study, "Repose" (204), in which the peculiar technique which he has applied to clothed figures is applied with equal success to the unclothed; sentiment indeed is lacking, but the picture is a good one. Mr. Joseph Knight, of the solemn dark-green landscapes, surprises us also by a very interesting half-length of a girl, original both in colour and design, under the title "Thoughts" (332). Mr. Melton Fisher's three-quarter length of a young lady, with a head of great individuality of character (181), and no title but a line or two of verse, is rather out of his usual style, but an admirable and very interesting picture. Several landscapes by the late gifted and original artist, Mr. McLachlan, are among the attractions of the collection, more especially "Evening Quiet" (20), an exceedingly fine and poetic work. Mr. Dudley Hardy's "The Stream" (42), a dark and sombre but richly-coloured landscape in which the one light is the body of a nude figure standing in the dark stream, is a work of unusual power and originality. The President's one contribution, entitled "Rest" (245) consists of a figure and a landscape which do not seem the least to belong to one another, in a pictorial sense; it is as if one artist had painted the landscape and another had put in the figure; the result is not satisfactory. Mr. G. F. Watts (for the first time, we think) is an exhibitor of "A Study" (291) of the head of a young woman of rather unprepossessing expression, but the vehicle of a very fine colour scheme in flesh and drapery. Among other noticeable works are Mr. Kennedy's large sketch rather than picture, "A Ship of the Armada" (128), indicating finely the sweep of a stormy sea; Mr. Aumonier's "In a Sussex Valley" (140); Mr. Wetherbee's seaside piece, "A Nymph of the Shore" (161); Mr. Leslie Thomson's "New Moon—Wareham" (179); Mr. Melton Fisher's "Étude" (225) of the back of a woman's head and shoulders; Mr. Adrian Stokes's brilliant and remarkable landscape sketch "On a Hillside" (229) not the least like his usual manner; Mr. C. E. Johnson's fine landscapes "The Forest" (274) and "An Autumn Afternoon" (380); Mr. Wetherbee's "A Nymph of the Stream" (343); Mr. Cotman's warm and glowing "Evening on the River Bure" (347), strangely recalling his father's work; Mr. R. W. Allan's "Starting for the Herring Fishery" (361), and Mr. John R. Reid's "A Daughter of the Soil" (398), the most effective incarnation of a fine young peasant girl who appears in two other pictures in the gallery. After so often finding this exhibition little more than a collection of respectable mediocrities, it is gratifying to find this year so fair a proportion of works that are really worth seeing, besides some others which we have not space to mention.

At the Fine Art Society's Rooms are a number of line drawings illustrative of the Pilgrim's Progress, by three brothers—Mr. Wooliscroft Rhead (one or two fine decorative designs by whom have been illustrated in the *Builder*), Mr. F. A. Rhead, and Mr. Louis Rhead. As illustrations of Bunyan's allegory the drawings are mostly rather deficient, to our feeling, in what may be called the

mystical, or perhaps we should rather say the spiritual element; Christian and Hopeful and Faithful are a little too much like everyday modern persons masquerading in costumes; the gate of the celestial city is opened by a damsel who might have been copied from one of Rossetti's women—who, whatever they are, are certainly not spiritual; the lions in Christian's path, which "were chained, but he saw not the chains," suggest a menagerie study; the climbing of the "Hill Difficulty" a birds'-nesting expedition. One drawing only, "The Enchanted Ground," is really delicate in fancy. On the other hand, there is a great deal of very fine line drawing, especially in Mr. Wooliscroft's Rhead's contributions; his study of the Chief Justice ("Lord Hategood") is admirable both in character and manipulation, and the picture of Moses overtaking and assaulting Christian is a most vigorous and original design. The portraits of the Jury who condemned Faithful are very characteristic; there is a great deal of power in the studies of Apollyon and of Giant Despair (the latter is distinctly what one may call a new reading of the part); and the figure of "The Flatterer" is one of the most characteristic in the collection. As an example of the handling of landscape in black and white the background of the "Slough of Despond" should be looked at. There is much to admire in these drawings, which are well worth a visit, though we think they do not, in intellectual conception, rise to the occasion in all cases.

This Society announces that its first special exhibition of the winter season will consist of a collection of autograph letters and literary manuscripts by eminent men—royal personages, authors, and artists. A great many eminent names are mentioned, and the collection will evidently be one of great interest; but we do not see what it has to do with the objects of a Fine Arts Society. If it were a collection of artists' letters only, there would be a reason for it, but they seem to form but a small proportion of the promised collection; and whatever the interest of the remainder, autographs are not Art.

THE JUBILEE PRESENTS.

At the Imperial Institute there is an unprecedented collection of presents received by her Majesty on the celebration of her Diamond Jubilee. Gifts and addresses have arrived from all parts of the world, presents of jewellery, pictures, satins, needlework, pottery, caskets, and numberless gorgeously illuminated expressions of loyalty and affection from subjects and admirers. Some six hundred odd of these are exhibited, selected, we are told, from the general pile, and a very great show they make, occupying two sides of a long gallery at the Institute. Apart from the enthusiasm such an exhibition awakens in the casual visitor, it is an opportunity for making notes on the outward and for making the tokens of a people's affection take. Thousands and thousands of pounds have been spent, and what is the result? An exhibition of so much precious material and gorgeous colouring is very dazzling; but, save for a few exceptions, we do not find great artistic merit in the exhibits—the most pleasing come from Japan and India. The greater number of valuable presents from British subjects show the love of displaying valuable material and excessive ornament without the restraint that characterises really good craft; this is due to the public not being in touch with the arts and crafts of the country. We do not believe that good work is not appreciated by them, but that it is not easily get-at-able. The illuminated addresses are very discouraging; municipalities and other

Illustrations to the Pilgrim's Progress.

governing bodies have apparently no one to guide or direct their taste in the choosing of aasket or the decoration of an address. It is difficult to realise the waste of opportunity and time that has been bestowed upon the decoration of these monuments: with the exception of a few enlightened instances the British productions are very bad. With art schools in every town in the kingdom, generally in direct communication with Town Councils and committees, we have surely a right to expect something better; in each town competitions might have been organised and a definite attempt made to use the opportunity for decorative work. Of the better examples, one comes from the Royal Institute of Painters in Water-Colour, simply treated with a single figure subject and some slight ribbon decoration; another from the German residents in London, a very pleasing panel of figure subjects, well mounted in vellum covers with gold and silver mounts set with precious stones. That from the Society of Architects is perhaps one of the worst exhibited; it is decorated with architectural ornament in the worst possible taste. The Central Committee of the National Assurance for Supplying Medical Aid to the Women of India send a printed address in a case of needlework, gold cording on a light-blue background. The work is admirable of its kind. British subjects in Bavaria send an address with a clever and quite British title page, three draped female figures looking out over the city of Munich and waving messages of appreciation to their mother country.

Turning to the more interesting things at the exhibition, after a life-size portrait of the Prince of Wales and the Duke of Connaught, by Edouard Detaille, presented by the Prince of Wales, we are opposite a large Axminster carpet, mellow and pleasant enough in colour, but the design is not so good as the subjects represented in it might have made it, had they been differently treated. In the four corners are figures of animals from the great colonial possessions, the tiger, elephant, kangaroo, and the beaver. Connecting these is a border poorly designed, working in the thistle, the shamrock, and the rose. In the centre are the Royal Arms. Five hundred and ninety-one of her Majesty's servants presented a very beautiful diamond, ruby, and sapphire bracelet, the design made up of the rose, shamrock, thistle, and lotus flower with a crown in the middle. Several large cases are taken up with the presents of the Emperor and Empress of China. Of these the porcelain vases enamelled in various colours are quite the best. The carved jade works on stands, for uses not evident, lack all severity in line and composition; they remind us of the puzzles that dazzled us in childhood but remained meaningless. Two embroidered curtains suffer rather from the same cause, but the colour is very brilliant and not disagreeable. The Chinese Ambassador sends cabinets of some artistic merit made in rosewood, the panels decorated effectively with jade and stones of five colours. The stone decoration is good, but the carved woodwork is subject to the usual reproach—attached to the work of the Chinese and common to some degree to the Indian workman—excess of skilful manipulation to the loss of serious intention in design. There are also handsome screens in rosewood and needlework from China. Among presents from India is a large silver casket, richly moulded and displaying panels representing different scenes of the native tribesman in the hunting ground. No. 53 is a chased Australian gold blotter, very effective from the richness of design and the modelling of the plain surfaces. The Japanese exhibits are not disappointing. The best thing of all is a four-fold screen of needlework panels, a continuous view of mountain scenery, worked in silk. The rushing water of the mountain stream and the distant pine-covered hills are very good. Of the Indian work we notice chiefly the beautiful decoration of the silver cases for addresses. Liverpool, Edinburgh, Glasgow also send elaborate caskets; that from Liverpool is the best design of the three, the Glasgow one is the worst—none of them show much spirit in design. The Town Council of Inverness send a nice cabinet in carved oak with silver mountings. There are many objects of interest, in one way or another, at the exhibition, but few of real artistic worth.

THE THOMAS HUGHES STATUE.—The life-size marble statue of the late Judge Thomas Hughes, which is to be erected at Rugby, has been entrusted for execution to Mr. Brock, R.A.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The first general meeting (ordinary) of session 1897-98 of this Institute will be held on the 1st prox., when Professor Atchison, A.R.A., President, will deliver the opening address of the session. The following is the programme for the session:—

November 15, "Notes on Renaissance Architecture in Malta, with special reference to the buildings of the Order of St. John," by Mr. A. S. Flower, M.A., F.S.A. November 20, Business Meeting. December 13, "Brickwork Tests: Report on the Third Series of Experiments," by Members of the Science Standing Committee. January 17, Award of Prizes and Studentships, preceded by Business Meeting. January 24, President's Address to Students: Presentation of Prizes. February 7, "The Housing of the Drama," by Mr. E. O. Sachs. February 21, "The Mediaeval Campanile at Rome," by Mr. J. Tavenor Perry. March 7, Business, including Election of Royal Gold Medallist. March 21, "The Heraldry of Antiquity," by Mr. G. H. B. B. F.S.A., and "Heraldic Drawing," by Mr. J. D. Grace. April 4, "Artistic Copyright," by M. G. Harmand, Avocat à la Cour d'Appel, Paris. April 18, "Domestic Architecture in the United States," by Mr. A. N. Paterson, M.A. May 2, Annual General Meeting. May 16, "The Libraries of the Middle Ages," by Mr. T. G. Jackson, R.A. June 6, Business: Annual Elections. June 20, Presentation of the Royal Gold Medal: Address by the President.

THE LONDON BUILDING ACT: TRIBUNAL OF APPEAL CASE.

ON Wednesday afternoon, in the Arbitration Room of the Tribunal of Appeal, Savoy Hill, W.C., an appeal under the London Building Act, 1894, was heard. Messrs. Crouch, Edwards, & Heron (solicitors), on behalf of Mr. Henry Woodham, appealed against an order of the London County Council, dated August 6, refusing to sanction the formation or laying out for carriage traffic of a street 40 ft. wide, to lead out of the south-west side of Brownhill-road, Catford. The arbitrators sitting were Mr. Arthur Cates (chairman), Mr. J. W. Penfold, and Mr. A. A. Hudson (taxist).

Mr. Alexander Glen, in stating the case for Mr. Woodham, said the appeal was made under Section 9 of the Building Act. Originally, Mr. Woodham described the street as two streets because, as a matter of fact, it had a right-angle in it. The County Council, however, decided to treat it as one. Eventually they refused sanction for the following two reasons:—(1) That the new street would not, at and from the time of forming and laying out, afford direct communication between two streets formed and laid out for carriage traffic; and (2) That the Council had not been satisfied by the appellant that he had control over the portion of the Catford cycle track ground to be absorbed, and upon which part of the new street was to be formed. Dealing first with the second point, he argued that the County Council had no inquisitorial rights as to title. Mr. Justice Wright having laid it down in *Queen v. Edmundson* that provisional sanction could be given on the understanding that necessary information would be forthcoming within a certain time. As to the first objection, and the more important one, he could not understand the grounds for the Council's contention. It seemed to him that the question rested upon the definition of the word "direct." He maintained that the proposed new street, would be in direct, though not absolutely straight, communication with two streets formed and laid out for carriage traffic, and he therefore asked the tribunal to sustain the appeal.

No evidence was called, but certain necessary plans were lodged. Mr. Seagers Berry, for the respondents, said no importance need be attached to the second reason and objection on the part of the Council as set out by Mr. Glen. The Council only mentioned it with a view to protecting themselves in any sanction they might give. He quite agreed with Mr. Glen as to Mr. Justice Wright's ruling. The first objection was the material one, and the Council based it upon Sub-Section 4 and Section 9 of the Act, which stated that there were grounds for refusing sanction where any street, not being within the City, was proposed to be formed or laid out in such manner that such street would not, at and from the time of forming and laying out of same, afford direct communication between two streets, such two streets being streets formed and laid out for carriage traffic. His contention was that "direct communication" meant substantially straight communication, and by the proposal before them this would not be obtained. When there was the question of policy. Was the proposed road in question one which the Tribunal could reasonably be asked as a matter of policy to allow? He maintained it was not; in fact, it was an exact illustration of what the legislature took

exception to in the sub-section he had read. There might be sanitary difficulties arising. He submitted, therefore, that the Council were right in refusing sanction.

Mr. Glen, replying, contended that the legislature had not said that a new street should be in straight communication with two other streets; it simply said it should be in direct communication. In his opinion that meant communication which was not indirect or which had something intervening.

The Chairman, to Mr. Berry: In case we find for the appellant, I suppose you will go to a higher Court?

Mr. Berry: Not if you decide on a question of policy. We might if you decided on a direct point of law.

After short consultation with his colleagues, the Chairman said the Tribunal had come to the conclusion that the plans before them did not satisfy the requirements of law, and that the proposed street would not be in direct communication with two other streets. The appeal would, therefore, be dismissed.

Mr. Berry said he would not raise any question of costs.

COMPETITIONS.

CONGRESS BUILDINGS, CITY OF MEXICO.—In reference to the paragraph under this head in our last, the Secretary of the Mexican Legation in London writes to say that the competition drawings were to be delivered at the London Mexican Legation (87, Cromwell-road) on November 30, not at Mexico, as our paragraph implied. We must, however, add that the mistake was due to the rather vague wording of the Secretary's first letter, on which our paragraph was based.

SCHOOL, SHORTRODS, PAISLEY.—Six sets of plans were lodged with the School Board for the new school at Shortrods, to serve the Mossvale district. After hearing the report of the assessors, the Board chose the plans marked "Shortrods," which were subsequently found to have been prepared by Mr. John Hutchison, Paisley and Glasgow. The estimated cost of the designs for a building of two stories is 13,354/.

ARCHITECTURAL SOCIETIES.

LIVERPOOL ARCHITECTURAL SOCIETY.—A special meeting of the members of this society was held on Monday at the Law Library, Union-court, to hear a paper by Mr. Joseph H. McGovern, a Fellow of the society, on "Valuations and Compensations." Mr. J. Woolfall, Vice-President, occupied the chair. Mr. McGovern, in the course of his paper, said that there were many important differences of opinion concerning the method of preparing valuations, and he dealt with these points under the following heads:—(1) Whether a ground rent should be deducted as an annual leakage, like rates, taxes, repairs, &c., or should it be capitalised separately? He was of opinion that it should be capitalised separately. (2) Should those property tables be used which gave the same rate of interest for a sinking fund as the interest required on the capital invested, or those which provide a lower rate of interest for a sinking fund than for the capital? He thought Hurst's tables should be used, which gave the interest required on the capital and three per cent. compound interest as a sinking fund to replace the capital. (3) Should the same tables be used for a freehold interest as for a leasehold, or should different ones be used? His contention was that different tables should be used, generally 2 per cent. tables for freeholds, and 6 per cent. for leaseholds. (4) Is the difference in value about 5 per cent. between 75 years' lease and a freehold, or does it not reach about 184 per cent.? He believed that it reached the latter figure. Proceeding, Mr. McGovern treated of various matters for which compensation was claimed, such as the lowering of street pavements, cutting off of main sewers, railway improvements, subsidences, &c. At the close a vote of thanks was passed to the lecturer on the motion of the Chairman, seconded by Mr. Dodd, and supported by Mr. Bradbury.

ARCHÆOLOGICAL SOCIETIES.

EAST RIDING ANTIQUARIAN SOCIETY.—The annual meeting of this Society was held at Bridlington on the 12th inst. The President, Canon Maddock, having delivered an address dealing with the work of the Society during the past year, and officers for the ensuing year having been elected, it was resolved to recommend Norton as the next place of annual

meeting, and to hold winter meetings at Market Weighton, Beverley, and Hull. After uncheon the party assembled in the Priory Church to listen to a paper on that edifice by Mr. J. R. Boyle. Having referred to the very brief reference to the church in Domesday, Mr. Boyle said that of the church before the Norman Conquest, so far as he knew, no fragment existed. There was a very extraordinary pre-Conquest gravestone, but there was no architectural fragment at all of the time of Walter d'Gant, and that, he thought, pointed to the fact that he did not found anything. There were certain architectural fragments later than his day by thirty or forty years, but they had to relation whatever to what he did. No doubt there was a church in existence at his time which he introduced regular canons. That church, thirty or forty years after his time, was enlarged or altered in some way by the introduction of transitional Norman masonry, and then 140 or 150 years after his time the church was very largely altered indeed, and the erection commenced of that part of the church which exists to-day. That large building was only the nave of the Priory Church of Bridlington; outside they would see portions of the west wall of the transept, but of the last chancel and choir nothing remained. He (the speaker) pointed out architectural evidences of the truth of his assertion, and said that when the foundations of the south-west tower were examined a few years ago a line of wall was discovered not at all parallel with the present wall, but precisely at right angles with the east wall, and he thought there could be no doubt whatever that the foundations then seen were the foundations of a nave contemporary with the earlier chancel. A problem was presented in the fact that four bays of the west and south arcade were Perpendicular, the tower at the south-west corner was Perpendicular, and the whole west wall between the piers between the arcades was Perpendicular. He could not agree at all with the date which had been usually ascribed to that Perpendicular work. He could not date the work much later than the middle of the fifteenth century, certainly one hundred years before the time of Henry VII. The character of the work was very similar to the Perpendicular work at the west end of Beverley Minster and in the nave of Holy Trinity Church at Hull, which in both cases was dated by actual documents; but, although the piers towards the west end were Perpendicular, the arches were Early Decorated. Then, again, in the outer wall they had the Early Decorated vaulting shafts and other details of Early Decorated date associated with the Perpendicular work. Practically, that corner of the church was rebuilt in Perpendicular times, and the first question to be asked was: Why was it rebuilt? Although the church at Bridlington was very beautiful, structurally it was undoubtedly one of the most imperfect buildings they would find. The south arcade swayed to and fro in a way that could only be accounted for by the fact that there were really no foundations at all worthy of the name. The whole structure was built upon the most unsatisfactory foundations—it was really built upon an absence of foundations—and the discovery of that fact undoubtedly led to one part of the original plan for the church being abandoned—that was the vaulting. It was clearly the intention to vault, but an examination of the wall showed there never was any vaulting. The builders found, in fact, the foundations would not bear it, and they very cleverly and ingeniously turned the vaulting shafts in the wall to another purpose. One result of the imperfect conditions of the foundations was to cause the south-west tower to come down, and it brought down the south-west corner of the church with it, and hence they had to rebuild it. In fact, they were always battling with the evils caused by the faulty foundations.—In the evening the annual dinner was held at the Britannia Hotel, and subsequently several papers were read.—*Eastern Morning News.*

BUSINESS PREMISES, NEWCASTLE.—New show-rooms have just been opened at Newcastle for Messrs. Fenwick, Limited. The whole of the premises are heated by the American Hot-water Radiator Company's system, supplied by Messrs. Henry Walker & Co., Newcastle. Electricity is employed for artificial light; the installation has been carried out by Messrs. Rowland, Barnett, & Co. Messrs. Armstrong & Knowles, of Newcastle, were the architects; and Mr. Thos. Lumsden, Jarrold, the contractor. The decorations and glazing were executed by Mr. George Laidler, of Newcastle

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loan.—On the recommendation of the Finance Committee it was agreed to lend the St. Olave's Union 5,500l. to defray the cost of the erection of a laundry at the workhouse.

The Works Department.—A report by the Finance Committee gave details of the works executed by the Works Department during the half-year ended March 31 last. The report showed that the final estimates for all the works carried out by the department since its establishment up to March 31 last, amounted to 459,772l., and the actual cost to 452,897l., a balance of cost above estimates of 3,125l. With regard to jobbing works, the schedule value up to April 1, 1895, was 36,176l., and the actual cost 32,600l., showing a balance of cost below schedule value of 3,575l.

Lord Welby said he did not propose to ask that the report should be received. The Sub-Committee of the Finance Committee, which was charged with the financial control of the Works Department, had received certain reports from their officers which, at all events, raised the question whether the schedule of prices was not too high.

The Earl of Hardwicke asked whether the reason for withdrawing the report was not that the schedule value was $4\frac{1}{2}$ per cent. higher in the Works Department than in any other contractor's business.

Lord Welby asked if that question did not tend to a discussion of the report?

The Chairman said that when the Chairman of a committee in charge of a report indicated a desire to withdraw it for further consideration, it was usual to accede to that request. If the Chairman did not move the reception of the report it was not open to ask any question on its subject matter. He understood the report was withdrawn.

Lord Welby acquiesced in this course, and the subject dropped.

Street Improvements in London.—The Council, on the recommendation of the Improvements Committee, formally approved of the estimates for the following street improvements, which have been sanctioned under the London County Council (Improvements) Act, 1897, and the London County Council (General Powers) Act, 1897:—Tower Bridge, northern approach, 219,000l.; Strand widening (Holywell-street), 566,130l.; Tottenham Court-road, widening at Boziers-court, 53,860l.; Battersea Park-road widening, 20,930l.; Holloway-road widening, 8,950, and Old-street (St. Luke's) widening, 103,000l.

In answer to Mr. Spokes, Mr. Davies, the Chairman of the Committee, said, with regard to the proposed improvement of the Strand at the Hotel Cecil, they were waiting for certain reports from their officials which would be presented shortly.

Dangerous Structure Proceedings.—The Building Act Committee brought up a report containing the following paragraph, the recommendation being agreed to:—

"A very important point has recently arisen with regard to proceedings in dangerous structure cases, one of the magistrates having held that the Council has no power to serve summonses by affixing them on the premises, which course has hitherto been taken in cases where the owner was not known, but that in each case the Council must discover the owner and serve the summons upon him personally or leave it at his place of abode. The magistrate therefore declined to proceed with certain summonses which had been served by affixing to the premises. Section 188 (2) of the London Building Act provides that any notice, order or any document to be served under the Act, shall be deemed to be sufficiently served, in default of other means of service, if a copy thereof be fixed on some conspicuous part of the building to which it relates; but the magistrate's reading appears to entirely ignore the power to serve a notice or other document in this manner. The point is one which would affect many cases during the course of each year, and we think that it is exceedingly desirable that an authoritative decision upon it should be obtained. We accordingly recommend—that the solicitor do apply to the High Court for a mandamus upon the magistrate to hear the summonses with which he has declined to proceed, on the ground that they were served by fixing a copy of each to the premises to which they respectively related, and were not served upon the owner in each case personally or left at his place of abode."

Proposed Construction of a Tramway along Hart-street, Bloomsbury.—The Highways Com-

mittee reported as follows, the recommendation being agreed to:—

"On July 13 last the Council decided to seek powers next session for the construction, among others, of a tramway from the existing terminus at Theobald's-road along Vernon-place and Hart-street to a point nearly opposite St. George's Church. It has since occurred to us that the proposal to establish a tramway terminus at the point named might be opposed on the ground that its use might obstruct the ordinary traffic; and that a better plan would be for the tramway to be turned round into Bury-street and the terminus to be placed there, at the junction with Silver-street. This site would, in our opinion, be as convenient for Oxford-street as that first proposed; and although there is now a cab rank in Bury-street, there would probably be little difficulty in getting another position assigned for it. We recommend—that the terminus of the proposed tramway from Theobald's-road be altered from the point in Hart-street, already approved, to a point in Bury-street at the junction with Silver-street; and that it be referred to the Parliamentary Committee to make such alteration in preparing the Bill and plans for deposit."

Subways.—The Improvements Committee reported, and it was agreed—(a) That the standing orders limiting the period for considering applications to Parliament be suspended, so far as may be necessary, to enable the Council to consider the following recommendations with reference to an application to Parliament in the next session. (b) That the Parliamentary Committee be instructed to insert in one of the Council's Bills for the next Session of Parliament a clause or clauses to provide that the London County Council (Subways) Act, 1893, shall be so extended as to apply to any subways which may be constructed by the Council in connexion with the following improvements:—

(1) Tower Bridge southern approach, (2) Tower Bridge northern approach, (3) Strand widening at Holywell-street, (4) Long-lane and Tabard-street, Southwark, and (5) Old-street, St. Luke; and also a clause or clauses to provide that in all cases where, in connexion with the foregoing improvements, pipes have to be altered, in consequence of the construction of the subway or the widening of the thoroughfare, the Council shall have power to require the companies to move into the subway the pipes already existing in any of the said thoroughfares. (c) That the Parliamentary Committee be further instructed to take any desirable steps with the view of empowering the Council in all future cases when subways are constructed, to require the companies to move their existing pipes into, and to place any new pipes inside, the subways.

Churchyard Bottom Wood.—On the reception of the Parks and Open Spaces Committee's report, Mr. Westacott inquired whether the Committee had considered the question of a contribution towards the purchase of Churchyard Bottom Wood, Highgate. The local authorities were prepared to contribute, and they were looking to the Council to give something.

Mr. Wetenhall, Chairman of the Committee, said this matter had not been lost sight of.

Taxation of Ground Rents.—Mr. G. J. Cooper moved a resolution to the effect that the Local Government and Taxation Committee should consider and report on the question of making a separate assessment of land as distinguished from the value of buildings upon it.

The motion was carried by 42 votes to 24.

Improvement Powers.—On the motion of Major Probyn, on behalf of Mr. Emden, it was agreed, "That it be referred to the Improvements Committee to consider and report as to the desirableness of applying to Parliament for powers to enable the Council to make further and better use of the Michael Angelo Taylor's Powers Act, for the purpose of carrying out minor public improvements with a view to their being carried out by these powers without the necessity of an Act of Parliament, and also as to altering and amending clauses of the Michael Angelo Taylor's Powers Act so as to enable the Council or the Local Authority to purchase, within certain limits to be fixed, property on the route of the improvement without the right of pre-emption and for the purpose of recoupment by creating building sites."

The Council adjourned at 6.30 p.m.

INSTRUCTION IN PHOTOGRAPHY.—The Polytechnic Institution, Regent-street, issues a Syllabus of Lectures and Classes of Instruction in the Art and Technique of Photography, in the evenings, commencing on October 26, at 8 p.m.

Illustrations.

THE ROMAN BATH, BATH.

THE ancient city of Bath has been the scene this week of much festival-making in connexion with the ceremonial opening of the "Roman Promenade" and the laying of the foundation stone of the Victoria Art Gallery. We give an illustration of what is in an architectural sense the most interesting of the recent architectural improvements in Bath, the treatment of the Roman Bath from the designs and under the superintendence of Mr. Brydon. We before gave an illustration of the architect's sketch for the project; the plate in this number gives a view of it as completed.

The determination to keep the ancient bath open to the sky was a wise one, and the new building round it is well designed to harmonise with the associations of the site, without at all suggesting a restoration, the general model adopted, however, being that of the atrium of a Roman house. The external walls are carried up from the Roman walls to form the court, and Doric columns placed on the piers round the water carry the flat roofs over the scholæ. On the north side the roof becomes a terrace, which in itself is again covered over by a roof at a higher level, and carried by arches springing from the cornice of the columns. This latter roof slopes up against the south wall of the promenade, and is covered with red tiles designed after the Roman originals. It is stopped at each end by low towers forming pavilions at each end of the terrace, which is level with the floor of the promenade. A similar pavilion at the south-east angle contains a staircase forming an entrance to the Roman Bath from York-street.

Over the columns on the east, south, and west sides stand statues of eight of the Roman emperors and generals engaged in the conquest and occupation of Britain under the Romans, with an ideal bust of "Roma" on a terminal at the south-west angle. Beginning on the east their names are as follows: Julius Cæsar; Claudius; Vespasian; Scapula (general), the conqueror of Caractacus; Suetonius Paulinus (general), the conqueror of Boadicea; Agricola (general); Hadrian; and Constantine the Great, who began his reign as Emperor at York. They are all the work of Mr. G. A. Lawson, the sculptor of the friezes on the Municipal Buildings, and it is needless to say that they are works of art, and not mere perfunctory ornamental additions to the architecture.

The general contractors for the work were Messrs. Jacob Long & Sons; the warming and ventilation is by Messrs. Wenham & Waters, of Croydon; the marble columns in the promenade are from the quarries of Messrs. Goody, Cripps, & Co., of Bristol; the stone for the statuary was supplied by Messrs. Marsh, Son, & Gibbs, from the Hartham Park Quarries; the marble paving is by Messrs. Lee & Sons, of Bristol; the columns in the entrance corridor by Messrs. Goad, of Plymouth; the wainscot flooring of the promenade by Messrs. Turpin & Co., London; and the ornamental ironwork by Messrs. Singer & Sons, Frome. The whole of the work has been carried out under the superintendence of Mr. J. H. Smith, as clerk of the works under Mr. J. M. Brydon, the architect.

The illustration is from a photograph by Messrs. Miell & Kidley, of Bournemouth.

SKETCH FOR BRONZE GATES.

The first rough idea of this design, which was exhibited at the Royal Academy, was got out as a suggestion for commemorating the Diamond Jubilee at a place in Buckinghamshire. I believe it was thought to be too "pagan" in character.

The heads would have represented the Queen and the late Prince Consort. In drawing it out I took more liberty with the details.

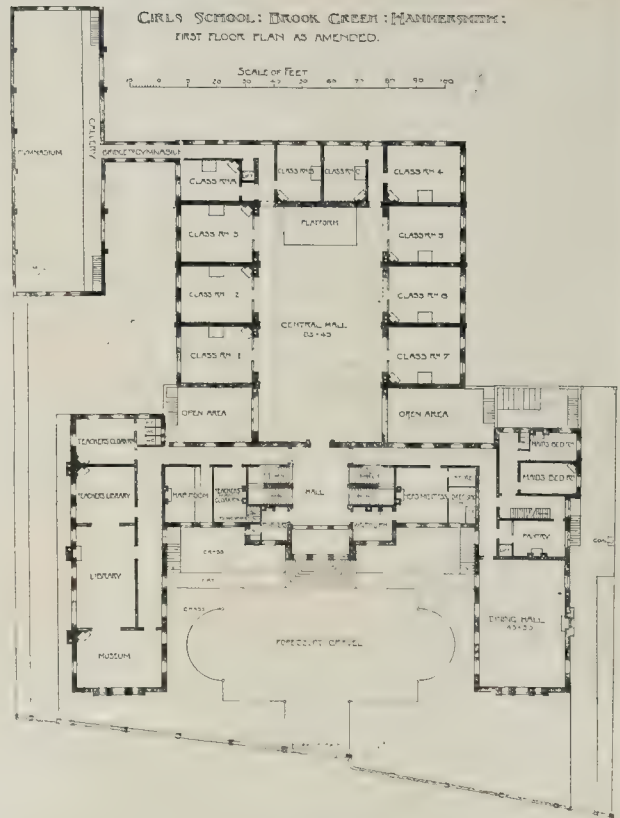
J. J. SHAW.

DESIGN FOR GIRLS' SCHOOL, HAMMERSMITH.

This design was submitted in a limited competition for a new high school for girls at Hammersmith.

The materials proposed were red brick, Portland stone, and Westmoreland green slates.

REGINALD BLOMFIELD.



The "Ellen Badger" Memorial Home.

SCALE: 0 5 10 20 FEET



MEMORIAL HOSPITAL, SHIPSTON-ON-STOUR.

This hospital was built by Messrs. F. Smith & Sons, of Leamington, at a cost of just under 2,000l. The walls are faced with Lawrence's red bricks, the upper floor with rough cast. The external timber work is of oak, and the roofs are covered with Broseley tiles.

The building was erected, endowed, and furnished by Mr. Richard Badger, of Leamington, as a memorial to his late wife.

A detached laundry is now being erected at a further cost of 400l., Mr. Adams, of Shipston-on-Stour, being the builder.

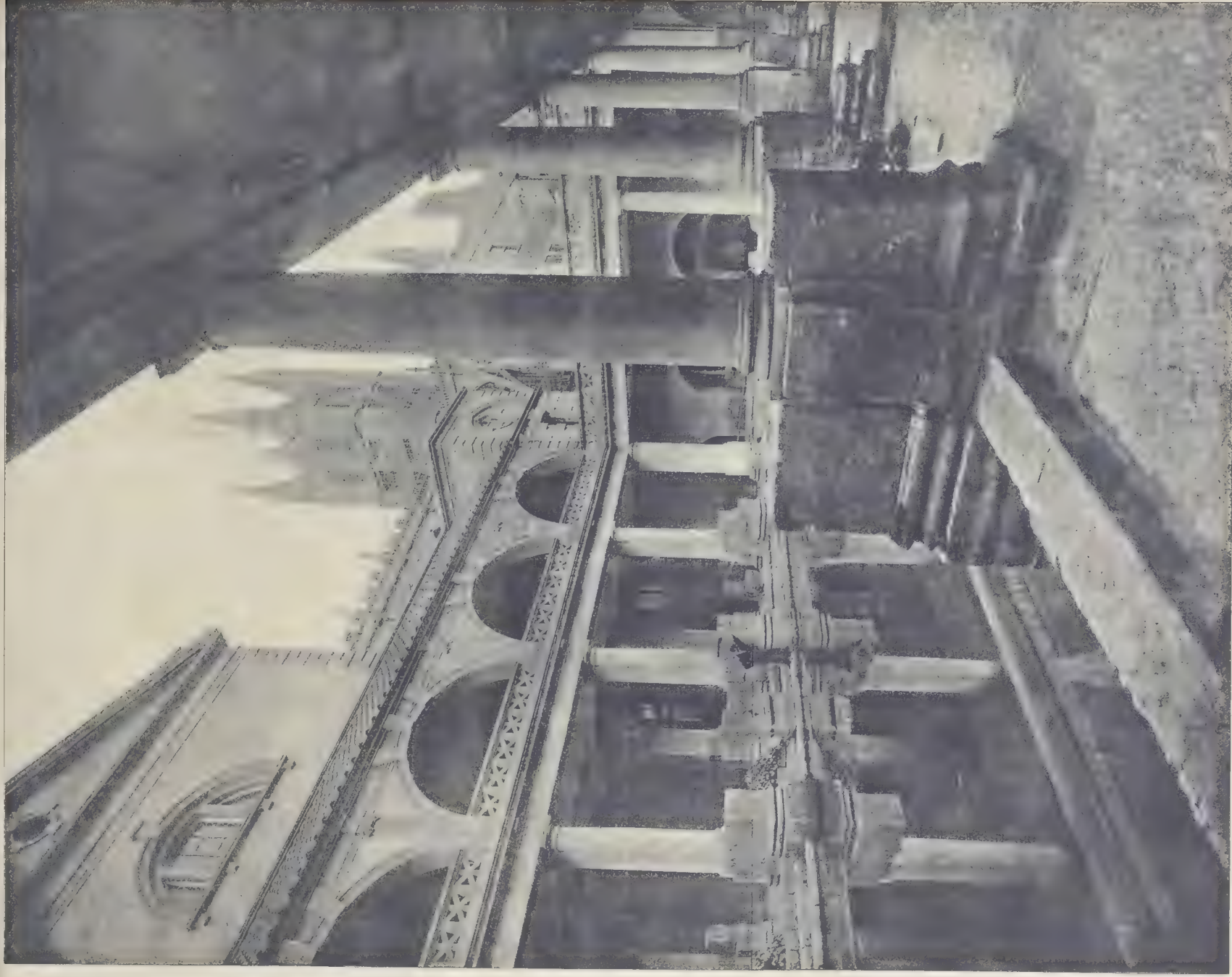
The architect for both is Mr. E. W. Mountfor J.

TWO HOUSES, HARROW.

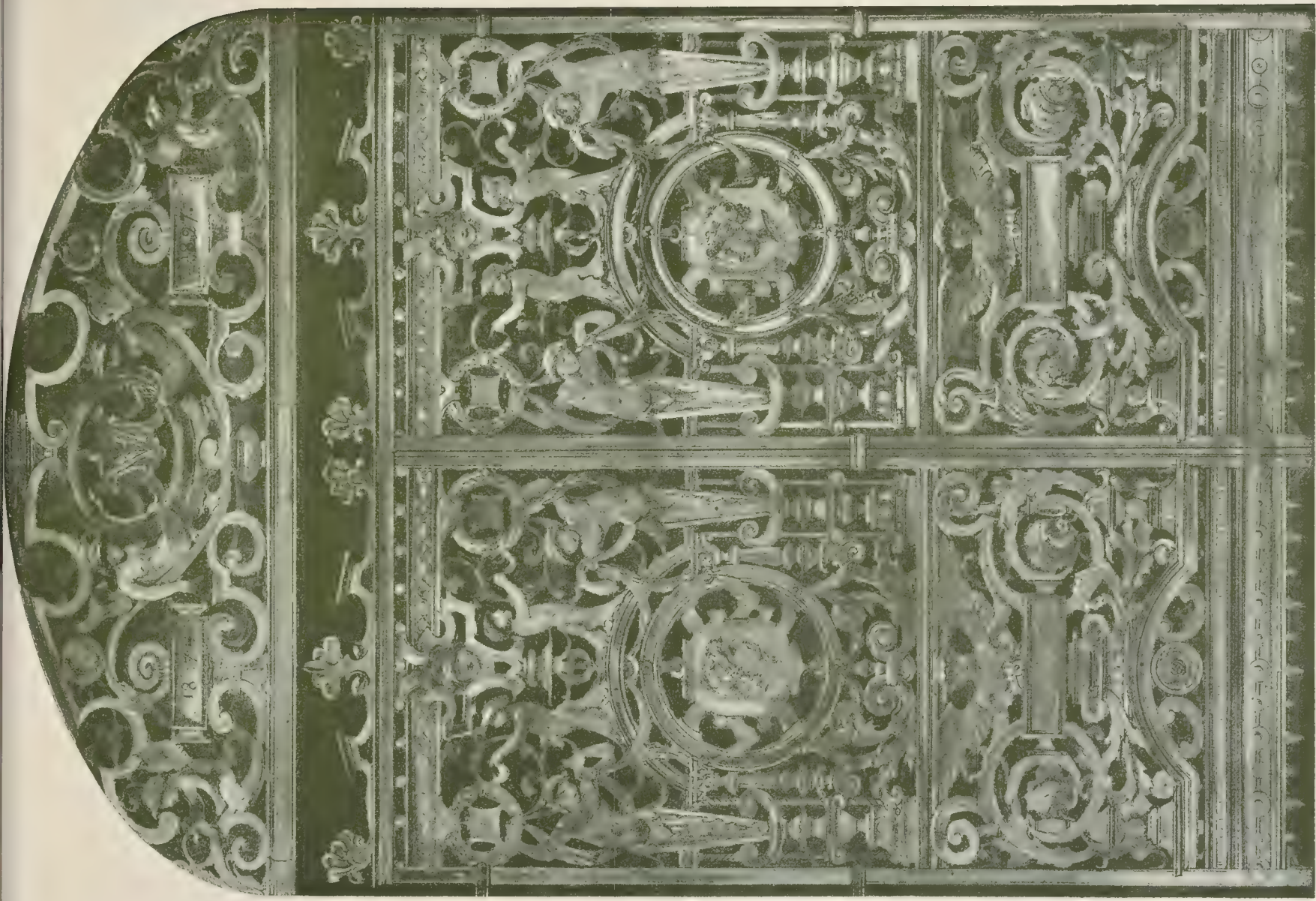
These houses, which were recently built on the Greenhill Estate, Harrow, are of red brick with red tiled roofs. Cream coloured plaster has been extensively used on the front, and strong shadows are obtained by projecting the upper floors over the bay windows below on carved oak cantilevers.

The builder was Mr. John Greenwood, and the architect Mr. T. Phillips Figgis.

TECHNICAL AND ART SCHOOLS, LOWESTOFT.—The foundation-stone has just been laid of these buildings. Mr. G. W. Leighton, of Ipswich, is the architect, and Mr. A. Bedwell is the builder.



THE ROMAN BATH, BATH AS ARCHITECTURALLY TREATED FROM THE DESIGN AND UNDER THE DIRECTION OF
MR. J. M. BAYNES, F.R.I.B.A.



DESIGN FOR BRONZE GATES BY M. J. J. SHAW

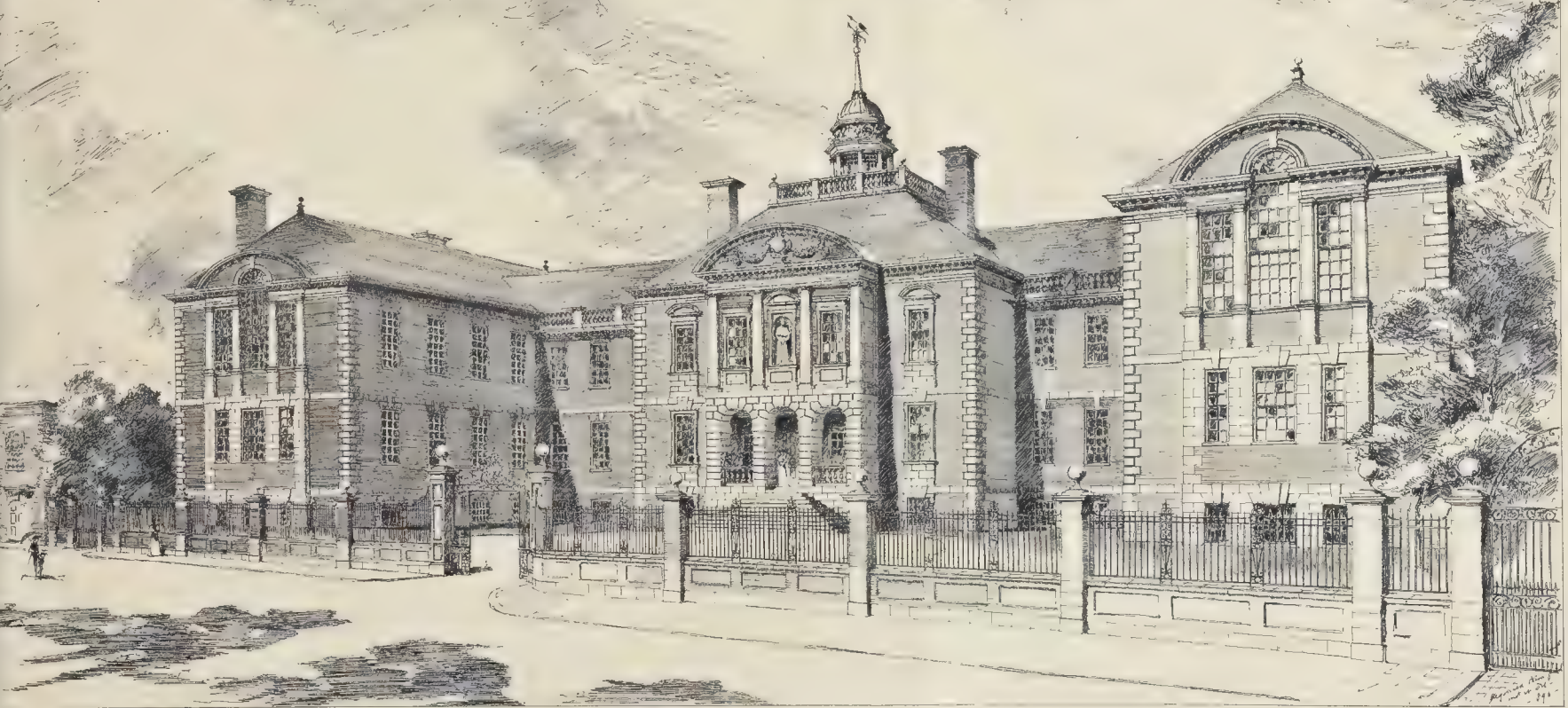
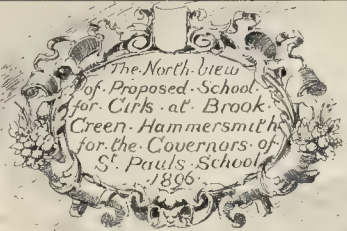
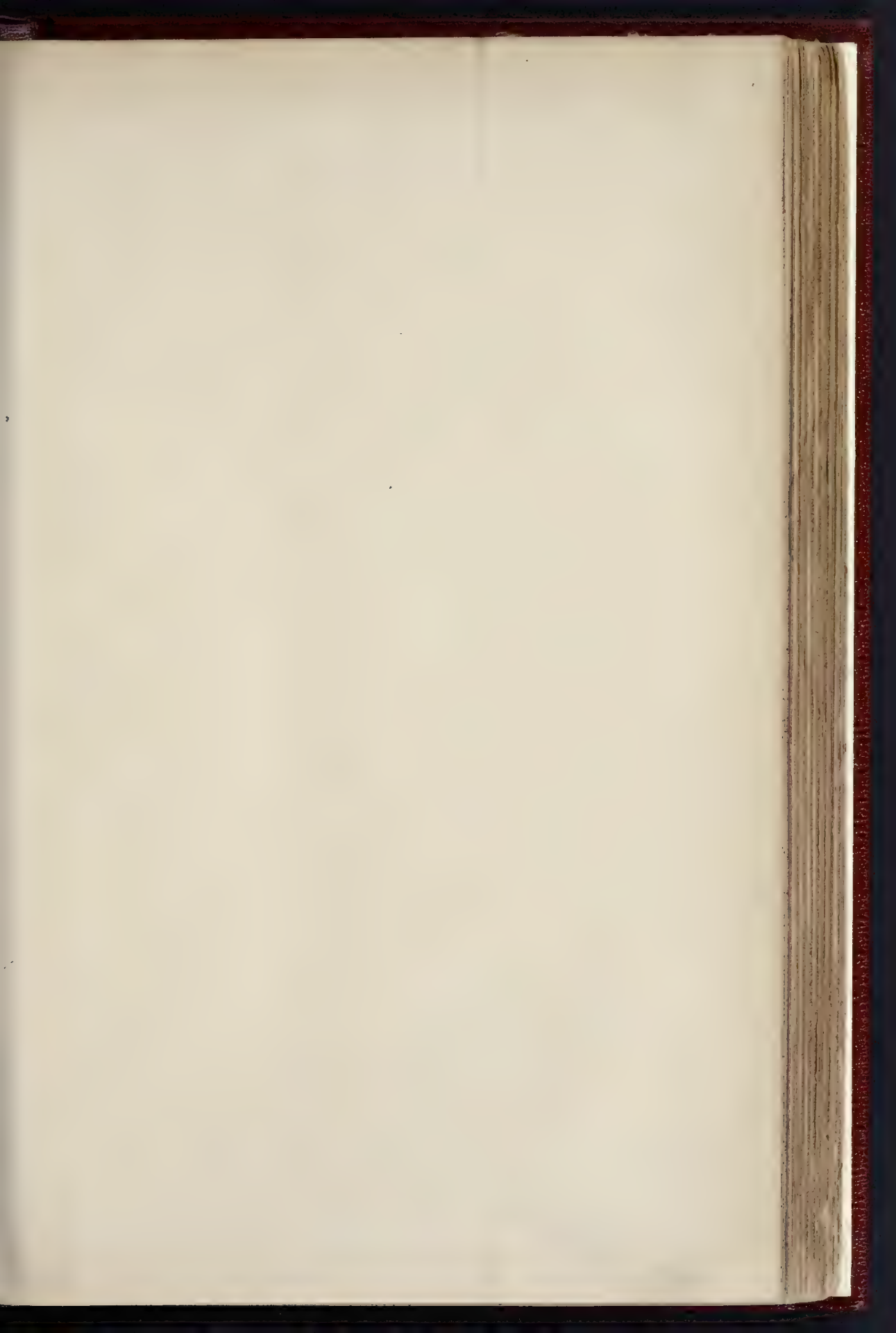
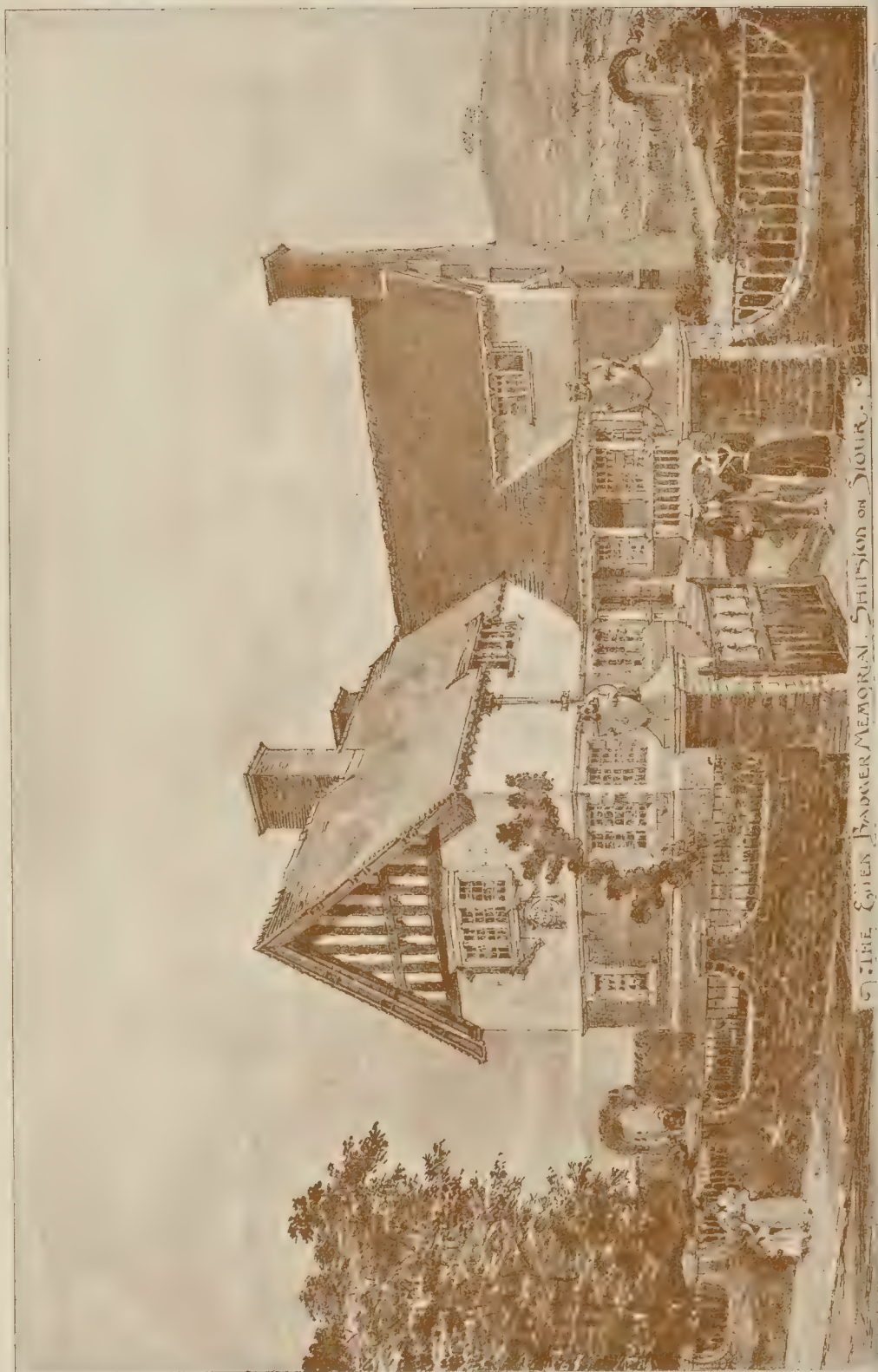


PHOTO LITHO SPAGLE & CO. 43, EAST HARDING STREET, LONDON, E.C.

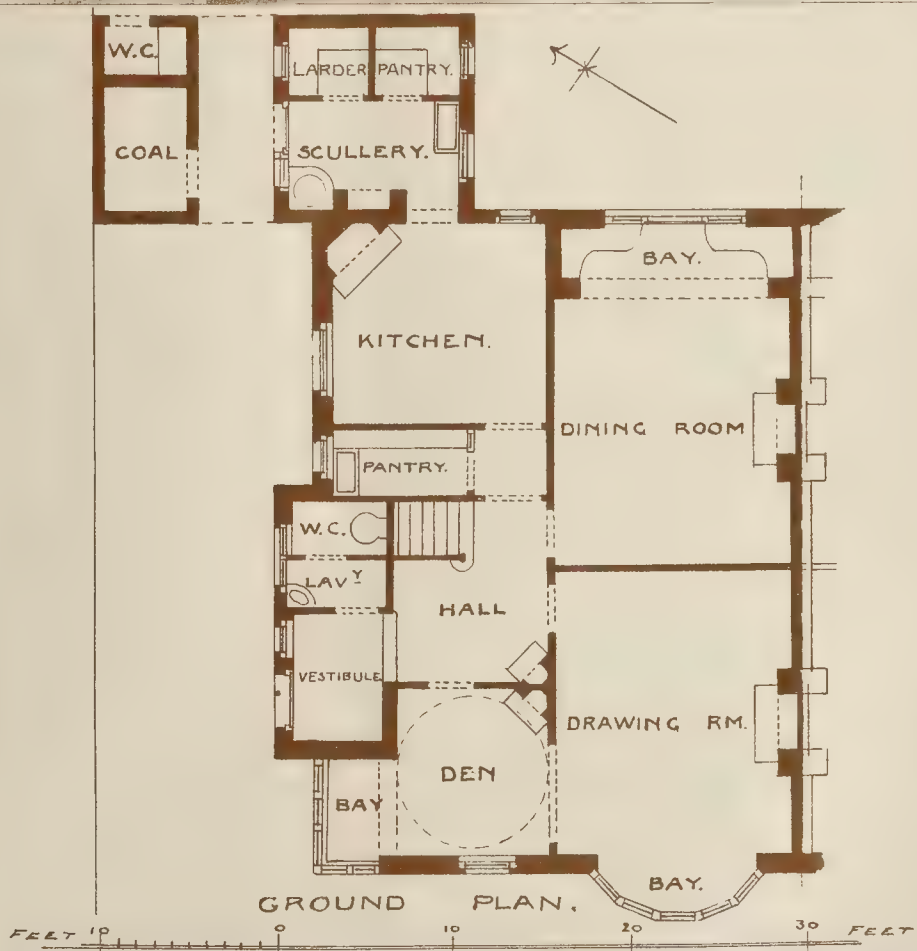
DESIGN FOR NEW GIRLS' SCHOOLS, HAMMERSMITH—By Mr REGINALD BLOMFIELD



THE LITTLE OCTOBER 23 1897



THE GREEN BARKER MEMORIAL SHIP-SHED ON TOUR.



AK PHOTO SPRAGUE & CO. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS.

THE fourth annual convention of the National Association of Master House Painters was opened in the Albert Hall, Sheffield, on the 12th inst. The members were welcomed to the city by the Lord Mayor, the Duke of Norfolk.

In his presidential address Mr. William Smith, of Sheffield, spoke of the benefits of the Association in the education of youths, the claim it had on employers, its value to the commercial interests of the craft, and its influence in the direction of brotherhood.

A paper on "Art and Technical Education and Art Classes" was read in the evening by Mr. J. T. Cooke, Headmaster, Sheffield School of Art; and Mr. T. Bonnar read a paper entitled "Some Notes on the Artistic Side of our Craft."

The first paper at the morning sitting on the following day was entitled "Standard Samples of Painters' Work, are they Desirable? Are they Practicable?" by Mr. Alexander G. White, of Liverpool. It was the business of such an Association as theirs, he said, to promote advance and reform by every means in its power, and to raise the standard of business morality in the painting trade. The particular evil which he sought to remove in the trade was one which tended to break down all standards of craftsmanship to that of the lowest competitor. One cause of this was that in the majority of cases the lowest tender was accepted. The second cause was that architects and others endeavoured to define in words what could only be defined in work. It was high time something was done to check this style of business morality, and the Association might do good work, not by specification and definition, and by trying to execute good work at cut-throat prices, but by setting up a classified standard of samples of the various finished processes of the painters' art. These standards should be multiplied as required until not only every city and town and architect's office, but every member's shop should have them ready to hand, so that in all specifications the work and quality required could be defined by this method. He did not think a great many standards would be required in the first place, and he suggested that an exhibition of such standards might be held annually at their annual conference, and prize competitions instituted.

Mr. J. Standall (Sheffield), in opening the discussion, contended that Mr. White had argued on a wrong assumption. Mr. White took it for granted that immorality in their business was the rule and not the exception. But he (the speaker) maintained that the reverse was the case. Mr. White further said that standards would place in the hands of architects and others the power that they do not now possess of making their judges of work according to these standards. That was assuming what was not correct, namely, that the major portion of their work was such that a standard could be applied. The speaker submitted that it would be lowering the dignity of the Association and the self-respect of the members to adopt such standards. The speaker further said that it would be impossible for painters to submit specimens of the work they were about to execute. The public, to a great extent, depended on the material the work was going to be done with. How were they going to keep the standards up? Standards of painting, he submitted, were impracticable and undesirable. The standard could always be measured by the amount of money the client was ready to pay. If they wished to increase the standard of painters' work, let them educate their workmen to take more interest in their work, and to strive more for harmony of colour and the refinement and cultivation of taste. Mr. John Scott (Glasgow) and Mr. Sibthorpe (Dublin) having spoken,

Mr. Chadwick (Sheffield) moved, and Mr. Pickersgill (Leeds) seconded, a resolution, thanks to Mr. White for his paper, and referring the question of standards to the General Purposes Committee of the Association for consideration, and, if necessary, recommendation.

Mr. Hugh Stannus, in supporting, while believing that standards were practicable and desirable, would have them ready to hand, so that in all specifications the work and quality required could be defined by this method.

Other members spoke, and the resolution was carried and acknowledged.

Mr. Goodier, of Sheffield, contributed a paper on the present system of tendering and the remedy for the abuses it creates. He said that the present system was having the effect of bringing down standards to a level such that the work was not worth having at all if it was to be done in a creditable manner. It was not a very noble aim to try to cut out every other competitor. The fact that tenders might be obtained free of cost was the principal cause of the present unsatisfactory state of affairs. The present system of asking for and obtaining tenders had largely conduced to deterioration of the work. The standard was that in the majority of all cases where competitive tenders were invited all the tenders other than the successful ones should be paid for according to a prepared scale, also that tradesmen should never rest until they had struck out that old formula "estimates free."

During the discussion, Mr. Chadwick (Sheffield)

doubted whether the public had been educated up to paying fees for unsuccessful competitive tenders. He rather thought that the members could adopt other methods for their own protection.

On resuming in the afternoon, Mr. Hugh Stannus, F.R.I.B.A., London, delivered a lecture entitled "The Development of Counter-change in Colour." He mentioned that the word "counter-change" was a heraldic one, to illustrate which he showed some heraldic devices, pointing out the division of the shield, and how, while on one side the ornament was in black on a white ground, on the other side the ground was black and the ornament in white. This illustration he pursued in various forms, and went on to show how in colours the influence came originally from Pompeian architecture. The Byzantines, too, were fond of this playing with colours, and in textiles established works at Damascus, whence also came the inlaid Damascene steel blades and shields brought by Crusaders. The monks, who were the artists and architects of those times, brought the pointed arch, the great glory of Gothic architecture, and from that time dated the necessity for heraldic devices, as with the use of the helmet and visor came the need for a follower to distinguish his leader. He proceeded to contrast various styles of ornamental patterns, both in colour work and in cloth, such as "cut and laid" work, known in French as "applique," spoke of "voiding," or the principle of cutting holes through to lighten and balance the scheme of colour. Another method to which he drew attention was "inter-changing," where the pattern and ground were of different shapes, and he showed by example a rug at South Kensington, in which one colour played three different parts in the scheme. He pointed out where the system of counter-changing was objectionable when it broke the pattern or divided an animal or foliage, and showed in other examples where it helped the scheme, and was pleasing to the eye.

On the motion of Mr. Thos. Bonnar, F.S.A. (Edinburgh), seconded by Mr. Preston (Burnley), a vote of thanks was accorded to Mr. Stannus for his lecture.

The business meeting followed, at which the report of the Special Committee, appointed to select a President and Vice-President, was read by Mr. C. M. Vaughan (Vice-President). Mr. Alex. White, of Liverpool, was recommended for President, as the convention will be held in that city next year, and Mr. Wm. Allen, of South Shields, for the office of Vice-President. These recommendations were accepted by the meeting. Mr. Preston, of Burnley, was re-elected Treasurer, and Mr. W. G. Sutherland re-elected Hon. Secretary, the meeting afterwards proceeding to elect the various members to form the Committee.

Votes of thanks to the retiring President and Vice-President, to the members of the local committee, were also accorded, and a resolution was carried, reappointing the Council of the Institute of British House Painters, and the proceedings terminated.

In the evening the President (Mr. John Smith) gave an "At Home" at the Mappin Art Gallery. The guests numbered nearly 800, including the delegates from a distance, and about 400 local members and friends. The following day there were excursions, followed by a dinner in the evening.—The above *résumé* has been compiled from a report in the *Sheffield Telegraph*.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 Building Act. Those applications to which consent was given were granted on certain conditions:—

Limes of Frontage.

Strand.—That consent be given to the construction of a glass and iron porch erected at the Trocadero Restaurant, Great Windmill-street, to abut upon Shaftesbury-avenue, on the application (further considered) of Messrs. J. Lyons & Co.

Kensington, South.—That consent be given to the erection of residential flats, to be known as Addison-gardens-mansions, on the east side of Addison-road, between The Limes and Derwent-lodge, on the further application of Messrs. Garrard, James, & Wolfe on behalf of Mr. E. Collins and Mr. F. Radford.

Marylebone, West.—That consent be given to the erection of a porch in front of proposed residential flats on the No. 47, Abbey-road, St. John's Wood, on the application of Messrs. Metcalf & Greig.

Levensham.—That consent be given to the frontage of two houses erected on the south-east side of Montague-avenue, Hilly-fields, Brockley, on the application of Messrs. Tompkins & Barker.

Hulborn.—That consent be not given to the erection of houses on the north-east side of Southampton-row, between No. 60 and Cosmo-place, St. Giles-in-the-Fields, on the application (further considered) of Mr. G. D. Martin.

Kensington, North.—That consent be not given to the erection of a one-story shop on part of the fore-

court of No. 120, Westbourne-grove (late Norfolk-terrace), on the further application of Messrs. Pennington & Son on behalf of Mr. J. Risien.

Width of Way.

Kensington, South.—That Mr. A. Faulkner be informed that his application on behalf of Mr. J. A. Phillipi for the consent of the Council to the erection of a two-story building on the east side of Adam-and-Eve-mews, High-street, having been further considered, the Council has resolved to adhere to the decision of August 30 last not to grant the application.

Open Space about Buildings.

Kensington, North.—That the Council do, in the exercise of its powers under Part V. of the London Building Act, 1894, consent to a one-story addition erected at the rear of No. 4, Pembridge-villas over two one-story shops abutting on Westbourne-grove, on the application of Mr. C. Manning.

Width of Way, Line of Fronts, and Space at Rear.

Hampstead.—That consent be given to the erection of two blocks of residential flats, with four-story bay windows, on the east side of Heath-street, the southernmost block flanking upon a roadway leading to Hampstead-square; and that the Council do, in the exercise of its powers under Part V. of the London Building Act, 1894, allow a modification of the provisions of that Act with regard to open spaces about buildings, so far as relates to the proposed erection of the said two blocks of flats, on the application of Mr. G. Saxby.

Formation of Streets.

Levensham.—That the Council do approve of a variation from the plan and particulars sanctioned by it on December 21, 1896, for the formation or laying out of Queenswood-road, Sydenham, so far as relates to an alteration in the outlet from that road into Mayow-road, on the application of Messrs. Eastman Brothers.

Wandsworth.—That an order be sealed and issued to Mr. S. G. Warner sanctioning the formation or laying out of new streets, each 40 ft. wide, for carriage traffic, on the Spencer Lodge Estate, between Roehampton-lane and High-street, Roehampton, on his further application to the Council, dated October 6, 1897. That the names Rodway-road, Akeshurst-street, Nepcau-street, and Umbria-street be approved for the new streets.

Means of Escape at Top of High Buildings.

Marylebone, West.—That the Council, in the exercise of its powers under Section 63 of the London Building Act, 1894, do not grant a certificate in respect of the means of escape, in case of fire, proposed to be provided for the persons dwelling or employed in the fifth floor of Bickenhall-mansions, at the corner of Gloucester-place, Marylebone-road, on the application of Mr. W. H. Scrymgeour.

The recommendations marked † are contrary to the views of the Local Authorities.

Correspondence.

To the Editor of THE BUILDER.

LISKEARD CHURCH AND THE "S. P. A. B."

SIR.—The case of the Liskeard Tower has excited so much attention that it is more than astonishing to find no interference on the part of the Society for the Protection of Ancient Buildings. Can anything better illustrate their faculty for alienating the support of those who sympathise with their objects? Leaving aside such ill-directed efforts as their violent opposition to the *practical* preservation of the west front of Peterborough, it will be sufficient to recall their attitude in the case of the removal of a church in Wilts. Here was a case of a church rendered useless by its isolated position in fields impassable in winter, and which was carefully transferred to a dryer and more accessible site. We had the usual tactless methods and misstatements by the Society who wished to make the parishioners maintain a useless (if picturesque) ruin, instead of worshipping in the church of their forefathers. Irresponsible statements went the round of the papers, and much reckless abuse also.

At Liskeard we have an interesting tower, that it is proposed to destroy in an unusually ruthless manner, and no one appears before the Council to oppose the granting of a faculty. Why did not the Society for the Protection of Ancient Buildings undertake this? Or do they uphold the destruction of this tower?

They have created no storm of indignation. Is this neglect, indifference, or what? Who can sympathise with a society who interfere when they should not, and whose legitimate interference misleads to useful results, take no action? We must expect vagaries from over-zealous antiquaries; but a society appealing to the public for support should show some semblance of consistency.

NON-SUBSCRIBER.

** We think we can explain the discrepancy in

the action of the Society for the Protection of Ancient Buildings. Mr. Ponting was the architect who reluctantly, and after much consideration, acquiesced in the unavoidable removal of Leigh Church to a site where it could be of use to the parishioners. For this he was held up to ridicule at the Annual Meeting of the Society, the causes which had necessitated the removal of the church being studiously ignored, the hon. Secretary telling the meeting "I know why it was done," but declining to say any more. The truth of the whole matter was stated in an article in the *Builder* of July 25, 1896, under the title "The Methods of the Society for the Protection of Ancient Buildings." Mr. Ponting was also the architect who has been officially consulted as to Liskeard Church tower, and by whose advice it was preserved. It is, of course, easy to put two and two together, and to understand why the Society in this case is silent, and would let the tower go rather than support an architect whom it has already done its best to misrepresent in a previous instance. Whether their support could have been of any value is another question. The "S.P.A.B." has been so discredited lately that probably its support would hamper rather than assist an architect who wished to preserve an ancient church. But the principle (or want of it) is just the same.—ED.

"DESIGN" FOR A WEST COUNTRY CHURCH.

SIR,—My attention has only just been drawn to a letter in your issue of October 9 with reference to the above. It is really quite gratifying to be told by so good an authority on things concerning the West as Mr. Harry Hems that "it would, perhaps, be almost impossible to illustrate anything more unlike a typical old Gothic church in the West country" than my design, as reproduced in the *Builder* of October 2. I say it is gratifying, because I never had any sort of wish whatever to reproduce a "typical old Gothic church." The design was originally intended for a site in the West country, and that is the reason it bears the title it does. When I said in my description that I was working on a type of church I had very much admired in Cornwall, and of which Launceston is perhaps the best example, I perhaps should have added "I had seen."

It is only natural that Mr. Hems, and indeed most people, should remember St. Mary Magdalene, Launceston, chiefly for its wonderful carved granite exterior, which undoubtedly made a great impression on me; but that was not the point I was referring to, as Mr. Hems will see if he reads my description, but to the plan with the nave and aisles running straight through from east to west with no arch or break whatever.

Whether it is in order to have a stone slate roof running continuously over nave and aisle, a "down-long" porch on the north side, of my particular pattern, or a stumpy tower with no battlements and a short lead spire at the end of the south aisle instead of the nave, are all matters of absolutely no consequence to me.

I mentioned in my description that the design was originally intended for the Exeter company, and that the vestry was placed at the east end to fit a triangular site; it was not meant to typify anything western, but was simply planned so, to meet the requirements of a particular case.

I am much obliged to Mr. Hems for correcting my mistakes in spelling—mistakes perhaps not unnatural to a comparative stranger to his country, who had often seen and heard the materials in question spoken of, but had never seen them spelt. Mr. Hems' derivations and quotations from Doomsday Book are most interesting reading.

F. FORBES GLENNIE.

"LONDON SIGNS AND INSCRIPTIONS."

SIR,—I shall be obliged if you will kindly allow me to say that the book under the above title, just brought out by Mr. Elliot Stock, is a cheap reprint, having been originally published in 1893. I have not even seen it in its new form, and have had no opportunity of revising it, or of correcting the few oversights which have for years been troubling my conscience. Of one of these errors of my youth I am reminded in your last issue.

PHILIP NORMAN.

FLASHINGS IN "QUANTITIES."

SIR,—I am reading with great interest the articles which are appearing in your paper on the subject of "Quantities." In the issue of October 9 the following passage occurs:—

"Measure horizontal cover flashings 6 in. wide.

"Apron flashings, 12 in. wide."

What I wish to know is this: What is the difference between a "horizontal cover flashing" and "an apron flashing" that necessitates one being twice as wide as the other? In this part of the country the "apron flashing" is always a piece of lead let into the wall at one side, and hanging over an under-flashing at the other. Perhaps the author will kindly enlighten me on this point.

LEONARD H. DUTCH.

* A "horizontal cover flashing" is the strip of

lead which covers the "turn up" of the lead next wall at the edge of a flat or gutter, and which is apparently known to Mr. Dutch as an "apron flashing." An "apron flashing" proper would occur on the lower side of a chimney stack and similar positions, and would lie on the slates as an "apron;" hence the extra width, which is that required for the portion lying on the slates.—ED.

REFERENCES FOR TENDERING.

SIR,—In the *Builder* of the 16th inst. appeared an advertisement asking for tenders for a public body. Specification could be seen, &c., at the architect's office upon depositing a certain sum. Tenders were to be delivered on the 27th inst. I called at the architect's office on the 20th and stated my business, when the following dialogue ensued: "Have you brought your references?" "The advertisement says nothing about references. I have the deposit, and here is my card." "Mr. — says I must not let the specification go without references; and then you are late." "Late! tenders do not go in for a week." "Ah, but a lot have been here before you; however, leave your card, and Mr. — will send on." I declined to leave my card.

Now, sir, what does this mean? Is it just to the ratepayers? Is it fair to the builders? I might say I have tendered before for this Board, and had I tendered now and been accepted, I should have been pleased to give references, and security to any amount.

MUNICIPAL AND COUNTY ENGINEERS' EXAMINATION.

SIR,—Will any student who has previously studied for the Municipal and County Engineers' Examination kindly give me a list of the best books to use for the same, and oblige

M. H. WILKINSON.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XIV.—MODES OF MEASUREMENT.

Plasterers' Work.

Externally.

PLAIN face, *per yard superficial*.—Describe material—i.e., whether Portland cement or otherwise—and the composition. (Note.—The composition of the various items of plasterers' work generally appears as a heading.) State if jointed to imitate masonry, and the finish of face, whether trowelled, or with imitation tooling or otherwise. *Reveals to windows*, if under 9 in. wide, are measured at *per foot run*, including the arris.

The faces of pilasters, if over 9 in. wide, are measured at *per foot superficial*, and if under this width at *per foot run*. State if to entasis, and if dubbing is included. The returns to pilasters should also be measured at *per foot run*, stating if to entasis and including the arris.

In the case of very small pilasters it is frequently advisable to measure same including the returns and arrises at *per foot run* complete, including with the item any dubbing required.

The circular faces of columns should be measured at *per foot superficial*, stating if to entasis.

Weatherings, if over 6 in. wide, should be measured at *per foot superficial*, and if under this width at *per foot run*, including dubbing if required.

Strings and Cornices, if not less than 12 in. girt, at *per foot superficial*; if under this girt at *per foot run*, including dubbing if required, the weatherings at top being measured separately. Note.—A rough stone cornice will frequently be found necessary for cornices of large projection. Measure this at *per foot superficial*, stating the thickness, and measure any labour beyond a rough square edge at *per foot run*.

Measure at *per foot run*—Arris, narrow return and arris, rustications, and all similar labours. Also narrow margins (not exceeding 4 in. wide), enrichments (giving description and girt), and dentil courses (giving size of dentils and the distance apart, and stating if moulded or plain).

Number mitres, ends, &c., to weatherings and mouldings, averaging the widths and girts to superficial items, and allowing those to running items to follow the items; also caps, bases, bands and neckings to pilasters, with returns, mitres, and ends complete (these are sometimes measured at *per foot run*, stating that the items are in short lengths to pilasters,

and the mitres, ends, &c., numbered), angles to enrichments and dentils, also key blocks, modillions, and all similar items.

General Note.—Keep all circular work separate, and in the case of moulded work state if circular on elevation or plan, and give the radius. Keep work under 12 in. in width separate at *per foot superficial*, and state that it is in narrow widths.

Sometimes in the case of elaborate enrichments a provision is put in the bill for this work as described for carving in wood and stone-work.

Rough Cast.—Measure at *per yard superficial* unless under 12 in. wide, when measure at *per foot superficial*, giving full description of work, the kind of gravel, &c., and stating if on lath or brick. Include with the description any colouring, stating whether done afterwards or mixed with the gravel. Measure at *per foot run*, arris, narrow return and arris, and all similar labours; also narrow margins (not exceeding 4 in. wide).

Number making good around ends of timbers, sills, &c., and also any small pieces in panels, &c.

Internally.

Plastering to Walls, per yard superficial.—State whether two or three coat work, i.e., "Render and set," or "Render, float, and set," and if finished for paint; keeping circular work separate, and if to soffits again separate. Work in widths under 12 in. should be billed at *per foot superficial*, the description stating that the work is in narrow widths.

Plastering to Partitions, per yard superficial.—Measure all as described to walls, including with the description the lathing; if the latter is of wood state whether "lath" (i.e., single), or "lath and half." In the case of metal lathing give description and state how fixed.

Panelling on Walls and Partitions.—If large, i.e., averaging over a yard superficial in each, measure the plastering at *per yard superficial*, and stating that the work is in panels, but if in small panels at *per foot superficial*, giving some idea in the description as to the size of panels. Margins are generally measured at *per foot run*, stating the width, and, if square or moulded on edge only, including the return and arris or the moulding with the item, numbering the mitres, &c. Belection mouldings are measured at *per foot run*, stating the girt and numbering mitres, &c. If the panels and margins are not on the same plane, include with either the plastering to panels or margins (whichever projects) the labelling required. Panelling to jambs, soffits, and beams is frequently measured at *per foot superficial*, and described as in "panels and margins," giving a description of the panelling and the mouldings around same.

Ceilings, per yard superficial.—State whether two or three coat work, as described for walls, and if on lath include the lathing, as described to partitions. Keep circular ceilings and coves separate, stating the radius, again separating groined ceilings. Take with the latter labours to groin point, &c., at *per foot run*.

Dubbing, per yard or per foot superficial, as described to plastering to walls.

Note.—Dubbing will be required in all cases where plastering exceeds 1 in. in thickness.

Cornices, per foot superficial, if 12 in. girt and over; if under, at *per foot run*. State if on lath. Keep circular cornices separate, stating the radius. Number mitres (external and internal), stopped ends, returned ends, &c., averaging the girts to the superficial items, allowing those to running items to follow the items.

Bracketing, per foot superficial.—Bracketing is not usually required for cornices under 12 in. girt, and frequently not for those considerably over this girt. If the architect gives no indication upon his drawings as to the character of the cornices, the surveyor should make inquiry as to this. Failing a detail, the usual allowance is two-thirds of the girt of the cornice as the girt for the bracketing. Keep bracketing plugged to walls separate. Take as numbers, angle brackets, averaging the girts.

Enrichments, per foot run, giving description and stating the width or girt, and that the work includes modelling. Keep circular work separate, the cornice being measured across the enrichment, the latter having to be inserted after the cornice has been run. Number angle enrichments, &c.

Modillions.—Number these, giving full description and size. A sketch will frequently be required for these. When the bed mould in a cornice breaks around the modillion, number

as an "extra," including with the item the extra mitres.

Ceiling ribs, per foot run, stating the girt, ceasing circular pieces separate, and stating the radius. **Number mitres** (birds-mouth, two-way, three-way, &c.), intersections, &c. Very short lengths of ribs are better numbered, including with the item the mitres, &c. *Note*.—The plastering to a ceiling divided by ribs must be kept separate, and described as such.

Labours, per foot run.—Ariss, bull-nose angle, stating the girt, chamfers (stating the width), mouldings (stating the girt). Narrow margins under 4 in. wide. **Number mitres** and stops o chamfers and mouldings (stating the width o the chamfers and mouldings, and description of stops, whether plain, splayed, moulded, or otherwise); making good plastering round handrails, gratings, and chimney-pieces. In the latter case the plastering is sometimes not deducted, this setting against the labour of making good).

Cement Work.

Dadoes, per yard superficial, describing if finished for paint. Flush beads and flush mouldings in dadoes are measured at **per foot run**, stating the girt, that to rakes of staircases being generally kept separate; keep separate that also to long ramps. **Number mitres**, tops, short ramps, &c., in beads and mouldings, and also take an item as **number of** making good cement dado over steps where they occur, stating if square or moulded.

Skirting, per foot run, stating the height, and flush or projecting, and the finish at top, bead, moulded, or square. If elaborately moulded, give the girt of moulding. If skirting project, include dubbing with the item. **Number mitres**, ends, rounded angles, &c.

Labours, per foot run.—Ariss, bull-nose angle, chamfer (stating the width), moulding (stating the girt), with the mitres and stops numbered as previously described.

Angles, &c. (labour and materials), per foot run.—Angle and ariss; bull-nose angle (stating the girt), chamfers (stating the width), moulding (stating the girt), with the mitres and stops numbered, as previously described. It is usual to describe these items as "including arrow returns" where they are in plastered walls; but where they are at the edge of a cement reveal under 9 in. wide, include with the item, e.g., "moulded angle, in girt with narrow return and one return in. wide," or otherwise, and made good up to stone or brickwork, or joinery, as the case may be.

Work on Old Walls, &c.

Hacking, per yard superficial.—State whether this is merely hacking the face for key, or hacking off old plastering or cement work, and hacking for key. *Note*.—Some old walls are so uneven that an item of "dubbing to level face" will have to be taken.

Connexions between New and Old Plastering, per foot run.—State if on brickwork or on lath, and if between wall or partition and ceiling, and include painting the edges of old plaster with the item.

Making Good.—The plastering in making good after removal of a wall or partition is generally measured at **per foot run**, stating if to all, partition, or ceiling, and described as "in making good after removal of in. wall," or partition, as the case may be. Similar items of making good to cornices are numbered, including the connexions, and painting the edges of old plaster in each case.

SURVEYORSHIPS.

SURVEYORSHIP APPOINTMENTS.—The Sanitary Committee of the Bristol City Council, at a meeting held on the 14th inst., interviewed the following gentlemen in reference to the appointment of Surveyor's Assistants: Messrs. F. J. Lobley, Norwich; C. Clegg, Aberdeen; J. A. Wright, Horfield; W. E. Leul, Bristol; E. W. Lashmore, Southampton; and L. S. McKenzie, Manchester. Messrs. McKenzie and Lashmore were selected. Mr. McKenzie was for three years Assistant to the Engineer and Surveyor of the Hornsey Local Board, and he was four years with Messrs. Mowlem & Co., of Westminster; is now Assistant in the office of the Assistant Surveyor, Mr. J. S. Lemon, Southampton, and resumed after a year as Assistant; subsequently he had appointments with Mr. Clement Dunscombe, of Westminster, and later with Messrs. Kemp, Welch, Thomas, of Bournemouth; he is at present Chief Assistant in the office of the Borough Engineer of Southampton.

GENERAL BUILDING NEWS.

CHURCH, ST. BOTOLPH, CARLTON-IN-CLEVELAND.—The new Church of St. Botolph, Carlton-in-Cleveland, was consecrated on the 13th inst. by the Archbishop of York. The church is situated on rising ground at the north end of the village, and is designed in the fourteenth-century style of English Gothic. It consists of a nave and chancel, with clearstory, under one unbroken roof, a west tower (which is only completed as far as the nave roof-level at present), north and south aisles, and south porch. The lower part of the tower is vaulted over in stone, with a gallery above for the ringers. The east end of the north aisle is screened off to form a vestry. The walls are of dressed local stone, internally and externally. The main roof is of barrel form, with a boarded and panelled ceiling of oak. The church has been designed by Mr. Temple Moore, and the contractor is Mr. R. P. Brotton, of Bilsdale.

NEW MEDICAL BLOCK AT ABERDEEN ROYAL INFIRMARY.—This addition to the Infirmary has just been opened for patients. It is a four-story granite building with a frontage of 200 ft. to Woolmanhill. The ground, first, and second floors are identical in plan. The total accommodation will be for ninety-four patients, and the cost of the block is estimated at 14,000l. The resident architects are Messrs. W. & J. Smith & Kelly, Aberdeen; Mr. Snell, London, was consulting architect; and Mr. A. Cruickshank was clerk of works for the whole of the extensions; while the electric lighting is under the superintendence of Mr. Preston, resident engineer. The contractors are:—Mason work, G. Duguid; carpenter work, Hendry & Keith; ironwork, J. Abernethy & Co.; cement and plaster works, J. Bannochie & Sons; plumbing, A. B. Robertson; slater work, George Davidson; glazier work, G. Donald & Sons (all of Aberdeen); elevator, the Otis Elevator Co., London; heating and ventilation, the Sturtevant Engineering Co.; flooring, the Acme Wood Flooring Co., London; electric lighting, A. G. Elmslie, Aberdeen; painting, J. & S. Fyfe, Aberdeen.

EXTENSION OF CATHOLIC COLLEGE, BLAIRS, NEAR ABERDEEN.—The newly-finished west wing of Blairs College was inaugurated on the 13th inst. It is a granite structure of three stories in height. On the ground floor are class-rooms and play-rooms. On the floor above are the rector's and professors' rooms, while on the second floor are the students' dormitories. Electric lighting has been adopted. The old house will be temporarily utilised for kitchen, dining-room, library, and chapel; and the further sections of the extensions will be gone on with as the funds admit. Messrs. Ellis & Wilson, Aberdeen, are architects.

NEW CONVALESCENT HOSPITAL, ABERDEEN.—This new hospital (for twenty-six patients), situated at Pitfodels, Culter, in the suburbs of Aberdeen, was opened for patients a few days ago. It is a granite building, with two floors in front and three floors at the back, and has cost about 6,000l. Messrs. W. N. J. Smith & Kelly, Aberdeen, are architects.

UNITED PRESBYTERIAN CHURCH, THORNHILL, DUMFRIES.—A church is in course of erection for the United Presbyterian congregation in Thornhill, and the memorial stone has just been laid. It is being erected on the site of the former church, at the head of West Morton-street. The principal feature of the main gable, which fronts the centre of the street, is a large four-light window, with moulded tracery head. This window lights the end gallery, and under it are two double-light windows with cusped heads. At the side of this gable is the main entrance, formed by a stone porch with a deeply-moulded arched doorway. From this porch doors open into the area of the church and to the gallery staircase. This staircase is placed in a square tower which rises at the side of the church behind the porch, and is carried to a total height of about 60 ft. The spire will be covered with red tiles. The side elevations show a series of single-light windows with cusped heads, and the hall and vestry buildings at the back are in keeping with the church. Internally, the church will be roofed in a single span, with moulded timber main couples carrying a semi-octagonal ceiling. There will be a gallery at the end only, facing the pulpit, which will be placed on an open platform, having the choir on a lower platform in front. The church is being built of red stone from Gatelawbridge quarries, and will be slated with light green Cumberland slates. The wood-work finishings and seating throughout will be of pitch pine stained to oak tint. The total number of sittings provided for is 350, of which ninety-four are in the end gallery. There are also a hall for ninety persons, which can be enlarged by folding doors to seat 130; a vestry, lavatory, heating-chamber, &c. The architect is Mr. John B. Wilson, Glasgow. The following are the contractors for the various works:—Mason, Mr. James Cook; joiner, Mr. W. M. Cane; plumbing and slating, Messrs. P. Drummond & Son; plasterers, Messrs. Waugh & Nish; slater, Mr. J. Corson—all of Thornhill; painters and glaziers, Messrs. A. & H. Gilchrist, Kilmarnock.

WORKHOUSE HOSPITAL, HALIFAX.—The chairman of the Halifax Board of Guardians (the Rev. G. E. Aspinall) laid the foundation-stone recently of a new workhouse hospital to serve the Halifax Poor-

law Union. A site of twelve acres in Lower Skircoat has been secured, about one mile and a quarter from the workhouse. Plans have been prepared by Mr. W. C. Williams, the architect, for a comprehensive scheme, providing for 642 patients and 100 nurses, the total estimated cost being 130,000l. The buildings at present will be limited to provision for 400 beds, together with complete administration offices, at an outlay of about 95,000l. A large detached residence, three stories high, for nurses, is intended as a home for the nurses when off duty. The buildings which comprise the administrative portion occupy the centre line of the site, there being ten pavilions for the sick (five for males and five for females) ranging from east to west. Two branch corridors pass out of the front administrative block to these pavilions, each of the latter being connected with the others by one-story corridors having service subways underneath. There are two entirely different types of hospital pavilion adopted. Eight are of oblong form, two stories high, and two are circular, three stories high. The first floor of the administrative level is set apart for committee-rooms, doctors', stewards', matrons' offices, and so forth, and serving-out stores, with an electric lift from the basement; also there is a large kitchen and scullery adjoining. There is an electric station placed below the ground level, fitted with engine, dynamo, cables, &c., for supplying the electric power needed for lifts, ventilating fans, and electric lighting, no gas being used except for cooking purposes in the large general kitchen. There are also boiler-house, laundry, maternity pavilions, mortuary, stables, and ample provision against fire.

NEW HALL OF RESIDENCE, BANGOR.—The "University Hall for Women Students" at Bangor was opened by Miss Helen Gladstone recently. The building is situated in Upper College-road. It is in the Queen Anne style, and is built of red brick and terra-cotta, from designs by Mr. Frank Bellis (Messrs. Grierson & Bellis, Bangor). The building consists of a basement and four stories. Through the building there extends a main corridor with staircases at either end. There is accommodation for fifty students. The gas fittings and electric bell fittings have been carried out by Messrs. Francis Williams & Co., Bangor. The falience fireplaces throughout the building were made from the designs of the architect, together with all the brick and terra-cotta work, by Mr. J. C. Edwards, of Ruabon. The cost of the structural portion of the buildings is 5,000l. The whole of the work has been carried out by Mr. Evan Williams, of Garth, Bangor.

BOARD SCHOOL, EROL, PERTH.—A board-school has just been built at Erol. There are three large rooms for the accommodation of the senior, junior, and infant classes. Besides these there are: a room for instruction in needlework and another for cookery classes. Separate lavatories are provided for boys and girls, and retiring rooms for the teachers. Mr. Charles Robertson, Perth, was the architect, and the contractors were:—For mason work, Messrs. Tait & Goodall, Erol; joiner work, Mr. McKenzie, Erol; slater work, Messrs. Norrie, Newburgh; plumber work, Mr. McLeish, Perth; and painter work, Mr. Norwell, Dundee.

WESLEYAN CHAPEL, HOLBETON, DEVONSHIRE.—A new Wesleyan chapel was opened on the 13th inst. at Battistore Cross. The ground upon which the new building is situated was given by the late Lord Revelstoke, and the chapel has been erected from the design of Mr. Snell, of Plymouth.

RESTORATION OF COLLINGHAM CHURCH, NOTTS.—The Bishop of Derby visited Collingham on the 14th inst. to reopen All Saints' Church after restoration. A new roof has been put on the nave of the building, consisting mainly of English oak, whilst the side aisles have been repaired. The inside paneled roof of the aisles has been sub-divided by oak ribs, with carved bosses. The reredos has also been adapted. The contractors were Messrs. Bowman & Son, Stamford, and the architect was Mr. Hodgson Fowler, of Durham.

ALMSHOUSES, PLYMOUTH.—The foundation-stone of the first block of a number of cottage almshouses, to be erected at Prince Rock for the accommodation of aged deserving parishioners of the borough, was laid on the 14th inst. by Mr. A. R. Lethbridge, chairman of the Charity Trusts Committee of the Plymouth Board of Guardians. The block in course of erection will comprise six two-story buildings, each of which will accommodate four occupants, two on the ground floor and two upstairs, having a bedroom and sitting-room for their separate use. Messrs. Wible & De Boiville are the architects. Mr. W. G. Goad is the builder.

SCHOOL, FELIXTOWE.—The corner-stone has just been laid at Felixstowe of a new girls' school. Mr. E. F. Bishopp is the architect, and Mr. Thomas Ward is the builder. The new school is planned on the same principle as the infants' school, and will consist of a main room and three class-rooms, with cloakroom and lavatory accommodation.

DRILL HALL, PENARTH.—A new Drill Hall is being erected at Penarth near the railway station and with a frontage to Woodland-place. The hall is being built from plans prepared by Mr. H. Snell, surveyor and architect to the Windsor Estate. The drill-room measures 100 ft. by 50 ft., and the men's

recreation and reading room is 28 ft. by 20 ft. At the side there are officers' rooms, orderly-room, and armoury, with sergeant's quarters overhead. The contractors are Messrs. W. Bowers & Co., of Hereford, and the buildings, which are throughout of brick, are estimated to cost 3,000l.

ALTERATIONS, GREENTLAND WESLEYAN CHURCH, YORKSHIRE.—The Wesleyan Church at Greentland has just been reopened after alterations. The renovation and alterations have been carried out under the supervision of Mr. J. Moorhouse, of Halifax; and the works have been done by the following:—Mason, Mr. T. Noble; joiner, Mr. R. Bottomley; plumber, Mr. J. Riley; plasterer, Mr. J. R. Crowther, Stainland; painter and decorator, Mr. T. B. Gledhill; communion, Mr. Marshall Noble.

HIGH SCHOOL, KESWICK.—The memorial stone has just been laid of the new High School, Keswick. The school proper will be 40 ft. by 20 ft. with two class-rooms 20 ft. by 17 ft., with separate entrances and cloak-rooms for boys and girls, and the playgrounds will also be separate. Messrs. Austin & Paley Lancaster, are the architects, and Mr. T. Baines, from their office, is clerk of the works. The contractors are Messrs. T. & L. Hodgson, and the amount of their contract is 6,250l., including joint work (Messrs. F. & W. Green), 1,544l.; plumbing (Mr. C. Greenwood), 465l.; painting and glazing (Mr. T. Brown), 219l.

GIRLS' COUNTY SCHOOLS, BANGOR.—The new Girls' County School was opened by Miss Rathbone, of Liverpool, recently. The schools provide accommodation for 200 girls, and they are planned with a view to extension. They have been built by Messrs. R. & J. Williams, Bangor, from the designs and under the superintendence of Mr. J. R. Phillips, architect, Cardiff. The amount of the contract was 2,320l.

PARISH INSTITUTE, PORTSEA.—The foundation-stone of this building, which was illustrated and described for this issue for May 8, 1897, has just been laid. Mr. Reginald Blomfield, M.A., is the architect.

MISSION HALL, TOKER'S GREEN, READING.—The foundation-stone of the Rokeby Congregational Hall was laid at Toker's Green recently. The hall, which will be a brick erection with tiled roof, is 30 ft. long by 25 ft. wide. It is erected on a piece of ground having a frontage of 60 ft., and a depth of nearly 140 ft. The building will contain one large room sufficient to seat 150 persons, and at the rear there will be a retiring-room, to be used as a vestry. The architects are Messrs. Charles Smith & Son. Mr. Wm. Hawkins, builder, of Reading, is the contractor.

NEW CHAPEL, SEDBERGH SCHOOL, YORKSHIRE.—A stone chapel has been erected in connexion with the Grammar School at Sedburgh, and was dedicated recently by the Bishop of Ripon. The architects are Messrs. Austin & Paley, of Lancaster.

BAPTIST CHAPEL, BELFAST.—On the 10th inst., a new Baptist Chapel, situated in the Antrim-road, Belfast, was opened. The premises are built of Belfast perforated brick, with red sandstone dressings, and consist of church to accommodate 630 adults and a school to accommodate 300 children, with vestries and lavatories attached. The builders are Messrs. Henry Lavery & Sons. Mr. J. A. Hanna was the architect. The total cost of the building is 3,700l.

WORKING MEN'S CLUB, NEATH.—New premises for the Neath Working Men's Club were opened recently. The new building is situated in High-street. Mr. J. C. Rees was the architect, and Mr. Councillor Abraham George was the builder.

NEW MANIONS, &c., WANDSWORTH.—A large block of flats and shops is being completed on the site of Heath Lodge, Wandsworth-road, Clapham (now known as Heath-terrace), from the designs and under the superintendence of Mr. T. E. Lidiard James, architect (London). The contractors are Messrs. Holloway Bros. Mr. J. C. Lewis has acted as clerk of the works.

PROPOSED ALTERATIONS TO ABERDEEN MUNICIPAL BUILDINGS.—In a report prepared by Mr. R. G. Wilson on the Aberdeen Municipal Buildings, the architect says that he is of opinion that no scheme of rearrangement or reconstruction would be advisable which does not deal with the main staircase. Mr. Wilson has prepared two schemes, marked Nos. I. and II. Scheme I. locates the two public offices for payment of rates and gas in the back part of the building, with side entrance for the public at the north end. The first floor is utilised for the City Chamberlain's department, and the second floor for the town clerk and his staff, the entrance to the council chamber being also improved. Mr. Wilson estimates the probable cost of the scheme at 5,500l. to 6,500l. In scheme No. II, the rates and gas offices are placed in front of the buildings to Union-street, where the Public Health department, &c., is at present, and the Public Health department occupies the rooms to Broad-street, the rest of the ground floor at the back to be used for clerks' rooms, while the side entrance, and stair, lavatories, and so on, are as in the first scheme. In the first floor the Chamberlain would occupy the front rooms to Union-street over the public offices, with a new and improved staircase, and the borough surveyor would then occupy the Broad-street rooms. The arrangement of the second floor would be the same as in No. I. scheme. The probable cost of this scheme is estimated at 7,500l. to 8,000l.

SCHOOLROOM, SELSIDE, KENDAL.—The new combined school and parish room at Selside was opened recently. The contractors for the work were:—Walling and slating, Mr. J. Thompson, Selside; carpentry and joinery, Mr. A. Nelson, Old Hutton; plumbing, painting and glazing, Mr. L. Airey, Kendal; plastering, Messrs. Steele & Co., Kendal, whilst Mr. J. Hutton, of Kendal, was the architect.

CHURCH OF ST. BRANT, BRANTON, LINCOLN.—When arrangements were being made for the celebration of her Majesty's Diamond Jubilee, it was suggested that the permanent memorial in this village should consist of the raising and completion of the church spire. In 1837, when the last weather-vane was erected, the spire was not carried up to a final, but was left with a large capstone some 2 ft. 8 in. in diameter, and on this the vane was fixed. This has now been taken down, and the spire carried up to its natural finish, with carved crockets at its angles, and the whole surmounted with a wrought iron cross and gilded weathercock. The stonework has been done by Messrs. Rudd & Sons, of Grantham, whilst the ironwork has been executed by Messrs. Hobbs & Bartlett of Son. The architect was Mr. Bodley, A.R.A.

PROPOSED PARISH BUILDINGS, SALTASH.—It is proposed to erect new parish buildings at Saltash from designs by Mr. Edmund Sedding. The material from the old schoolroom at the south-east corner of the church is to be utilised in the new buildings. Messrs. Hobbs & Bartlett's tender has been accepted.

BAPTIST CHURCH, NEW TREDEGAR.—The memorial stones in connexion with Bethania Welsh Baptist Chapel at Cwmisgoff were laid recently. The new structure will provide accommodation for about 400 persons. The contractors are Messrs. W. Williams & Sons, New Tredegar, and the architect Mr. S. Sketch, Elliot Town.

NURSES' HOME, CRUMPSALL WORKHOUSE HOSPITAL.—The Lord Mayor of Manchester (Alderman J. F. Roberts) visited Crumpsall Workhouse recently for the purpose of formally opening a new nurses' home, which has been erected in proximity to the Workhouse Infirmary. The building has been erected at a cost of about 4,000l., from plans prepared by Mr. Murgatroyd, the architect to the Board, and will provide sleeping accommodation for about forty nurses.

CONGREGATIONAL CHAPEL, TWYFORD.—On the 7th inst., a Congregational Chapel was opened at Twyford. The building, which will seat up to 150 persons, is of red brick, the inside being of plaster, with matchboarding. The builders were: Mr. Heritage, of Marsh Gibbon, for brickwork; and Mr. Herbert Harris, of Buckingham, for woodwork; Mr. Sanderson, of Winslow, was the architect.

RESTORATION OF ST. BLAZEY CHURCH, CORNWALL.—This church has recently been restored, the architect for the work being Mr. Edmund Sedding, of Plymouth. The builders were Messrs. Hobbs & Bartlett, of Rilla Mill, Callington.

NEW ESTABLISHED CHURCH IN INVERNESS.—A new church has been erected at Southside-road, Inverness, at a cost of about 3,400l. Erected from designs by Mr. William Laidlaw-Carruthers, architect, Inverness, it will give accommodation for 400 sitters, but it is capable of enlargement to about double that extent.

ALTERATIONS AT QUEEN'S CROSS FREE CHURCH, ABERDEEN.—There have just been completed several internal alterations and improvements in the east end of Queen's Cross Free Church. The improvement has been effected by the removal of the baptistery and the choir stalls, and the organ-chamber. The pulpit canopy has been altered in shape, and the choir platform has been enlarged. In front of the pulpit, and between the choir stalls, has been placed the new oak Communion-table. The work has been carried out by Messrs. James Garvie & Sons, from designs by Mr. Arthur Clyne, architect.

CHURCH, WILLESDEN GREEN.—The new church of St. Gabriel's, Willesden Green, was consecrated on the 7th inst. by the Bishop of London. It is built in Walm-lane, and has a chancel, Lady Chapel, and chantry. Three bays of the nave and aisle are in the Early Decorated style. The church seats 600 in its present condition, but will accommodate 1,000 when complete. The building was designed by Mr. P. Philip Day, and built by Mr. J. Bentley. The contract for building the portion of the church now erected amounts to 7,000l.

PROPOSED SEAMEN'S CHURCH, LONDON.—Two ladies have offered to present to the Missions to Seamen a church for the use of seagoing men of the Port of London. The building was designed by Mr. Blomfield & Sons, is to be placed alongside the Missions to Seamen Institute in Poplar, with a covered way between.

CHURCH, EXETER.—General Sir Redvers Buller laid the foundation stone of the new Church of Emmanuel St. Thomas, Exeter, on the 12th inst. The building is to cost 9,000l., is to be erected from designs by Mr. H. Brakspear, and will provide accommodation for 600 persons.

BOARD SCHOOL, GOLCAR.—The new Crow-lane Board School was opened last week. It has been erected from the plans and under the supervision of Mr. Jos. Berry, architect, Huddersfield. The school, which comprises mixed and infants' departments, has a central hall 54 ft. 3 in. by 32 ft., and five

class-rooms, two class-rooms providing accommodation for 50 children each, and three class-rooms for forty children each, whilst 60 places are provided in the central hall. In the infants' department the principal room will accommodate 86 children, and a class-room for 60. Two rooms are also provided for the head-teachers. There are separate entrances, lavatories, a cloak-room for girls, boys, and infants. There is also a woodwork room for 36 pupils, and a cookery-room for 40 pupils, making a total of 502 places. The school is so arranged that if the mixed department should at any time require to be enlarged, two class-rooms can be added, which will provide additional accommodation for 100 children. The floors are laid with wood blocks on concrete. All the internal joiners' work is pitch pine, varnished; and the partitions between the class-rooms and central hall are utilised as museum cases glazed with clear glass. All the dados are of glazed bricks, finished with a moulded capping. Rising galleries are formed in all the class-rooms, which are fitted up with deal desks and cupboards. The schools are heated with hot water on the low pressure system by radiators. The playgrounds are covered with stone asphalt macadam. The accepted tenders amount to 4,304l. 18s. 6d. The names of the various contractors are:—Mason, Mr. William Holroyd; joiner, Mr. William Lockwood; plumber and slater, Mr. Thos. Allison; plasterer and painter, Mr. D. J. Smith; carpenter, Mr. G. S. Schellens; & Son; concrete, wood-block flooring, and stone asphalt macadam, Mr. John Cooke; ironwork, Messrs. Joseph Taylor & Sons; heating apparatus, Mr. F. Milan; furniture, The Bennet Furnishing Co., Glasgow.

SCHOOL, CHAPEL OF GARIOCH, ABERDEEN.—A new public school at Garioch, Aberdeenshire, has just been opened. The new building has accommodation for 100 scholars. The total cost is 1,000l. Mr. R. G. Wilson, of Aberdeen, was the architect.

UNITARIAN CHURCH, NORTHAMPTON.—The new Unitarian church on Kettering-road, Northampton, the gift of Sir Philip and Lady Manfield, was opened on the 7th inst. A Sunday-school adjoining the church, and both abut on the street for about 130 ft. The chief features of the church are the red brick and Weldon stone gable front, with windows filled with tinted glass. On one side is a stone turret. The high-pitched roof of the church is covered with green Westmoreland slates. The entrance is by a central doorway into a lobby, with two doors leading into the church. The seats are arranged in three blocks with two passage ways, and there is a gallery over the entrance lobby. The stairs to the gallery are placed on the east side of the lobby. At the south end of the church, opposite the entrance, there are three arches; in the large one in the centre the choir is placed; through the west arch the clergy vestry is entered, and the east side is the organ-chamber. The carved oak pulpit is on the west side of the choir-stalls, under the centre arch, with steps leading up to it from the clergy vestry. There are two vestries, with cloak-rooms on the east side, entered from the lobby. The vestry on the ground-floor is for gentlemen, and the other on the upper floor for ladies. The church has an organ-chamber, and the east side is a pitch-pine dado 5 ft. high round the walls, the upper parts of which are plastered and coloured. The seats are in pitch pine, the pulpit, choir-stalls, and gallery front are of wainscot oak. The church is lighted by five windows. The internal dimensions are 35 ft. 6 in. by 66 ft., and accommodation for 400 worshippers is provided. On the west side the church are the organ and rooms for social gatherings. The general schoolroom, 24 ft. 6 in. by 41 ft., is on the ground-floor. It has a large entrance lobby with doors on two sides. At the end are two class-rooms on this floor. The kitchen is placed in the basement, and is fitted with boilers for making tea, &c. There are also in the basement store-rooms, heating-chamber, and coal store. All the external walls are faced with selected local bricks, with Weldon stone dressings. The buildings are heated and ventilated on the Grundy system. They are lighted with electric light, the installation having been put in by Messrs. H. Whitmore, Smith & Co., and the fittings supplied by Messrs. Storde & Co., London. The locks and door furniture have been supplied by Messrs. Edwin Cotterill & Co., Birmingham. Messrs. Green Bros., of Northampton, were the builders. Messrs. C. Dorman & Son, of Northampton, were the architect.

TECHNICAL COLLEGE, DARLINGTON.—The Duke of Devonshire opened the Darlington Technical College on the 8th inst. The building has a frontage of some 142 ft., the height to the eaves being about 40 ft. above the level of the street. In the centre of the front rises the central tower to a height of about 70 ft. The south and east sides each extend to a length of about 125 ft. The main entrance wrought-iron gates were supplied by the Princess Art Metal Company, Manchester. The interior of the building provides accommodation for the several branches of study already arranged for. There are the semi-basement, ground floor, and first floor. In the semi-basement are the physical laboratory, two suitable for instruction in metal work, plumbing work, and brass work, &c., and another room for woodwork, a students' common room, small room

lockers, cookery room, and another room for domestic economy, and where laundry work could be taught. The ground floor provides janitor's room, a room for optical and photographic work, an administration room and secretary's office, a room for general subjects, languages, &c., and a room to be used as a college museum. On the south side, on the same floor, is a physical lecture room, a dance room, a laboratory 30 ft. 6 in. by 27 ft. with working benches to accommodate twenty-six students, store room, and lavatories, &c. The first floor provides a room 28 ft. by 26 ft. for drawing classes, adjoining this is an art room 28 ft. by 18 ft. the "oriel" room is situated at the head of the grand staircase. There is also an art room for clay and wax modelling. The long room is also on this floor, its length and breadth are respectively 90 ft. by 11 ft. It is lighted by five windows facing northwards. If required this apartment can be screened off into five separate bays. There are two rooms in the tower, one above the other; a spiral staircase leads up from the first floor into the lower of the two, the top one being reached when desired by means of a ladder. The architect is Mr. G. G. Hoskins, of Darlington.

WESLEYAN CHURCH, CHEDDAR.—A new Wesleyan church was opened recently at Cheddar. The building is erected on land adjoining the old chapel, the structure is in the Early English style, and consists of chancel, north and south transepts, nave, chancel, and lobby. The west window is filled with stained glass, the subject being "Christ Giving the Sermon on the Mount." The wall underneath is tiled with Minton's glazed tiles. The building is 63 ft. long and 29 ft. wide, and in the transepts 40 ft. ; it provides sitting accommodation for 350. The seats are of pitch pine, with panels of white wood. The pulpit is of carved pitch pine, and there is a dado of similar material to a certain height round the side walls. The roof is given work of pitch pine and white wood, unvarnished. The gallery at the east end will accommodate upwards of fifty persons. At the west end there is a minister's vestry, lavatory, and scullery. The north transept is occupied by the organ and choir stalls. The organ has been built by Mr. W. G. Fowles, of Bristol. The manse is at the rear of the chapel. The architects were Messrs. Foster & Wood, of Bristol, and the contractors were Messrs. Scourse & Ford, of Cheddar. The plumbing and gasfitting work was carried out by Mr. J. Coles.

SANITARY AND ENGINEERING NEWS.

BRIDGE OVER THE CONWAY, TALYCAFN, WALES.—An iron bridge has just been erected at Talycafn, over the River Conway. The engineer of the bridge was Mr. W. Alfred Dawson. The bridge consists of steel superstructure, supported on masonry abutments on the shore ends, and on cast iron columns on masonry piers in the river. There are three spans over the river, and one shore span over a public road on the Carnarvonshire side. The roadway over the river is carried on steel cross girders about 10 ft. apart. The main girders carrying the cross girders, floor-plates, road and path, &c., are about 11 ft. deep from top to bottom, and are constructed of steel throughout, the top and bottom flanges being parallel, and the web of a trough-shaped section, with diagonal bracing. Each end span between abutment and pier is about 90 ft. wide, and the centre span is 50 ft. wide in the clear between the piers, the minimum headway of the centre span at high water being 18 ft. The width of roadway and pathway between parapets on the bridge is 24 ft., and the water mains of the Llandudno Urban District Council are carried under the path.

PROPOSED NEW RESERVOIR FOR DOUGLAS.—The Douglas Town Council met on the 13th inst., and amongst other business had under consideration a report of the Water Committee that it is desirable, in the public interests, that additional water should be provided at the earliest possible opportunity to satisfactorily meet the rapidly increasing requirements of the Borough. To do this the Committee recommended the adoption of a scheme of Mr. H. Hill, engineer, to provide a new reservoir in West Baldwin, at an estimated cost of 40,000l. Alderman Curphey, in moving the adoption of the recommendation, stated that the water requirements of Douglas had been increasing at the rate of 1 per cent. since 1888. The proposed new reservoir would store 300,000,000 gallons, compared with 25,000,000 gallons in the new reservoir at Kerrowdown, which was the alternative scheme, at a difference in cost of 11,500l. The Council voted in favour of the recommendation, and the Town Clerk was authorised to make application for power to carry out the scheme.

MERSEY DOCK EXTENSIONS.—A scheme of dock extensions at Liverpool was formally submitted to the Mersey Docks and Harbour Board on the 14th inst. The Works Committee, with a view to providing increased accommodation for vessels of the largest class, and bearing in mind the tendency of vessels to increase in dimensions, recommended for approval a scheme of the Engineer which will involve an estimated expenditure of 3,150,000l. They also recommended that borrowing powers be sought for defraying the cost of these projected works, in addition to 817,000l. for works authorised by the Act of 1891, and 300,000l. for the construction of the

new tobacco warehouses at the Stanley dock. The total sum required will be 4,433,000l. At the south end it is proposed to construct four branch docks, two on the west side of the Queen's and two on the west side of the Wapping docks, flanked with double-story sheds, and to deepen and widen those docks and the connecting passages. There is to be a 630 ft. graving dock on the site of the present Queen's half-tide dock and a 620 ft. graving dock on the site of the present Brunswick graving dock. The Coburg, Brunswick, and Union docks are to be deepened and otherwise brought up to present requirements. The improvements at the north end include the construction of a branch dock on part of the site of the Sandon graving docks, flanked with double-story sheds. There is to be a graving-dock 1,000 ft. long and 90 ft. wide near the Huskisson Dock. Part of the Sandon Dock is to be converted into a deep branch dock, and the Huskisson branch docks Nos. 1 and 2 are to be improved and deepened.—Mr. J. W. Hughes, Chairman of the Works Committee, in moving the recommendations, said that the outcome of the scheme was that provision would be made for a very large number of vessels of 800 ft. long, for a number of vessels over 900 ft. long, and roughly about 250,000 square yards of shed floor. It also provided three new graving docks and a new entrance was to be made into the southern system. Mr. Glynn, in seconding, said that they were not modernising the docks on speculation, but were providing for trade that was knocking at their very door. The motion was adopted. The south-end docks are to be brought up to date.

WATER-SUPPLY, BURELTON AND WOODSIDE, PERTH.—The new gravitation water-supply for Burrelton and Woodside was turned on recently. The water is collected from springs on the farm of Burn Grange, on the estate of Lintrose, and is conveyed in 3-in. pipes to Newmill farm station, where a reservoir has been constructed. The reservoir is 60 ft. long, 22 ft. wide, and 7 ft. 9 in. deep. Its capacity is 63,937 gallons. The springs, as originally gauged, showed 21,560 gallons, but the actual discharge into the reservoir is 33,271 gallons per diem, giving a supply of 60 gallons per head per day to a population of 600. There are fully three miles of piping. The Engineer was Mr. W. J. Brewster Grant, while Messrs. R. & D. Taylor, Perth, were the contractors.

DRAINAGE, MANGOTSFIELD, GLOUCESTERSHIRE.—The sewerage and sewage disposal works of Mangotsfield, which are being executed for the Warrington (Bristol) Rural District Council, are in a fair way towards completion, and by the middle of February the contractors' stipulated time expires. Within a short distance of Winterbourne Down a 12-acre field has been acquired, and here the works are being carried out, the total cost of which (i.e., the disposal works) is set down at about 6,000l. At the works the sewage is received into a chamber and chemically treated with ferrous sulphate. The flow then continues along a channel, into which two iron pipes, with valves attached, are built; these pipes convey the sewage horizontally to the circular precipitation tanks, each of which has a diameter of 24 ft. and a capacity of 44,000 gallons; thence it falls into a vertical tube to within 18 in. of the bottom of the tank, and rises again to the overflow level, which is regulated by channels laid across the tanks. As the sewage rises to the level of the channels the sludge falls to the bottom of the tanks and is removed by means of a revolving perforated pipe, and this is worked by a gearing on the top of the tank. The tank effluent passes into clarifiers, and thence, by means of channels, to the filters. These are constructed of concrete and brickwork. The filtering material is 2½ ft. in thickness, and contains 6-in. pebbles at base, in which 3-in. lead pipes are laid, carrying the effluent to the central channel. The remaining successive layers are composed of gravel, sand, and polarite. Each filter is so constructed that a continuous flow of air will pass under. The effluent is then passed over land, to meet the requirements of the Local Government Board. The sludge is left until sufficient time has elapsed to allow the water to rise out of same; the top water, after being drawn off, makes its way into the lime-mixing chamber, where milk of lime is added. The inner sludge passes thence into two sludge rams, which are shut when full. By means of compressed air, at a pressure of 150 lbs. per square inch, the sludge is finally pressed into cake. The cost of pressing may be saved by its being left in a liquid state, provision for which is made when needed. The engine house is built of red brick. Its dimensions are 54 ft. by 25 ft., and it contains engine-room, with 7-h.p. oil engine, air compressor, and receiver; also water vessel and centrifugal pump for raising the effluent into the storage tank. The press-room contains lime-mixing apparatus, sludge ram, and presses, and a centrifugal pump to raise the top water from the sludge. The remaining room is to be used as storage for chemicals, &c. Provision is made for erecting a manager's house on the property. Mr. H. Roberts, of West Bromwich, is the contractor, and Mr. W. L. Le Maître, Staple Hill, near Bristol, is the engineer.

WINDOW, HECKINGTON CHURCH, LINCOLNSHIRE.—The east window of Heckington Church has been filled with stained glass by Mrs. Little, of Hull. The work has been carried out by Messrs. Ward & Hughes (London) at a cost of about 1,400l.

ELECTRIC LIGHTING NEWS.

PAISLEY ELECTRIC LIGHTING.—The committee in charge of the electric lighting of Paisley have reported on the contracts for the new electric lighting station to be erected at Blackhall. They state that although the plant at present on order will be sufficient to light some 10,000 lamps, the buildings will provide accommodation for fully twice as much plant without extension, it being much cheaper to provide this accommodation at this stage than to have to build again at an early date. The tenders for the works accepted were:—Excavator, brick, and mason work, George Primrose, 7,888l. 18s. 5d.; iron and steel work, Hanna, Donald & Wilson, 541l. 9s. 10d.; carpenter and joiner work, G. & T. Houston, 1,150l. 13s. 4d.; slater work, James Jeffrey & Co., 320l. 17s. 3d.; plumber work, William Allison, 360l. 10s. 6½d.; plaster work, Alexander Maxwell, 332l. 5s. 5d.; glazier work, G. G. Kirk, 247l. 7s. It was agreed to recommend that the price to be charged for supply of current be fixed at 7d. per unit for the first hour of daily consumption, and that all current used after the first hour daily be charged at 3d. per unit.

ELECTRICITY AND DUST DESTRUCTOR WORKS, GLOUCESTER.—At a special meeting of the Gloucester City Council on the 13th inst., the Mayor (Mr. Karn) presiding, it was resolved to adopt the recommendation of a sub-committee for the erection by the Corporation of electricity and dust destructor works. Mr. Hammond, M.Inst.C.E., has been instructed to draw up plans, and it is intended to commence and carry out the work as soon as possible.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOWS, MELING CHURCH, LANCASTHIRE.—Two memorial windows have just been placed in Meling Church. The south window consists of two lights, and the theme is "love and tenderness" exemplified by single figures. One light contains a figure of the Virgin with the Holy Infant in her arms, and the other a figure of St. Elizabeth instructing the youthful St. John the Baptist. The west window, of three lights, illustrates Faith, Hope, and Charity, "the greatest of these" being represented by our Lord as the Good Shepherd. Faith is represented by the youthful St. Dorothy, and beside her is an angel holding a basket of roses. St. Cecilia typifies Hope. The windows are the work of Messrs. Shrigley & Hunt, of Lancaster and London.

WINDOW, HOLLOWAY COLLEGE CHAPEL, EGHAM.—The first of a series of stained-glass windows has been placed in the nave of the Royal Holloway College Chapel at Egham. The window has been executed from the designs of Mr. J. Eadie Reid by Signor Gadamo Meo. In the upper lights of the window two angels are represented with musical instruments in their hands, and St. Augustine, the first Bishop of Canterbury, and St. Alban, the martyr of Verulam, figure in the lower lights.

WINDOW, LOPPINGTON CHURCH, SALOP.—At Loppington Church recently a stained-glass window, erected in the chancel (east window) by Mr. T. A. M. Dickinson, of Loppington House, in memory of the late Mrs. Dickinson, was unveiled. The window was built and inserted by Messrs. Heaton, Butler, & Bayne, of London.

MEMORIAL WINDOW, BROTTON CHURCH, YORKSHIRE.—On the 14th inst. there was unveiled and dedicated a new stained glass window in the east end of Brottan Parish Church. The window has been constructed by Messrs. Percy Bacon Bros., of London. It consists of five lights.

CHANCEL SCREEN, &c., CHRIST CHURCH, WEST GREEN, TOTTENHAM.—A wrought-iron chancel screen and a stained glass window for the east end have been presented to Christ Church, West Green. The window, which has been designed and executed by Messrs. Jones & Willis, of London, has five lights. The screen also was designed and is being executed by the same firm.

CHANCEL SCREEN, ALL SAINTS' CHURCH, FINCHLEY-ROAD.—An alabaster chancel screen which has been put up in All Saints' Church, Finchley-road, is intended to be a memorial of the Queen's Diamond Jubilee. A tablet at the base of the screen records this. The work has been executed by Mr. Forsyth, of Finchley-road, Hampstead, from the design of Mr. E. E. White, architect.

FOREIGN.

FRANCE.—In June last was commenced the demolition of the Mazas Prison, which overshadowed the whole quarter of the Lyons Railway Station, and it appears likely that the site will now be occupied by a large hotel surrounded by new streets, the plan for which has already been laid out.—The future Invalides railway station, Rue du Consistoire, for which the works have just been commenced, will be a very slight construction, in Louis Quatorze style, and in one story only. The plans have been prepared by M. Just Lisch, the architect of the large hotel facing the St. Lazare Station.—The monument to Guy de Maupassant will shortly be inaugurated in the Parc Monceau at Paris. By agreement with the Minister of Fine Arts, the Prefect of the Seine has appointed a com-

mittee to consider the question of preserving the ancient church of St. Pierre at Montmartre. MM. Lisch, Boeswillwald, Vaudremer, and Bouvard are members of the committee.—The new galleries of the Historical Museum of Natural History, from the designs of M. Dutert, will shortly be opened.—The municipality of Chantilly has opened a subscription for a monument to the memory of the Duc d'Aumale.—The jury of the competition for the new Hôtel de Ville at Lens (Pas de Calais) has awarded the first premium to M. Jules Doré, of Paris; the second to M. Bienaimé, of Amiens; and the third equally between MM. Bernard and Robert, of Paris, and M. Cavé, of Cambrai. The cost of the new building is estimated at 400,000 francs.—The population Morbihan are occupied with an extraordinary scheme, no less than that of restoring the great menhir of Locmarinquer and transporting it to Paris.—The town of Aix is seated on the pedestal holding a bunch of flowers in her hand.—The death is announced of the draughtsman and engraver Adolphe Varni, to whom we owe not only a great number of portraits, but also the series of articles on art in *L'Eslanipe* and *La Curiosité Universelle*. The death is also announced of M. Charles Goubet, painter and secretary of the "Société des Artistes Indépendants," and of M. Charles Morin, architect.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The Andrews-Hawksley Patent Tread Co. have removed their works from Napier-yard, Millwall, to Wharf-road, Cubitt Town, E., close to the North Greenwich Station of the Great Eastern Railway.

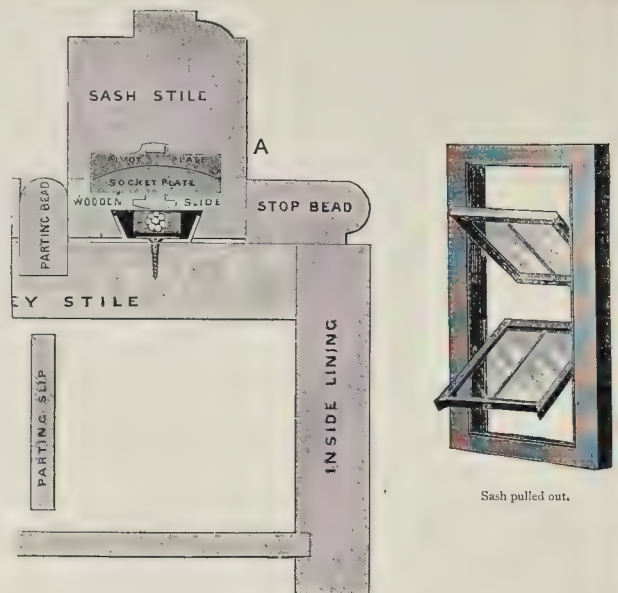
The Safety Thread Syndicate, of 15, Barbican, London, has purchased the business of the Positive Nut-lock Washer Syndicate.

NORTHAMPTON MASTER BUILDERS' DINNER.—The annual dinner of the Northampton Master Builders' Association took place at the Angel Hotel on the 14th inst. Mr. J. Dunckley, President of the Association, occupied the chair. The usual loyal and patriotic toasts having been honoured, Mr. W. Heap proposed the "Mayor, Magistrates, and Members of the Corporation," and Alderman Norman and Councillor Purser replied. Councillor Henry Green then submitted "The Architects," and in the course of his speech he strongly advised builders to see that they had an arbitration clause in their contracts for it was not fair that the settlement of every dispute should be left to the architect. He believed that the work the architects did and got done in Northampton would compare with that in any other town in the country. Mr. W. Shaw and Mr. Sidney F. Harris responded. The latter suggested that as with the Master Builders' Association in London, the Northampton Master Builders' Association should settle and adopt a form of contract. Mr. R. S. Skillington proposed "Continued success to the Northampton Master Builders' Association." Mr. J. Dunckley, in response, agreed that they wanted a radical change in contracts, and he promised that during his year of office he would try to get a uniform system into the town. If he should not be successful in his twelve months, he hoped his successor in the President's chair would be able to do it after him. The name of Mr. F. J. Ains, the secretary of the Association, was also coupled with the toast. Councillor Barnard (Northwich) proposed "The Town and Trade of Northampton, one of the most successful towns in the country," and Councillor Wright responded. Mr. A. P. Hawtin proposed "Kindred Associations," and Mr. R. B. Starkey (Leicester) replied. "The Visitors" was proposed by Mr. E. Archer, and responded to Mr. C. Wright (Dover); and "The Chairman" was submitted by Mr. F. Letts. Mr. W. Heap proposed "The Secretary." Mr. Ains, in reply, said that this was the twenty-first year since the Association was established, and every year the members had shown their confidence in him by electing him to his post. "The Vice-chairman," "The Press," and "The Host" were successively proposed.

NOTES ON FIRE-RESISTING BUILDINGS.—This is the title of a paper lately read before the Engineering Association of New South Wales, by Mr. James Nangle, member of the Engineering Institute of New South Wales, and printed in a pamphlet form. It contains nothing that is new to those in England who have studied the subject, but it is an excellent practical paper, and does credit to its author.

THE DALE MEMORIAL, BIRMINGHAM.—On the 13th inst. in connection with the meeting of the Congregational Union at Birmingham, a memorial was unveiled to the late Dr. Dale in the Corporation Art Gallery. Mr. Onslow Ford, R.A., was the sculptor.

* It is to be hoped that such an extraordinary freak of vandalism may be prevented before it is too late.



Plan of sash stile and half of frame.

Kendall's Reversible Window Sash.

KENDALL'S REVERSIBLE WINDOW-SASH.—So many reversible sashes have been brought under our notice from time to time, that it might seem that all the means of doing this in a practical and advantageous manner had been exhausted; but we must admit that the window under the above title, and illustrated in the accompanying cuts, represents an entirely new method, and moreover has the merit of remarkable simplicity of action. There is nothing to unfasten, no moveable beadings to take out; the sash has only to be pulled by the top or bottom rail to be brought into the position shown in the view. The enlarged plan of half the frame and one stile will serve to explain the action. The "socket-plate," with a convex curve, has a tolerably strong spring behind it. On giving the bottom of the sash a pull with the hand, the concave curve of the pivot plate on the sash slides over the curve of the socket plate, pushing the latter back on the spring, which brings it into its place again as soon as the sash is turned. The two criticisms which may be made are these: first, will the side of the sash be watertight against driving rain? The mere lines of the joining of sash and frame would not, of course, ensure this; but when it is considered that the socket is kept in pressure against the pivot plate by the action of the spring, we should expect that it would be rain-tight as long as the action of the spring was unimpaired. The latter is the second point for question; a spring action weakens sooner or later. It may however remain effective for a long time, and the substitution of a new spring when required is an easy and cheap operation. We have noticed these two objections that it may not be thought we have overlooked them; but nevertheless we recommend this sash to the attention of architects on account of its remarkable simplicity of action. Our remarks are founded not on the drawings, but on the inspection of a working model, without which we never give an opinion on an invention of this class. Messrs. E. Farrar & Co. (London) are the makers.

OPEN SPACES IN LONDON.—We read that the Hampstead Vestry have agreed to apply to the London County Council for consent to a loan of 3,000l. towards the purchase of Fortune-green, and to lay out and maintain the ground. The area is nearly four acres; the price is 8,000l., of which 2,000l. is subscribed, and 3,000l. will be given by the Council. The Islington Vestry have resolved to do the same in respect of their contribution of 2,000l. towards purchasing the Churchyard Bottom Wood, Highgate, 53 acres, which the Ecclesiastical Commissioners are ready, in terms of an Act passed last session, to sell for 2,000l. Other contributors are the St. Pancras Vestry, 1,000l., Hornsey Urban District Council, 10,000l., Middlesex County Council, 5,000l., and Trustees of London Parochial Charities, 1,000l. At the last monthly meeting of the Metropolitan Public Gardens Association it was announced that a sum of 31,500l. required to buy a riverside space at Wandsworth is practically secured by grants from the London County Council, the Local Authorities, and by Dr. Longstaff's subscription

of 5,000l., together with other private donations. The Association have agreed, if their funds permit, to lay out the disused burial-grounds of Christ Church, Blackfriars-road, and York-street, Waltham, subject to due provision being made for their care and maintenance.

NEW BUILDING ESTATE AT COVENTRY.—The want of accommodation at Coventry during the recent influx of building trade artisans, to which reference has more than once been made in our columns, has apparently had its effect in leading to new building and the laying out of new streets. The city is extending on all sides, but one of the most considerable extensions is taking place at Earlsdon. This estate, which has been set apart for building purposes, comprises an area of 28 acres. Six streets have been laid out, some are already completed and others are in course of construction. The new roads are 40 ft. wide, made and curbed with granite, and paved with Victoria stone flags. The estate forms a gentle slope upwards from the top of Earlsdon-street to its furthest boundaries, and is one of the highest sites in the city, and the land beyond the estate falls rapidly away from the curved Whorl-lane boundary, rendering it extremely unlikely that it will be built upon, or that anything will in future obstruct the prospect. It will be primarily a residential estate, and, except on a few sites, there will be no shops or business premises.

COMMUNION TABLE, MAGOURNEY CHURCH, NEAR CORK.—A carved oak communion table has just been dedicated in this church. The table is of Hungarian oak, from the Black Forest. It is 7 ft. long by 3 ft. 3 in. high. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

DISCOVERY OF ROMAN REMAINS, GLOUCESTER.—During the excavations which have been taking place in Northgate-street (at the corner of St. A's, 2nd street), a portion of the original foundation of the Roman north gate was discovered. Corporation workmen have been engaged in raising the stone with a view to its removal to the museum in Brunswick-road. The discovery was made some 10 ft. of 12 ft. below the surface of the road. The stone measures 35 in. by 20 in. by 17 in. Other Roman remains have been found, including another large stone, stated to be a portion of a cider or wine mill, and a number of ox, sheep, and goat bones. A view of the same formation, was found when excavations were made at the Tolsey in this direction of the Wilts and Dorset Bank.—*Gloucester Journal*.

PETERBOROUGH'S BRICK INDUSTRY.—Considerable activity is being shown in the brickmaking industry in the Peterborough district. There are nine companies at work, no less than seventeen estates, as follows:—London Brick Co., 4 yards; Messrs. Hicks, Gardener, & Co., 3 yards; Fletton Brick Co., 3 yards; Peterborough Brick Co., 3 yards; Messrs. Ploymann, 1 yard; Farcet Brick Co., 1 yard; Messrs. Bray & Co., 1 yard; Messrs. Beeby, 1 yard; Yaxley Brick Co., 1 yard. Most of the works are lighted by electric light. It is estimated that 500,000 bricks are being turned out weekly, occupation being provided for over a

thousand men. We shall probably give some further particulars shortly in regard to the industry.

FIRE AT YORK HOUSE, TWICKENHAM.—York House, Twickenham, which is being prepared for the residence of the Duc and Duchesse d'Orleans, narrowly escaped destruction by fire on Tuesday. The building was presented to the Duke and Duchess by the late Duc d'Aumale, who purchased it from Sir Mount Stuart Grant Duff for the sum of 14,000l. The house was formerly in the possession of the Aumale family and was the birthplace of a sister of the late Duke. For the last four months it has been in the hands of the builders and decorators. The Duc d'Orleans has not yet taken up his residence, and the apartments were unfurnished. The outbreak was discovered shortly before eleven o'clock, when flames and smoke were observed issuing from the roof near a chimney stack at the south-east angle of the building. The local Fire Brigade was at once summoned, but before their arrival the workmen engaged on the premises made use of the extinguishing appliances provided in the house, and poured immense volumes of water on to the burning roof. The cause of the outbreak was undoubtedly the overheating of the flue connected with two furnaces in the basement. Into this flue several oak beams projected, and evidently one of these caught fire and gradually smouldered until the outer timbers were reached, when the smoke burst through the roof. *Morning Post.*

CITY COMMISSIONERS OF SEWERS.—A meeting of the Commissioners of Sewers was held on Tuesday in the Guildhall. On the motion of Mr. Johnson it was referred to the Finance and Improvement Committee to consider the rebuilding scheme of the Bridge House Estates Committee with regard to the removal of the viaduct, and the widening of the thoroughfares. It was agreed, on the recommendation of this committee, to acquire the ground leases of Messrs. Faudel-Phillips & Co., in Nos. 1 to 4, Cheapside, and 51, Newgate-street, for a sum of 60,000l., for the purpose of improving the western end of Cheapside between Paternoster-row and Newgate-street. The Streets Committee recommended that permission should be given to the Central London Railway Company to proceed with the staircase at the corner of Queen Victoria-street and Poultry subject to conditions as to the hoarding which would be necessary. Messrs. Mappin & Webb upon this subject wrote, pointing out the serious loss which the erection of this hoarding would cause them, and suggesting that iron railings, which might be covered by tarpaulin while the excavations were going on, should be substituted. The report of the committee was agreed to, as was their report recommending that they should be empowered to make the requisite appointments regarding the supervision of the excavations for the purposes of the railway beneath the Holborn Viaduct. The applications of the Post Office for permission to open streets to lay down telegraph wires were granted, subject to the authorities undertaking that the wires should not be used by the National Telephone Company, who have declined to afford the public greater facilities in the matter of telephony in consideration of their being allowed to use the public way. The Commissioners afterwards adjourned.

EXCHANGING APPOINTMENTS.—At a meeting of the Sanitary Committee of the Bristol City Council, held on the 14th inst., the following gentlemen were interviewed with reference to the appointment of Assistant City Engineer:—Messrs. H. W. Harding, Bristol; A. W. Metcalfe, Bristol; T. L. Perkins, Bristol; L. Wigan, Bristol; E. Frobisher, Leicester; W. Ashford, Norwich; G. M. Martin, Leamington; C. May, Ipswich; and W. Steele, Tottenham. Mr. W. J. Steele was eventually appointed. He was recruited in 1884 to Mr. J. W. Brown, Borough Engineer, West Hartlepool, and served as Assistant until 1891, when he was made Deputy Borough Engineer and Surveyor. He held this position for five years, when he was appointed to his present position as Assistant Surveyor and Water Engineer to the District Council of Tottenham. Mr. William H. Maxwell, Assistant Engineer and Surveyor to the Leyton Urban District Council, was one of four candidates recently selected from about eighty applicants for the post of Borough Engineer to the Corporation of Godalming (Surrey). We understand, however, that subsequent to an interview with the Sanitary and Drainage Committee, Mr. Maxwell withdrew his candidature, finding that the municipal character of the neighbourhood did not quite meet his expectations.

LEGAL.

CASES UNDER THE BUILDING ACT:
WOODEN ENCLOSURES (TWO CASES).
1ST SCHEDULE AND BY-LAWS UNDER THE ACT OF 1878.

At Worship-street Police-court recently, before Mr. Haden Corser, Magistrate, the case was heard of A. Payne, District Surveyor of East Hackney (South) and North Bow, v. D. Allport, of the Wire Wove Roofing Company. The defendant had erected a factory at 417, Old Ford-road, enclosing one end temporarily in wood, contrary to the above sections; the company was then reconstructed and the building stopped. The District Surveyor required either that the factory should be enclosed as required

by the rules, or that a licence should be obtained from the London County Council, under Part VII., for the wooden structure. The defendant, who was represented by a solicitor, did not dispute that he was in the wrong, but asked for time. The District Surveyor explained that he had given as long a time as he was able under the Act, and ultimately an order was made to amend the work in six months "the defendant not objecting," the defendant to pay costs.

In another case, A. Payne v. S. Clay, the defendant had erected a shed, with substantially-built wooden walls and a slated and iron roof, above the size allowed in the exemptions, and also within the prescribed distance of the centre of the road adjoining, contrary to Section 13. The defendant maintained that the building was only a fowls house, and that the road adjoining was his own private way, though the District Surveyor showed that it led to two factories, one of which certainly was a freehold independent of the defendant, and to four dwelling-houses.

An order was granted to amend in twenty-eight days, and 12s. costs.

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS IN YORKSHIRE:

CASE IN THE VACATION COURT.

THE case of Bentley's Yorkshire Breweries v. Dodson came before Mr. Justice Ridley, sitting as Vacation Judge, in the Chancery Division, on the 13th inst., upon the *ex parte* application of the plaintiffs to restrain the defendant by *interim* injunction over the 20th inst. from the alleged interference with their ancient lights.

Mr. Dibdin, on behalf of the plaintiffs, said that his clients' building had several ancient lights in it which looked across a yard, formerly bounded by a wall 4 ft. high, but upon the site of which the defendant was now erecting a building which would be 36 ft. high. As a matter of fact, this building was already 15 ft. high. The building was inspected on the 11th inst., and it was then found that the defendant had very considerably increased the height of it from the day before, and apparently he was rushing the building up as fast as he could.

His Lordship: What is the distance between the plaintiffs' house and the defendant's building?

Mr. Dibdin replied that it was 23 ft. 1 in.

His Lordship said that he would grant the plaintiffs an *interim* injunction over the 20th inst. on the affidavits being regular; but the learned counsel moving would understand that the application would be dismissed with costs on that day if it turned out that the plaintiffs had been guilty of laches in any way. He (the learned counsel) would have to take the order now made at his own risk in that respect.

Mr. Dibdin said that he was prepared to do so.

Order accordingly.

On the 20th inst. Mr. Dibdin stated that Mr. Ashton Cross (counsel for the defendant) had not had an opportunity of seeing the affidavits which had been filed in the case, and it was therefore asked that the case might be allowed to stand over till the first or second motion day next sittings, the injunction which had been granted being continued.

Mr. Ashton Cross said that although he could not object to this he felt bound to point out that the injunction restrained him from building.

Mr. Dibdin said that his clients had given an undertaking in damages.

Mr. Ashton Cross remarked that he hoped to send the case to arbitration.

Ultimately it was arranged that the case should stand over till the second motion day next sittings.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS AT CHELSEA.

THE case of Keane v. Metcalfe and Another again came before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 20th inst. The case came before his Lordship on the 8th inst. (reported in the *Builder* of the 16th inst.) on a motion by the plaintiff for an *interim* injunction restraining the defendants until trial or further order from interfering with the plaintiff's ancient lights.

It appeared that the plaintiff was the lessee of a house in Chelsea, the defendants being the owners of premises at the rear and north-east of it, the back of the plaintiff's house facing east. The windows at the back of the plaintiff's house are ancient lights, and these windows it was alleged were affected by the defendants' building operations. His Lordship on that occasion granted an *interim* injunction in the terms of the notice of motion over the 13th inst., which was subsequently, by consent, extended till the 20th, when counsel stated that it had been arranged that the *interim* injunction should be discharged and all further proceedings in the action stayed.

Order accordingly.

CAPITAL AND LABOUR.

WAGES DISPUTE IN THE MANCHESTER BUILDING TRADE.—The Manchester and District Builders' Labourers' Society has given the employers in the building trade six months' notice for an advance of wages, better conditions of labour, and recognition of a code of working rules, such notice to expire on March 31 next.

MEETINGS.

FRIDAY, OCTOBER 22.

Architectural Association.—Mr. E. O. Sachs on "Practical Lessons from the Paris Bazaar Fire," 7.30 p.m.
Institution of Junior Engineers.—Annual General Meeting, Westminster Palace Hotel. Report of the Council, Election of Officers, &c. 8 p.m.

SATURDAY, OCTOBER 23.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Southwark and Vauxhall Waterworks, Hampton.

MONDAY, OCTOBER 25.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. K. Kenwood on "Infectious Diseases and Methods of Disinfection," 8 p.m.

WEDNESDAY, OCTOBER 27.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Disinfecting Station, Chelsea, 3 p.m.

Carpenters' Hall, London W'all (Lectures on Building and Sanitary Construction).—Professor H. Robinson on "Sanitary Requirements," 8 p.m.

THURSDAY, OCTOBER 28.

Sanitary Institute (Lectures for Sanitary Officers).—Paper by Dr. A. Hill, 8 p.m.

SATURDAY, OCTOBER 30.

Institution of Junior Engineers.—Visit at 3 p.m. to the Queen's-road Station of the Central London Railway Works.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Harrison & Barber's Knacker Yard, Wintrop-street, Whitechapel, 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

24,437.—**APPLIANCES FOR BURST PIPES, &c.:** *H. Sheaf.*—Inventor claims, in an appliance for stopping the flow of water, liquid, or gas through breaks in pipes, the use of a strip of elastic material whose opposite edges are attached to bars, provided with clamps for fixing the elastic material in a stretched condition around the pipe, so as to effectually caulk or close the fissure therein.

16,710.—**BALL JOINTS FOR GAS PENDANTS:** *J. H. Harrison.*—Invention has for object to provide means which should the ball joint leak through wear or other causes, shall prevent the escape of gas. This inventor effects by the combination with ball joint of the gas pendant of a cup adapted to hold geyser, or other fluid which serves as a seal for the ball-joint.

15,463.—**AUTOMATIC DOOR-CLOSING APPARATUS:** *F. Dosigne.*—Inventor claims an apparatus characterised by a piston sliding in a cylinder, the rod of which is operated by a system of levers receiving the motion of a rod sliding in an eye fixed on the door or its frame. Said piston being formed by a disc provided with notches and with an annular groove, a leather piece in the form of a truncated cone, and a basin formed with holes for the passage of the air on the return of the piston. Inventor claims also the use of a system of levers and of an oil-brake for ensuring smoothness.

16,416.—**DOOR LATCHES:** *H. Beirn.*—Invention relates to (a) a door latch, the handle of which is provided with names, inscriptions, or decorations; such ornaments, &c., may partly consist of a luminous mass; (b) a latch which has a core of wood around handle, and this is covered by ornamental thin metal; (c) a latch with flat iron handle, covered with decorated sheet metal.

19,072.—**CONNECTIONS OF DRAIN-PIPES:** *E. Cousin.*—Invention consists of a pipe joint made by having the two pipes and surrounding meeting ends by a flexible material and pipes, and surrounding these again by a device which encloses an annular space around the joint, and introducing a hot mixture of coal tar, pitch, and sulphur into the space so formed.

NEW APPLICATIONS FOR LETTERS PATENT.

OCTOBER 4.—22,656, G. Taylor and H. Eck, Screws.—22,664, J. Peers, Ventilator.—22,683, R. Hauptmann, Press.—22,684, T. Dalton, Press, for the Manufacture of and Undercutting of Tiles, Bricks, &c.—22,684, T. Dalton, Press, for the Manufacture of and Undercutting of Tiles, Bricks, &c.—22,702, J. Burdion, Hollow Augers.—22,706, W. Vincent, Ladders.—22,712, M. Peatzer, Fastenings for Swinging Window Sashes.—22,725, A. Spooner, Fastenings for Doors, Windows, &c.—22,723, A. Lenk and A. Beschner, Window Fastening.—22,746, H. Bowell, Attachment for a Carpenter's Brace for Screwing Nuts upon Bolts.

OCTOBER 5.—22,784, J. Matthew and J. Buckley, Window Sashes or Frames whereby Cords and Weights or Counter Balances are dispensed with.—22,787, W. and J. Smith, Galzweid, Improved Construction of Brick.—22,853, W. Richards, Hanging Window Sashes, &c.—22,855, R. Bürk, Workmen's Time Checking Apparatus.—22,867, H. Bates, Paints.

OCTOBER 6.—22,892, W. Allen, Water-closets.—22,899, C. Boulton, Machinery used in the Manufacture of Ceramic Tiles, Bricks, &c.—22,920, W. Clarkson, Maintaining Paint Brushes in a Moist Condition.

OCTOBER 7.—23,059, J. Hempstalk, Window Shades.—OCTOBER 8.—23,065, W. Aston, Parquetry or Mosaic Woodwork.—23,068, W. Trimble, Automatically Indicating the Presence of Fire in Buildings.—23,130, C. Kite, Inlet Ventilator.—23,131, D. Roberts, Combined Latch and Pulley for Securing Firelocks, &c., and worked by means of a Cord.

OCTOBER 9.—23,184, J. Walsh, Sash Fasteners for Windows.—23,210, D. Wallace, Water-closet Refillers.—23,217, B. Puri, Urinal Attachment for Water-closets.—23,221, A. Langridge, Window Sash Fasteners.—23,241, W. Thompson, Water Taps or Cocks.

PROVISIONAL SPECIFICATIONS ACCEPTED.

17,022, J. Shettle, Sash Fastening Devices, &c.—18,298, J. Williams, Chimney Cowl.—18,672, E. Robbins, Compound Concrete.—19,385, H. Westley, Lock Fastener for Window Frames and Casements.—19,395—M. Mulready, Fire Grates.—20,423, S. Turner and D. Holmes, Latches for Door, &c.—20,426, H. David, jun., Cupboard Turn of Turn Buckle, or Door Knob and Spindle.—20,959, A. Wynn, Window Openers.—21,240, D. France, Extracting and consuming Foul Air Gases and Vapour from Sewers,

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Public Hall.	Wells T.O.	250, 125 and 100.	Nov. 30
*Design for Infirmary.	Dorking Union.	1st, Archt. for Erection, and 125 and 50.	Dec. 15
*Fire Station and Dwellings, and Police Station.	Booth Corp.	50 guineas and 25 guineas.	Dec. 31

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
*Laying Crossings and Paving.	Beckenham U.D.C.	J. A. Angell, Council Offices.	Oct. 25
Additions to Asylum at Workhouse.	Plymouth Union.	Mr. J. Russell, Archt. 15, Courtenay-street.	Oct. 26
*Kerbing, Channelling, &c.	Lewisham B. of W.	Surveyor's Office, Town Hall, Catford, S.E.	do.
Additions to School, King-street.	Plymouth School Bd.	E. O. C. Ok, 18, Princess-square.	do.
Villa, Featherstone, Yorks.	Dr. Steven.	Garfield & Keworth, Archt. Eperate, Pontefract.	do.
Additions to Hospital, Dagenham, Essex.	West Ham Corp.	Lewis Angell, Bore Day.	do.
Public Baths, Measwood road.	Leeds Corporation.	W. Handcock, Archt. Bracken-road, Batley.	do.
*Kerbing and Channelling.	Bromley U.D.C.	Surveyor's Council Offices, G. E. Laffan, Town Hall, Twickenham.	do.
*Broken Granite.	Twickenham U.D.C.	Twickenham.	do.
Alterations, Hebburn Hall, Hebburn-on-Tyne.	Hospital Committee.	J. W. Thompson, Archt. Newcastle-on-Tyne.	Oct. 27
Sewering, Paving, &c.	Hartlepool Corp.	H. O. Crummock, C.E.	do.
Lavatories, &c. Beckett street.	Leeds Union.	T. Wilson, Archt. 20, Albion-street.	do.
Sewering, Paving, &c. New-road.	Coventry Corp.	J. E. Swindell, Esq., St. Mary's Hall.	Oct. 28
*Engine Houses, Coal Store, Chimney shaft, &c.	Shrewsbury Corp.	Great George-st. S.W.	Oct. 29
Additions to Workhouse.	Brighton Union.	H. S. Reed, Archt. Princess-street, Brighton.	Nov. 2
*Tarpaving, Drainage, &c.	Tottenham U.D.C.	P. E. Murphy, 712, High-road, Tottenham.	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
*Tarpaving.	Breastford U.D.C.	Newell Parr, Children's House, Boston-road, Breastford.	Nov. 2
Steel Underframes.	East Indian Ry. Co.	A. P. Dunstan, Secretary, Nicholson lane, S.E.	Nov. 3
*Erecting Hospital, Drainage, &c.	Farnham Joint Localities Hospital.	Farnham, West-street.	do.
*Six Shops and Dwelling-houses.	Common, H.M. Works.	F. & W. Stocker, 90 & 91, Queen-st. Channide, E.C. Office, 12, Whitehall-place, S.W.	do.
*Post Office, Bedford.	Common, H.M. Works.	K. J. Lovegrove, Southwood-lane, Highgate, N.	Nov. 9
*Sewering, Levelling, Paving, &c.	Horsey U.D.C.	P. Foster, Archt. 1, Clonmole, Dublin, E.C.	Nov. 9
*Alterations and Repairs to Houses.	Hackney Union.	F. R. Cole, Union Offices, Rosebery-st. E.C.	Nov. 10
*Electric Cables and Fittings.	Victorian Government.	Agent-General, 15, Victoria-street, S.W.	do.
*Library.	Horsey U.D.C.	R. J. Lovegrove, Southwood-lane, Highgate, N.	Nov. 17
*Water Supply (See advt.).	Government of Para. Brazil.	Consul, London, E.C.	Nov. 17
*School.	Douglas, Isle of Man.	School Committee, Douglas.	No date
Re-building Inn, Abbeigh-street, Northampton.	.....	.....	do.
Co-operative Store, Bldgs. Coventry-street, Market Harborough.	.....	.....	do.
Additions to Workhouse.	Leeds Union.	J. B. Botton, Archt. 48, Albion-st. Leeds.	do.
School, Murray-road, Douglas, Isle of Man.	.....	.....	do.
Kerbing, Channelling, &c. Works.	Lewisham B. of W.	Surveyor, Town Hall.	do.
Houses, &c. Peter's Hill, Belfast.	F. M. Keena.	J. J. O'Brien, Archt. 16, Chichester-st. Belfast.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Towns of Workmen under Surveyors.	Warwick Corp.	.....	Oct. 25
*Erecting Inspectors (two).	Erliston Corporation.	1200, rising to 1500, per an.	Oct. 25
*Sanitary Inspector, &c.	Truro City Council.	1000, per annum.	Nov. 5
*Clerk of Works.	Weymouth E.D.C.	300, per week.	do.

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. & viii. Public Appointments, pp. xviii. & xxi.

Drains, &c.—21,245, F. & J. Elliott, Door Catch—21,446, J. Hicks, Levels—21,515, S. Keigley, and R. Hardisty, Stone Saving Frames—21,733, L. Williams, Water-closet and Valve Apparatus—22,271, K. Kunze, Artificial Stone.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

27,383, A. Shirley, Soldering Bits—27,392, W. Beynon, Door and other Latches—15,807, A. Harriman and C. King, Hammers—18,197, C. Braunsteiner, Window Frames and Sashes, and Apparatus therefor—17,713, H. Braun and R. Gross, Door Closing Apparatus—19,716, J. C. Bedford, Varnish—19,725, A. Koburger, Wedge Fastenings for Doors—20,267, C. Voigt, Roofing Tiles.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 5.—By W. THOMSON (as the Estate). Malew, E.C., Isle of Man.—The estates of "Ballaquaguan" and "Ballachrink," 146 a. r. 26 p. r. 24½.

By HENRIE & MISEN. Kingsbury, Middlesex.—"Lewgars" and about 2½ a. f. 92½. "St. Mary's" and 0 a. 3 r. 12 p. f. 1. Slough-lane, two building sites, 1 a. r. 9 p. f. 6.

By T. N. TURNER. Kensington.—57 and 59, Golborne-rd., u.t. 69 yrs., g.r. 20½. 84 and 86, Golborne-rd., u.t. 74 yrs., g.r. 20½. r. 90½.

Fulham.—3, 9, 16, 18, 20, 24, 25, 26, 28, 29, and 30, Alderford, u.t. 8½ yrs., g.r. 48½. 6, 8, 14, 18, and 24, Liner-rd., u.t. 84½ yrs., g.r. 25½. 38, Liner-rd., f., r. 36½. 40, 41, 42, and 44, Epsom-rd., u.t. 94 yrs., g.r. 20½. 14½.

October 6.—By J. H. HIBBARD. Horney—73 and 79, Fairfax-rd., f., r. 60½. Tottenham.—28 and 60, Black Boy-lane, u.t. 83 yrs., g.r. 102. 105.

By T. B. WESTACOTT. Camden Town.—12 and 14, Bonny-st., u.t. 72 yrs., g.r. 20½. r. 92½. Hampstead-rd.—114, Stanhope-st., u.t. 24 yrs., g.r. 15½. 15½. Havestock Hill.—25, Marsden-st., u.t. 43 yrs., g.r. 20½. 20½. 2, Rochford-st., u.t. 68 yrs., g.r. 6½. r. 34½.

By F. J. BUSLEY & SONS. Rotherhithe.—101 to 107 (odd), Clarence-st., f., f. 30½. r. 92½. Deptford.—58, 60, 62, 64, 75, 77, 79, and 81, Hughes Fields, f., f. 102. Warwick-st., f., f. 102. 1 and 2, Alpha-villas, u.t. 33½ yrs., g.r. 11½. 115, 6d., r. 75½.

268, Lower-rd., u.t. 218 yrs., g.r. 3½. 105. 2 and 4, Bestwood-st., u.t. 21½ yrs., g.r. 3½. 5 to 15, Bestwood-st., u.t. 20 yrs., g.r. 18½. 39, 34, 36, and 38, Bestwood-st., u.t. 20 yrs., g.r. 4½. 105. 40 and 42, Bestwood-st., and l.g.r. 34, u.t. 30 yrs., g.r. 54. 44.

Bermundsey.—58 and 60, Linsey-st., u.t. 35 yrs., g.r. 64. 64. Rotherhithe.—54, 56, and 58, Union-rd., u.t. 48 yrs., g.r. 104, r. 103½.

By HEPPEY & SONS (at Leeds). Bramley, Yorks.—14 and 36, Waterloolane; 2 and 4, Thrift-ter, and 2, Thrift-pl., f., r. 40½. 105. 47½. 105. Stanning-le-rd., "Belle Vue House," f., r. 47½. 105.

By A. DOWELL (at Edinburgh). Ettrick, Selkirk.—The Estates of the Barony of Rodono, Overkirkhope, and Brokhoprig, area 9,200 acres. Buncnew, Inverness.—The Estate of Buncnew, 95½ acres.

October 7.—By ARTHUR BARTON. Aldersgate-st.—2 to 16 (even), St. Thomas-pl., u.t. 52 yrs., g.r. 42½. 105. 84.

By WILLIAM STEVENS. Islington.—5, 7, and 8, St. Philip-st., u.t. 30 yrs., g.r. 12½. 12½. 108½. Clapton.—2, Atherden-rd., u.t. 90 yrs., g.r. 5½. 55. Plaistow.—17 and 19, Woodstock-st., f., r. 52½. 2 and 4, Nelson-st., u.t. 38 yrs., g.r. 20½.

By EDWIN EVANS. Wandsworth.—Garatt Pk., "Garatt House" and 21 a. 0 r. 30 p. f. 1.

By NEWBORN, EDWARDS, & SHEPHERD. New Cross.—489, New Cross-rd., f., r. 70½. Hornsey Rise.—112, Hornsey-rd., f., r. 70½. Spitalfields.—5, Granby-st., with range of stables, f., r. 128½. 148.

Kensington.—Blythe-rd., a freehold building plot. 200, 202, and 204, Blythe-rd., u.t. 44 yrs., g.r. 39½. f. 105½. Hyde Pk.—13, Bathurst-mews, u.t. 39½ yrs., g.r. 34½. 504.

Holloway.—92, George-st., and 7, Hope-st., f., r. 46½. 105. 16, Benwell-rd., u.t. 66 yrs., g.r. 8½. r. 40½. 25 and 26, Whistler-st., u.t. 83 yrs., g.r. 12½. 128.

Leytonstone.—42, Steele-rd., f., r. 24½. Forest Hill.—31, Beadnell-rd., f., r. 26½. Wood Green.—4, Huntingdon-ter, u.t. 85½ yrs., g.r. 10½. 108, f. 50½.

By WALTER LUDLOW & BRISCOM (at Birmingham). Studley, Warwick.—Various enclosures, with cottages, 119 a. 0 r. 39 p. f. 1.

"Washford Farm," 222 a. 3 r. 25 p. f. 1. 2,800. "Moat House Farm," 105 a. r. 14 p. f. 1. 2,800. "Chapel Field Estate," 37 a. 0 r. 17 p. f. 1. 950. "Brookfield Farm" and cottage adjoining, 79 a. 0 r. 22 p. f. 1. 1,750.

"Highland Hill Farm" and cottage adjoining, 134 a. r. 9 p. f. 1. 2,461. Freehold farm buildings and land, 63 a. 2 r. 30 p. f. 1. 1,125. "Goutax Farm," 85 a. 0 r. 33 p. f. 1. 1,300.

"Outhill Farm," 45 a. 0 r. 37 p. f. 1. 1,000. The Phensan Estate, 86 a. f. 1. 1,310. "Clark's Green Farm," 84 a. 2 r. 15 p. f. 1. 1,510. A freehold sporting estate, 61 a. r. 36 p. f. 1. 725.

"Manor Farm" with plantation, 190 a. r. 31 p. f. 1. 3,250. "Church Farm," 222 a. 3 r. 25 p. f. 1. 2,540. "Bannan's Wood," 84 a. 3 r. 17 p. f. 1. 500.

"Netherstead Farm," 282 a. 0 r. 33 p. f. 1. 6,000. "Greenhill Farm," 105 a. 0 r. 13 p. f. 1. 1,350. A freehold farm and "Close Wood," 51 a. 2 r. 24 p. f. 1. 676. "Moreton Common Farm," 15 a. r. 36 p. f. 1. 540.

Studley Castle and 350 a. r. 7 p. f. 1. 7,550. "The Castle or Home Farm," 36 a. 0 r. 19 p. f. 1. 6,000.

October 8.—By W. R. NICHOLAS & Co. Ryde, Isle of Wight.—"Beechwood," and 2½ a. f. 1,500.

By E. S. SMITH. Barnsbury.—Barnsbury-grove, f.g.r. 154, reversion in 67 yrs. 130.

Clerkenwell.—1 and 4, Noble-st., u.t. 18 yrs., g.r. 12½. 133. Pentonville.—6 and 8, Amwell-st., u.t. 14 yrs., g.r. 12½. 375.

Northfleet, Kent.—15, London-rd., u.t. 52 yrs., g.r. 64, r. 35½. 700.

Lambeth.—126, Lambeth-rd., f., r. 604. 430. Battersden.—19, Larkhall Rise, u.t. 65 yrs., g.r. 34, r. 604. 610.

Camden Town.—46, Hildrop-rd., u.t. 56 yrs., g.r. 101, r. 654. 645.

Holloway.—36 and 38, Huddellstone-rd., u.t. 70 yrs., g.r. 144, r. 854. 750.

34, 36, and 38, Brecknock-rd., u.t. 48 yrs., g.r. 134. 1,110.

Battersden.—19, Candahar-rd., u.t. 82 yrs., g.r. 64, r. 284. 310.

Clapham.—150, Leathwaite-rd., u.t. 78 yrs., g.r. 64, 108, r. 304. 250.

South Kensington.—23, Redcliffe-st., u.t. 69 yrs., g.r. 104, 108, r. 654. 480.

Bowes Park.—10, Littleington-rd., u.t. 83 yrs., g.r. 74, r. 284. 200.

October 11.—By W. HOUGHTON. Wanstead.—The Mall, five detached residences, 700 ft. f. 6,800.

Walthamstow.—Prospect-hill, the Wesleyan Church and a building site, f. 70.

5, Addison-rd., u.t. 81 yrs., g.r. 54, 58, r. 254. 268.

Southend, Essex.—"The Royal Hotel," with tap-house; also 1 and 2, Royal-ter, f., r. 1,500. 45,100.

October 12.—By ELGOD & FULLER. Bayswater.—Ladbroke-rd., f.g.r. 100, reversion in 40 yrs. 750.

By OSOBER & MERCER. Little Plumstead, Norfolk.—The Plumstead Hall Estate, 158 a. 3 r. 8 p. f. 1. 14,500.

By DEBENHAM, TEWSON, & Co. Smithfield.—101 and 103, Charterhouse-street, area 70 ft. f. 2,500.

Much Hadham, Herts.—"The Woodlands" and "Hadham Mill Farm," 194 a. 2 r. 25 p. f. 2,375.

By J. W. JOHNSON & Co. (at Masons' Hall Tavern). Canonbury.—Douglas, "The Marquess Tavern," u.t. 49 yrs., r. 100, with goodwill. 9,820.

By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern). St. George's East, Cable-st., "The Jolly Sailor," p-h, a freehold rental of £45, increasing to 50, reversion in 30 yrs. 1,650.

October 13.—By BUNCH & DUKE. Stoke Newington.—83, Farleigh-rd., u.t. 67 yrs., g.r. 84, r. 454. 458.

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

STOWE.—For the erection of a small farmhouse, Lea Heath-Stowe, for the Stowe Charity. Mr. W. H. Walley, architect, Queen-street, Burslem. Quantities by architect.—
C. J. Nevitt £380 0
J. S. Burton £36 16
J. Ward & Sons 377 0

WALTHAM ABBEY.—For the Lea-road drainage scheme, for the Waltham Holy Cross Urban District Council. Mr. C. W. Wiggs, surveyor.—
J. Pollitt £259
Walter Lawrence, Waltham Abbey (accepted) 215

WALTHAMSTOW (Essex).—For the erection of a new technical workshop at the Sir George Monson School for Boys, High-street, Walthamstow, for the Charity Trustees. Mr. W. A. Longmore, architect and surveyor, Bridge-chambers, Walthamstow.—
R. & E. Evans £470 0
George Barker 525 18
J. English 480 0
Lawrence 477 0
J. S. Burton 415 0
* Accepted.

R. tender for "Coach and Horses," Strand.—In our last issue occurs a slight error in the amount of the tender of Messrs. W. Antill & Co. for this work. The amount of the tender was £4,095 and not £2,991. The error was not ours.

LONDON SCHOOL BOARD TENDERS.

The following lists of tenders were submitted by the Works Committee at the last meeting of the London School Board:—

CABLE-STREET.—Erecting boys' and girls' school; accommodate 520 children; manual and science rooms; drawing classroom; confectionery and laundry centres; covered playground for boys' department; converting existing classrooms in old school into halls for all departments, and enclosing, draining, and tarpapering the additional land:—

		Extra amount required for building brickwork in cement.
F. & F. J. Wood	£44,573	£351
W. M. Dabbs	14,437	280
G. Munday & Sons	14,440	280
Perry & Co.	14,440	347
J. Langley & Co.	14,480	297
W. Shurmer	14,525	339
W. Greger & Son	14,625	128
Holliday & Greenwood	14,629	310
P. & H. F. HICK	14,635	233
D. Charters	13,956	323
J. Shillito & Son	13,945	359
Treasure & Son	13,960	347
J. & M. Patrick	13,842	249
E. Lawrence & Sons*	13,618	347

CHOUMBERT-ROAD.—Erecting manual training centre for forty boys, and enclosing, draining, and tarpapering the additional land, and forming opening in covered playground as access to additional land:—

		Extra amount required for building brickwork in cement.
J. & M. Patrick	£4,775 0	£14 0
E. P. Bulled & Co.	1,129 0	29 0
W. V. Good	1,142 0	16 0
W. Downes	1,081 0	29 0
J. P. Ford	1,043 0	19 0
W. Garrett & Son	1,007 0	13 0
W. Akers & Co.	973 0	18 0
H. Leney	917 8	13 10
J. Smith & Sons	958 0	19 0
Holliday & Greenwood	796 0	15 0
J. & C. Bowyer*	694 0	12 12
E. Ling*	634 0	22 0

EGLETON-ROAD.—Erecting manual training center for twenty boys:—

		Extra amount required for building brickwork in cement.
E. Proctor	£795 7	£14 4 5
W. V. Good	758 0	13 0
J. Garrett & Son	757 0	12 10
J. Kiddle & Son	741 6	11 10
Thomas & Edge	739 0	17 0
H. Leney	665 6	10 12 5
Holliday & Greenwood	636 0	13 0
J. & C. Bowyer*	613 0	14 0

HOLMES-ROAD.—Providing and fixing relief main and extra coils:—
H. C. Price Lea & Co. f. £60 0
J. F. Clarke & Sons 58 0
* Recommended by Association.

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HAITON GARDEN, and 29, BAY STREET,
FARRINGTON ROAD, E.C.

RE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, 55, 74 Holborn. Tele. Address: "SNEWIN," London.

IVY DALE ROAD.—Erecting manual training centre for twenty boys:—

		Extra amount required for building brickwork in cement.
E. P. Bulled & Co.	£706 0	£15 0
W. V. Good	679 0	10 0
J. Smith & Son	650 0	10 0
F. Ford	634 10	11 10
H. Leney	513 7	9 0
J. Garrett & Son	509 0	12 10
W. Akers & Co.	509 0	12 10
J. & C. Bowyer*	516 0	12 10

MANCHESTER-STREET SITE.—Repairs, &c., at No. 1, Argyle-street:—
G. Hall £55 0
J. Mortson 41 0
C. Kemp 29 0
W. Margrie & Son 34 10

MONNOW-ROAD.—Erecting boys' and girls' school to accommodate 520 children; manual and science rooms; drawing classroom; confectionery and laundry centres; covered playground for boys' department; converting existing classrooms in old school into halls for all departments, and enclosing, draining, and tarpapering the additional land:—

		Extra amount required for building brickwork in cement.
J. & M. Patrick	£16,666	£179 3
C. E. Wallis & Sons	15,800	178 10
J. Langley & Co.	15,840	222 0
W. Scrivener & Co.	15,845	175 0
W. Downes	14,715	208 0
Stimpson & Co.	14,133	181 0
D. Charters	14,115	227 0
Perry & Co.	14,060	208 0
F. & H. F. Higgs	14,057	109 0
Lathley Bros.	13,951	241 0
E. Lawrence & Sons	14,405	206 0
Holliday & Greenwood*	14,105	204 0

TO CORRESPONDENTS.

A. G. (Below our limit).
NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the author.
We cannot undertake to return rejected communications.
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 10s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46 Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, prepaying at the Publishing Office, 19s. per annum at 4s. 6d. per quarter, can ensure receiving "The Builder" by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Doulting Stone Co.

(Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Doulting Stone Co.)

Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

THE TEST OF TIME

has proved that
SZERELMEY STONE LIQUID
Absolutely waterproofs and preserves Bricks,
Stone, Cement, Stucco, Plaster, &c.
SZERELMEY & Co., Rotherhithe New-road, S.E.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.4.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO. LITHOGRAPHERS AND PRINTERS.

Estate Plans and Particulars of Sale promptly executed.

4 & 5, East Harding-st., Fetter-lane, E.C.4. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON (ST. GEORGE'S ST. WESTMINSTER)

"QUANTITY SURVEYORS' TABLES."
For 1897, price 8d. post 7d. In leather 1/- Post 1/- [ADVT.]

PILKINGTON & CO.

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.

Polonceau Asphalte

PATENT ASPHALTE and FELT ROOFING,
ACID-RESISTING ASPHALTE.

WHITE SILICA PAYING

SEYSSSEL ASPHALTE.

EREST MATHEWS & CO.

61,
ST. MARY AXE,
LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.

PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
Head Office and only City Address, 61, ST. MARY AXE, E.C.
SEND FOR ILLUSTRATED PRICE LIST.

Payne-road Wharf, Bow.
Branch House, 37, Victoria-street, Bristol.

The Builder.

VOL. LXXIII. No. 2876.

OCT. 30, 1897.

ILLUSTRATIONS.

Design for a Mausoleum.—By Mr. J. C. Watt, A.R.I.B.A.	Double-Page Ink-Photo.
St. Mary's Church, Kettering.—Messrs. Gorch & Saunders, Architects	Double-Page Ink-Photo.
House, "Rowgardens Wood,"—Mr. Allan F. Vigers, Architect	Single-Page Ink-Photo.
St. Martin's Church, Blackheath, Wonesh.—Mr. C. Harrison Townsend, F.R.I.B.A., Architect	Single-Page Ink-Photo.
The Living Room, "Woodcote," Church Stretton.—Messrs. R. Barry Parker and R. Unwin, Architects	Single-Page Photo-Litho.
An Artisan's Room.—Mr. R. Barry Parker, Architect	Single-Page Photo-Litho.

Blocks in Text.

Block Plan of the Site of the Paris Bazaar	Page 343	The Paris Bazaar after the Fire	Page 347
Front of the Paris Bazaar	" 344	House at Rowgardens Wood	" 350
Interior of the Paris Bazaar before the Fire	" 346	Plan and Sections of St. Martin's, Blackheath, Wonesh.	" 350
Sketches from some of the Jubilee Presents at the Imperial Institute			Page 351

CONTENTS.

South Kensington Museum Inquiry	239	St. Martin's, Blackheath, Wonesh, Surrey	350	Student's Column: Quantities and Quantity-taking. XV.	253
Architectural Association	341	Archaeological Societies	351	General Building News	354
Engineering Societies	342	Competitions	352	Sanitary and Engineering News	356
Design for a Mausoleum	343	The London County Council	352	Foreign	356
St. Mary's, Kettering	349	The Institute of Civil Engineers	352	Miscellaneous	356
Newgardens Wood	350	Builders' Clerks' Benevolent Institution	352	Legal	356
Living Room, Woodcote, Church Stretton; and Artisan's Room	350	Applications under the 1894 London Building Act	353	Meetings	357
		Classifying Builders' Work	353	Recent Patents	357
		Tottenham School Board Officer Competition	353	Prices Current	359
		Carvers and Carpenters' Workshops	353	Tenders	359

The South Kensington Museum Inquiry.



THE Second Report of the "Select Committee on Museums of the Science and Art Department" is one of the most portentous of Blue-books, the evidence alone, apart from appendices and tables, &c., occupying 445 pages. The evidence of course deals with all the museums under the control of the Department, but we can only here glance at that which is directly concerned with the South Kensington Museum, the parent and central institution, the only one which is of national and world-wide importance, and against which moreover a good deal of violent and intemperate criticism has recently been launched.

We have long been of opinion that a thorough inquiry into the working of the South Kensington Museum was much to be desired. There has been an unsatisfactory impression, for a long time past, that officials connected with it have been leading easy dilettante lives within its precincts, and spending public money sometimes without much judgment and certainly with very little check on them, and that the whole vast establishment is very much in want of an energetic and definite policy. Certainly we have got the inquiry at last in a very thorough manner, for the enormous mass of questions and answers in the evidence goes into the details of every branch of the South Kensington administration. But we may say at once that the evidence goes to show that the violent attacks made upon South Kensington of late, originally emanating we believe from one or two art-critics who were in want of sensational "copy," and blindly followed in various daily papers, are not justified by the evidence. One of the great points of these detractors was that the circulation department was guilty of the grossest stupidity; that (as evidence of this) "textiles had been sent to Birmingham and ironwork to Nottingham," and so on in other cases. But it appears from the evidence that Birmingham and Nottingham had actually asked for these special loans; the Nottingham people were anxious to

stimulate the revival of an old iron industry, the Birmingham art-students felt an interest in textile design, which in fact is a form of art exceedingly adapted to the illustration of first principles in decorative design. And even if they had not specially asked for work out of the scope of their own leading industries, South Kensington might have been justified in sending such work. It may very well be maintained that it is not desirable that the attention of any community should be confined solely to one form of art-workmanship, and that it was better for the development of their artistic perceptions to invite their attention to other forms of work, and thus tacitly suggest a wider interest in artistic design. In this respect what has been said about South Kensington lately rather amounts (as we have all along believed) to foolish and ill-natured exaggeration than sound criticism.

Nevertheless, the evidence as a whole confirms the general impression we have already referred to as to South Kensington administration. There is evidently throughout it a slackness, a want of method, a want of clearly defined principle in regard to the objects of the museum and the selection of purchases for it, which rendered a public inquiry highly desirable; and even apart from anything absolutely faulty in the conduct of officials, of which there is not much evidence, such an inquiry may be of the highest service in showing both the officials and the public the weak points in the administration of the Museum, and the need for a new start and a better-defined programme. Those good-natured persons who expected scandals and startling revelations will be disappointed. There is indeed the very questionable part which Sir J. C. Robinson acted in the matter of the proposed purchase of the Illingworth armour collection, in which he appears to have tried to induce the Edinburgh Museum to buy a collection in the sale of which he was certainly, in a sense, interested; and there is some indication of a want of straightforward statements in one matter by the keeper of the Art Library. The charge of "nepotism," if one may use the word, or finding posts in the Museum for the relations of officials, is nearly disposed of by the evidence; at any rate, the proportion of related officials seems to be too small to found a charge of this kind on. In some respects there has been advance on the

appointments of former years. With all our knowledge of the way in which interest governs or used to govern in Departmental appointments, it is rather startling to read (in Mr. Purdon Clarke's evidence) that Sir Philip Owen, the former Director of the Museum, "was not an expert in art objects at all; he did not pretend to be in any way." Then why was he appointed? The same witness goes on to observe that "a real change took place with the appointment of Dr. Middleton," as we have no doubt it did. And yet there is evidence that Dr. Middleton was not exactly the man for the place. A most acute archaeologist he was, and a critic of art within his own lines, but we meet with indications in several passages of the evidence that he was not wide enough in his sympathies to be manager of an art museum which ought to represent all schools of art; he liked particular kinds of art, and disliked others, exactly illustrating the question put by Mr. Bartley—

"Do you not see some danger in the Director acting simply on his own opinion; supposing he had a particular line, for instance, an antiquarian or archaeological interest and not specially educational; would there not be a danger of his running the collection more in one particular line rather than educationally?"

The most curious instance of this is in his wanting the keeper of the Art Library to send back Sizeranne's book on "Peintres Anglais," which had been bought for the library, on the ground that his opinions on English painters were worth nothing. Some of M. Sizeranne's criticisms are captious; some, on the other hand, are very valuable as showing how some English art appears to a foreign critic; and the idea that the book was not worth putting in an art library, at the modest cost of half a crown, was absurd.

The most important questions raised by a perusal of the evidence are, as to the proper limits and scope of the South Kensington Museum, the best expenditure of money, the classification of objects, the propriety of lending objects for provincial museums (the "circulation" department), and the buildings. As to the latter, we may dismiss at once a point on which there will be no difference of opinion among our readers, by saying that all the evidence given in regard to the present state of the buildings is in one direction—that it is extremely unsatisfactory and dangerous, and that the value of the

collection to the public, and their perception of its value, would be immensely increased by having space to exhibit and classify objects with less crowding, better lighting, and more complete system. In regard to the proposed new building, it is amusing to find the Surveyor to the Office of Works raising, as usual, the standard of economy. "There is every desire on the part of the Office of Works to avoid huge towers if they possibly can, and to make a suitable and slightly building without them." "Suitable and slightly" is good, it so exactly expresses the English official mind on architecture; though as far as towers are concerned, we are rather inclined to think that they are out of place in a museum building, but we should not remove them from economy, but only to spend the money in heightening the effect of the building in other ways. A building to contain a great art collection should itself be a work of the highest possible architectural art.

The question which ought to be definitely settled in regard to the Art Museum (and it is with that alone we are dealing at present) is whether it is a general art museum, or a museum of decorative art, and whether the historical or archaeological element is to be considered in its purchases. The point is touched more than once in the evidence. Mr. Clarke in his evidence appears to support the view, which we consider the correct one, that the Museum is primarily one for industrial art. The National Gallery is our museum of painting, the British Museum is the museum of archaeology; and General Donnelly, in answer to a suggestion that a committee of experts, including some of the British Museum officials, might be formed to deliberate on and sanction the purchase of works, objected on the ground that they would treat the matter "from a museum point of view." Mr. Purdon Clarke admits, however, that it is difficult to draw the line sometimes. He says, in answer to one question, "There is very little work of the early Victorian period that I should care to keep."

"4216. Nevertheless they are examples of a period of the development of the art?—Yes.

4217. And therefore all along you have to decide between the historical interest of an object and its artistic value?—It is very difficult, to draw a firm line or to make a rule of that kind.

4218. Your museum exists after all to present examples of the best types of art work?—Of all periods.

4219. It is an industrial art museum and not an historical museum?—No; it is more industrial than historical; but you must follow the historical arrangement if you wish to show the development of the styles.

4220. Therefore the new sideboards and vases at Bethnal Green Museum of the 1867 era are maintained, not for their artistic value, but for their historical value?—Well, I think for both in a way. Take that large example of Wright and Mansfield's; according to some teaching nothing could be worse; yet it has always been admired by foreigners, who were astonished to see that English workmen could produce a piece of work like that, and often suggested they were assisted by French workmen."

A little further on he observes, in answer to the next question:—

"There is a piece of furniture designed by Mr. Burges, and painted by Sir Edward Poynter, which we purchased thirty years ago, about the time the Wright and Mansfield piece of furniture was bought. Now, that piece is often jeered at by foreigners who come to the Museum, and they admire the English work of the other mode which is of French style, and yet there are many people who consider that piece of furniture was the beginning of the great change in modern English art furniture."

Therefore, Mr. Clarke urged quite truly, he could not be expected to take a critical line in the descriptive labels on the objects, and represent one of them as good art and the other as bad. The fact is that both the works named above are very excellent and interesting pieces of art-workmanship in their way, though very few people who admire the one would admire the other; and therefore they are both in place in the Museum. A piece of work that is poor in its kind, whether belonging to a good or a bad period of art, is not worth keeping there; but good decorative or industrial work of any period is of value. Of course it has an additional value when it is ancient work, as an example of a period; but the artistic value *per se* should be the main consideration. There is one case mentioned of a bust supposed to be of the Renaissance period, and bought as such for a considerable sum, which was afterwards discovered to be a modern work by Bastianini, and has been re-labelled as such; but we do not see that this is a matter of very great consequence. It is admitted that it is a good work of art, and it was purchased as such.

The question of classification is connected with the same subject. Until the new building is finished, no complete or adequate classification is possible; there is a certain degree of classification, but there is not space to carry it out completely. The question is raised whether classification should be by countries and periods, or according to the character of the objects. General Donnelly gives a very decided answer to a question as to the purchase of an interesting ancient pectoral cross, of which the artistic value was doubtful:—

1207.—"I can only say that if it was bought having no art value, but only a historical value, it was contrary to what was the intention in forming the Museum, and I do not think that if the persons who recommended the purchase had said to my Lords, 'We can only recommend this because of its rarity, and as a link in the chain of the history of art,' they would have sanctioned it; but I think they must have said that this has a distinct art value of its own."

With that opinion we entirely agree; and that is in favour of classification by the nature of the objects and not by periods. The question is a very complicated one; but it seems obvious that in a museum especially for the study of artistic design and workmanship, objects of the same nature should be classified together; it is not a question of *when* a thing was made, but *how* it is made.

In purchasing pictures the South Kensington Museum has been going quite out of its proper sphere, although this matter also has been complicated by the fact that the Sheepshanks collection of pictures was presented to the Museum. But we do not see what South Kensington had to do with the formation of a historical collection of water-colours, and the expenditure of 800*l.* on the purchase of Sir E. Burne-Jones's "Merlin and Nimue," to fill a gap in this collection, strikes us as unjustifiable and out of the proper range of the establishment. At all events, picture-buying should be put a stop to for the future; it is not what the South Kensington Museum was founded for.

The question of the circulation system is a more difficult one than some people seem to appreciate. No doubt South Kensington Museum is for the nation and not for London, and the circulation of its possessions among

provincial museums has done much to stimulate industrial art in the provinces; but it might almost equally be urged that the National Gallery and the British Museum are for the nation, and ought to circulate their possessions in the same way, and that could only be answered by the Euclidian argument—"which is absurd." Although Mr. Purdon Clarke maintains that South Kensington is on a different footing, and that the circulation system ought to be kept up, he gives himself very strong evidence as to the evils of the system:—

"Still, we must not overlook that it is the central and principal museum in England, and that people come from all parts expecting to find a perfect series, and they grumble considerably when they find the series cut all to pieces by extensive loans to the provinces, and the defect can only be met by additional purchases. . . . Of course, many people come to London for the sake of studying the South Kensington Museum; and if that is broken up they are unable to carry on their studies?—Yes; and they find that special objects, often referred to in text-books, are in different parts of the country; in one series alone they will find that objects are scattered over England, Scotland, and Ireland, and it leads to annoyance and a certain amount of criticism from time to time."

It is indeed likely to do so, and the criticism is not uncalled for. What ought to be done should be the establishment of permanent branch collections in provincial centres, the objects in those and at South Kensington being kept permanently in their respective places. It is exasperating to people to go to a museum to study a particular thing which ought to be there, and find that it has been sent off three or four hundred miles away.* Provincial branches and a permanent and undisturbed central collection is the reasonable and proper arrangement.

There is decided evidence in the Report of a lavish and inconsiderate expenditure from time to time; and in fact, to officials who are enthusiasts in art the luxury of expending other people's money freely, and with little check, on the acquisition of objects dear to their tastes, is no doubt very fascinating. The case of the Dutch silver clock, for which 1,200*l.* was paid, and which it appears had been bought in at Christie's a short time before at 345*l.*, may be an exceptional instance, but it strikes us as a most flagrant and thoughtless expenditure of money on a single object of the kind, and it is quite evident that a greater check on expenditure is needed. On the other hand, we rather agree with those witnesses, on one witness, who objected to the practice of placing the price paid for objects on the public labels. As long as expenditure is checked by proper and competent authorities, there is no need for this public statement of cost, which is made in no other collection that we know of, and it is calculated to mislead the more ignorant section of the public as to the real nature of the value of works of art, which is not to be reckoned by the sum for which, under varying circumstances, they may have been acquired.

As to the Art Library, it seems to be a chaos. No one has ever known how to catalogue the books, and it is admitted that books have been purchased two or three times over, owing to the officials themselves

* Another point to be noticed is that in this matter of lending to provincial museums there is no corresponding obligation the other way. "2993. If there was a very fine thing at Birmingham or any other important town, do they ever lend it to you in return?—That is the weak point in the system. "2994. There is no reciprocity?—No."

not knowing that they were already in the library.* The present keeper of the library no doubt came there with a set of testimonials of unusually high class, and it must be admitted that he found the library a chaos, but he does not seem to have been able to mend matters in regard to administration, or to have made any very energetic effort to do so.

The inquiry, voluminous as the evidence has been, is not yet completed. So far as it is gone it establishes that on the one hand the attacks recently made on South Kensington have been exaggerated; but that, on the other hand, the whole institution needs rehauling and starting afresh on a more rigorously defined system. In the meantime, the one positive recommendation which the committee are able to make is to express their sense of the importance of completing the buildings on the east side of Exhibition-road without delay. We are glad they have at last come to that decision, and we hope it will be acted upon. It is absurd to delay the building pending the result of the inquiry. The completion of the building is the necessary condition for the reform and rearrangement of the Museum.

NOTES.

The Engineers' Strike.
The proposals which the Board of Trade has put forward for a conference between the Employers' Federation and the Amalgamated Society of Engineers appear practically acceded to by the employers what they have intended for. The forty-eight hours' week is to be withdrawn. It is true that a conference is suggested as to the hours of labour, but the real point for which the men have fought is the forty-eight hours' week—a few minor changes can be of no importance. That the Board of Trade were right in thus publicly endeavouring to put an end to the struggle is clear, but at the moment when we go to press the invitation of the Government has not been accepted. The law does not allow two individuals to fight in the street and injure each other, and it should be as far as possible, find means to put an end to such a conflict as the present. This prolonged strike is so harmful to the country that the nation will have to take measures to prevent such conflicts in the future.

Railway Servants' Demands.
The railway men are now exercising the "right of combination," and have just presented to their employers a set of "proposals for improved conditions of service." The document consists of eight pages, and the companies are given three weeks to read and digest the proposals. The men further recognise that it is extremely probable that the whole of the suggested reforms will commend themselves to the directors, and suggest that, in the event of their requests not being acceded to, the matter be referred to arbitration. The management will, very possibly, see the force of this. The "proposals" include demands for all grades of service, the number of hours and amount of wages which the memorialists desire to have being set forth with great minuteness.

The writer of these words years ago gave up all access to the South Kensington Art Library, in consequence of the chaotic state of the catalogue and the waste of time involved in endeavouring to find anything in it.

Possibly the success of the North Eastern arbitration is regarded as an augury that a satisfactory settlement might be arrived at in the manner suggested; but the differing conditions of railway work in different districts form, as we have before taken occasion to remark, an insuperable obstacle to general arrangements being entered into applicable to all lines alike. This is apparently recognised to a certain extent in the formidable document before us, but any arbitrator who may be called upon to adjust this matter will undoubtedly have a colossal task.

A Relief in the British Museum.
An interesting relief in the British Museum is the subject of a monograph by Dr. Paul Hartwig ("Bendis eine Archäologische Untersuchung," von Paul Hartwig. Leipzig: 1897). The relief represents a chorus of athletes, headed by a torch-bearer, in the presence of the Thracian goddess Bendis, afterwards identified with Artemis. The relief, and, indeed, the whole worship of Bendis, has a peculiar interest for all scholars from its connection with the introduction to Plato's Republic. Socrates, it will be remembered, went down to the Peiræus wishing to see the inaugural festival of the goddess, and to observe the exact ritual of the ceremony, which was, of course, new to him. He and his friends were induced to stay for the pannychis, which was to include a torch race. This passage enables us roughly to date the formal introduction of the worship of Bendis. A second relief published by Dr. Hartwig, and now in the museum of Ny Carlsberg, near Copenhagen, gives us a clue to where the sanctuary of Bendis was. The goddess in this relief is represented in conjunction with Æsculapius, Hermes and the Nymphs; there is evidence for the worship of these two groups of divinities on the hill Minnychia at the Peiræus. An unfortunately vague notice by Rangabé states that during the occupation of the French Army under Passoigne, the Benedideion was excavated on the stony summit of the Peiræus. The expenditure of a very small sum would, given this clue, probably settle the question. In relation to these two reliefs Dr. Hartwig collects a number of other "Bendis" monuments hitherto misnamed or unnoticed.

Decoration of the Paris Hôtel de Ville.
Four artists, MM. Carrière, Lerolle, Eliot, and Prouvé, have been commissioned by the Municipal Council of Paris to submit sketches for the decoration of the ceiling of the Council Library at the Hôtel de Ville. This limited competition, however, has not produced anything which the Council care to accept, and the Decoration Committee has invited these artists to "try again," in company with two fresh competitors, M. Henri Martin and M. Georges Picard. It is perhaps a pity that the Council have not always been so hard to please, and have accepted in so lighthearted a manner some of the decorative paintings which already figure in, but hardly adorn, other portions of the building.

People's Palace Exhibition.
We fear the Industrial Exhibition at the People's Palace is hardly of the interest which was promised and might have been expected. The exhibit of the Thames Iron Shipbuilding

Company, including models of ships built by the company at various dates, from the old Royal yacht *Fairy* (one of the first screw steamers) to the present day, is a fine one, of much constructive and historical interest; and the Post Office contributes its now well-known exhibit of the various telegraph instruments of different dates. There are a good many trade exhibits of more or less well known work; but the section devoted to the personal work of artisans and inventors is not of the extent and interest which we had hoped to find. Among the works in this section we may mention the copper and brass work by Miss Mary Williams, which is exceedingly good, and the realistic wood-carving by Mr. J. Perrin. Various working models show that the men in the East End have a real interest in the work they are engaged on, and we may have more to say on the exhibition; but it must be admitted that, taken as a whole, it is a disappointment.

Architectural Association Discussion Section.
This valuable department of the Architectural Association has recommenced its work for the session 1897-8, and bids fair to maintain its character for vigorous life and usefulness. It is now almost the only class of the Association which is conducted under the "voluntary" system which made the Association classes so popular and successful years ago. The meetings are open, not only to regular members—who must be members of the general Association—but also to all who care to attend as visitors. At each meeting a paper is read dealing with some subject of practical bearing on architectural practice, varied by occasional essays on theoretical or abstract subjects, and these, after being discussed by the members, are dealt with by the "special visitor" for the evening, who is usually some well-known architect, or one having special knowledge of the subject discussed, who voluntarily attends for the purpose. Previous to the reading of the paper, "question time" affords opportunity for members to bring forward difficulties they have met with in their studies or practice for discussion and elucidation.

Turners' Company Exhibition.
The twenty-eighth exhibition of turning in wood and pottery was open on Wednesday and Thursday at the Mansion House. Lately there has been a greater demand for turned woodwork in this country, so that apprentices and others have had less time to give their attention to exhibition work. The quantity, therefore, is not so great as in previous years, but the skill in manipulation and quality of the work is up to the average standard. The standard of design cannot be said to be high; the student is apparently left to his own devices or to copy designs out of books on carpentry and joinery. With artistic supervision much of this careful work would develop into more than mere mechanical skill. The turned balusters are in nearly all cases too deeply cut and show disagreeable signs of lumpiness. Perhaps the mahogany tables are the best exhibits in this section. The pottery exhibits are as numerous as ever. There are some very good vases of Greek shape; any attempt at originality of design has only resulted in vulgarity. There are some ingenious basins with indented borders; the modelling is good, but not suitable for a basin, which requires a smooth top and

interior surface. In the glazed exhibits it is very objectionable to find imitations of polished woods.¹ Some are done so well that they quite deceive the eye, but the colour and design should be in keeping with the material used.

The Eastman Photographic Exhibition.
THE manufacturers of Kodaks and kindred appliances, known in this country as the Eastman Photographic Materials Company, have opened this week an exhibition of photographic appliances at the New Gallery. A large collection of photographs is exhibited, but the special interest of the exhibition consists in the collection of technical exhibits in the South Gallery, including specimens of papers, films, toning processes &c.; while in the central hall are examples of the newest form of apparatus. The latest development shown here is the introduction of films in the size and shape of a cartridge, with which the photographer loads his magazine in broad daylight, and has no need to seek the aid of a dark room for replenishing his ammunition. Among the photographs exhibited the landscapes by Mr. H. P. Robinson, Mr. A. Pringle, and Mr. F. Sutcliffe, are especially good; there are some fine architectural views by Mr. F. B. Evans, portraits by Mr. T. Craig Annan, and figure studies by Miss Frances Johnston. We may add that the West Gallery has been decorated in a very novel and pleasing manner by Mr. Geo. Walton, of Liverpool; the walls are draped with delicate-coloured canvas bordered with stencil designs, relieved by bright copper medallions. The exhibition will be open till November 16.

The Conduit Mead Estate.
ON November 17 will be offered for sale at the Mart the lease of the premises at the corner of Brook-street and South Molton-street, now occupied by the Grand Junction Waterworks Company, having been let to them for a term of forty years from Lady Day, 1880, at a ground rent of 500*l.* per annum, and held from the Corporation of London. The property is part of the old Conduit Mead Estate, and the lease, in respect of which 7*l.* 10*s.* is payable yearly, is renewable every fourteen years in perpetuity on a fine of 52*l.* 10*s.* The estate is named after the conduit heads, fed by the Tyburn, for supplying the City with water. The conduits in the west of London were visited on September 18 each year by the Lord Mayor and Common Council, who dined in a banqueting-house, pulled down in 1737, where now stands the mansion at the upper end of Stratford-place (in what had been Mill Hill-field), built, it seems, *circa* 1750, for Edward Stratford, the famous Hanoverian, and father of John, first Lord Aldborough. By another account that house was designed by Robert Adam for John, Lord Aldborough, in or about 1774; whilst a drawn ground plan, dated 1779, in the Crace Collection marks as "Lord Aldborough's" the house at the south-west corner of Stratford-place. The Conduit Mead includes Hay-hill, Grafton-street, the two sides of Bond-street, with parts of Albemarle-street and Conduit-street. New Bond-street and Conduit-street were built in 1718-20. The water-pipes were at some places enclosed within a capacious arch of brickwork, on a table of stone, for convenience of access and repair; an arch of that kind was found many years ago in Bond-

street,* and another, more recently, beneath the pavement at the corner of Oxford-street and North Audley-street, where a conduit-head is known to have stood.

The Black Swan Distillery, Holborn.
A PORTION of these premises is now under reconstruction for new owners, and in the course of next week will be offered for sale, at the Mart, the remaining portion of the premises—all being freehold—consisting of Nos. 24-5, Holborn, and 79, Fetter-lane, with an area of about 11,900 ft. super. The two dwelling-houses fronting Holborn (and nearly opposite the "Old Bell," soon to be pulled down) are substantially built, containing large and lofty rooms, and are fitted with stone staircases having wrought-iron and mahogany balustrades and rails, carved and inlaid marble mantel-pieces, strong-rooms, vaulted cellars, &c. They are after a kind that is very infrequent in that quarter of the town. The distillery was established early last century on the site of the "Black Swan" hostelry, and has played a part in the domestic history of London; for, on Wednesday, June 7, 1780, the "No Popery" rioters, including prisoners set free from Newgate, and thirsting for liquor, sacked and burned the two houses in Holborn, tenanted by Langdale and his son, distillers, ostensibly because of their religious tenets. The adjoining Barnard's Inn narrowly escaped from the fire, whilst that same night the King's Bench and Fleet prisons, the new Bridewell, and several houses in Holborn and other places in London were in flames. The attack on Langdale's is graphically described in "Barnaby Rudge."

French Lithograph Exhibition.
THE "Société des Artistes Lithographes Français" has opened its first annual exhibition, of ninety-eight works, about fifty of them original compositions. Among the latter the most striking are the vigorous portrait of Tolstoi by M. Henri Lefort, who has been known hitherto entirely as an etcher; the silhouette sketches by M. Willette, "Un Oracle" by Mlle. Abbema, "Une Fille des Champs" by M. Camille Bellanger, and "Les Jeunes Orientales" by M. Mucha. There are various good reproductions after Gros, Delacroix, and Hébert. The exhibition, which is in the gallery of the "Société Populaire des Beaux-Arts," Rue de la Grange Batelière, is a very interesting one, and shows that the taste for lithographic art is reviving in Paris, as elsewhere.

THE ARCHITECTURAL ASSOCIATION. THE PARIS BAZAAR FIRE.

AN ordinary fortnightly meeting of this Association was held on the 22nd inst., in the meeting room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. Hampden W. Pratt, President, occupying the chair.

The minutes of last meeting having been read and confirmed, the following gentlemen were elected members, viz., Messrs. C. E. Abercrombie, S. J. Tatchell, H. W. Fitchett, H. M. Nisbett, J. H. Cammaek, G. Trotman, C. H. B. Pinchard, W. H. Collin, P. B. Dannatt, A. S. Dorrell, L. de Senna Fernandes, E. M. Thomas, H. C. Fread, S. H. Goodwin, O. O. Harrison, H. J. Ingram, C. M. Inman, B. J. McAdam, C. E. Okely, A. W. Papworth, F. E. Ravenscroft, A. H. Rowe, H. Y. Smallwood, W. F. Wilkie, E. L. Wratten, M. D. Barton,

* See T. Smith's "Marylebone," 1833. An interesting drawn plan, 1720, of the Conduit Mead property is in the Crace Collection.

A. R. Conder, R. G. Ell, A. Foxley, G. J. Hookway, Max Judge, A. R. Keighley, A. V. Kinslingbury, W. M. Settle, W. A. Jeckell, P. J. Westwood, L. I. Wood, E. M. Joseph, R. Hosking, H. Macintosh, C. H. Reilly, C. Church, H. E. Rider, D. T. Fyfe, J. Swan, and H. S. de B. Lopez.

The Chairman announced that on Tuesday November 2, the first workshop demonstration in stone-working would be given at the Regent-street Polytechnic, to which students of the School of Design would be admitted free. He might remind members that the first meeting of the Elementary Class of the School of Design would be held on November 9. The Committee were very anxious that both the Advance Class of Design and the Elementary Class should succeed. They were very valuable classes for students, and the Committee hoped that there would be an accession of members attending them. In regard to the Elementary Class, the subject announced in the syllabus as a "draper shop," was more interesting than it appeared as it was really a piece of street corner architecture. In calling it a draper's shop the merely desired to indicate the trade which was to be carried on on the ground floor.

The Chairman also announced that the opening meeting of the Lyric Club would be held on the 29th inst., at the Swallow Assembly Rooms, Piccadilly.

Mr. Edwin O. Sachs then read the following paper on "The Paris Bazaar Fire":—

Introduction.

The evening papers "Extra Special" editions of Tuesday, May 4, informed us of their few terse words that a terrible fire had that afternoon occurred at a Paris bazaar, and that many lives had been lost. Next morning we read all manner of descriptions of the conflagration at the so-called Charity Bazaar, more or less accurate, more or less sensational, according to the standing of the journals in which the reports were published, and the facilities enjoyed by the various correspondents. At every breakfast table throughout the country that Wednesday people, no doubt, expressed their horror. The fearful loss of life was the sole topic of May 5. On Thursday we had yet fuller particulars; all London still talked about the calamity. But then, suddenly, when Friday came, the Paris Bazaar Fire, for all practical purposes, was forgotten. There may have been some slight flickering interest on the occasion of the Lord Mayor's visit to Paris to attend the funeral, and at the death of the Duc d'Aumale from the shock at hearing the news, but that was all. The questions which were asked in the House of Commons in connexion with the fire, and the few words that were spoken at the London County Council practically passed unheard. Nobody cared about the trial that took place at Paris in August. Public interest in such matters is short-lived indeed. And yet the number of deaths at the Paris Bazaar Fire was about 124, and many of those who succumbed were personally known in London Society, and a great number of the names of the deceased had also often been heard of by the British public. Paris is not small and far-distant town. We are within easy travelling distance of the French capital. In forty-eight hours, say three days at the utmost, the fire was forgotten exactly as was the case with the Vienna "Ring Theatre Fire of 1881, with its 450 fatalities, with the Opera Comique Fire in 1887, with its death roll of 115; and other great catastrophes. Why, even when the Exeter Theatre was burned down in 1887, and 160 lives were lost, no many miles from this metropolis, the country forgot all about it within a week. And remember, gentlemen, the Exeter and Paris Opera Comique Fires occurred in the same year, and were followed by a serious outbreak at Oporto with the loss of another hundred lives. To-night, I am going to recall some of the facts of the recent Paris Bazaar Fire, and shall be doing so, gentlemen, before the members of the profession with whom to a great extent will rest the responsibility of future catastrophes of this description. For, gentlemen, no profession is so closely associated with the erection of our dwellings, our public halls, our places of public entertainment, and all those many kinds of structures, not forgetting places of worship, amid which we spend our lives. Now one of the greatest features of the nineteenth century has been the continual effort to prolong life, and you, gentlemen, are, I am sure, doing much in this important movement by seeking

that your clients live in sanitary surroundings, and thus avoid those terrible scourges of fever and other maladies which not so long ago used to decimate many communities. I need not here say how much the medical profession is doing in the interests of prolongation of life, or how, in fact, nearly every profession, and even nearly every trade directly or indirectly, assists in adding to the longevity of the present and coming generations. Our Public Authorities, not forgetting the police, are much occupied in the same matter, for they try to protect our lives in numerous directions. And yet, gentlemen, neither these authorities, nor architects, nor any profession for the matter of that, has so far done very much for the safety of life from fire. Now it may be somewhat aside from the question of the Paris catastrophe, but it may interest you to hear that Great Britain alone has an approximate total loss of property by fire of seven million pounds per annum, and, remember, this is an absolute loss of the nation's wealth and the wealth of the communities concerned. The annual loss of life is very heavy, and the number injured exceedingly large. Now, quite apart from sentimental reasons, is it not very curious that in such a practical country as ours we should allow this constant drain on life and property, and, what is more, allow it to a greater extent than is the case in several other countries which are by no means so business-like as we are, and are certainly not doing so much to prolong life as we do in this country. The object of reading this paper before you, and not, say, before the body of economists, some gathering of statisticians, or some association of public officials, is that, to my mind, the architect and the surveyor, often assisted by the civil engineer, can do far more in minimising our loss of life, and thus add to the longevity of our race, than any law or regulation can do for us. You know it is the old saying that "laws are made to be broken," and I am sure many of you pride yourselves on your "cuteness" of having found some pretext, some makeshift or excuse, for avoiding some of the few requirements laid down by the Public Authorities in this matter of safety from fire. We all know how proud the architect is when, say, he has a factory case, with the lives of hundreds of employees involved, and he can go to his client and say, "Sir, I have saved you that emergency staircase which figured so prominently on your budget," and mentally, perhaps, he thinks of the extra twenty-five guineas he will get for his successful negotiation. We know how proud the theatre architect is when, fighting against some long list of requisitions, he can point out to the lessee, "I have saved you that exit; I have saved you that reduction of seats," and, maybe, he also thinks of the extra, but certainly he—any more than the architect with the factory case—never gives a thought to the lives of those who enter the building which he has advised. Don't let me be misunderstood; every architect not only is the right but the duty to express his opinion on the requirements or requisitions with which the Public Authority wishes his client to comply. We know full well that the Public Authorities, with the very best of intentions, sometimes get ignorant officials, or especially in their junior ranks. We also all know the ambitious young official, who prides himself on having discovered the many faults of that playhouse by himself. I am not trying to dissuade any architect from being fair, open-minded, and technical criticism on any list of requisitions; but I consider it reprehensible, nay, wicked, to oppose every regulation for the safety of life and property, for the mere sake of opposition, and for the mere sake of pleasing one's client. Study the requisitions conscientiously, and if you find exaggerated demands on the part of the authorities—mistakes, faddism—certainly try your best to get your client out of spending unnecessary money. The authorities know you to treat matters seriously and fairly, you are sure to have far more consideration given to your arguments than if the reverse is the case. But, again, do not oppose for the sake of mere opposition, because it is fashionable to try to "best" the authorities. Now don't say that this opposition is at the instance of the client. The client very seldom wishes to oppose the legitimate requirements of the authorities, or, at least, not until the architect has told him of all the

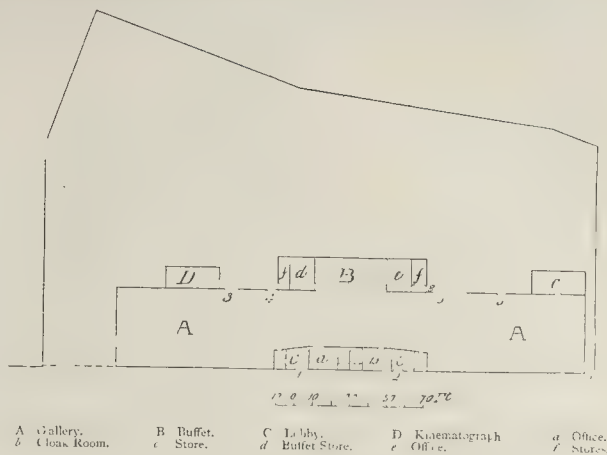


Fig. 1.—Block Plan of the Site of the Paris Bazaar.

savings he will try to effect by avoiding the regulations and requirements. Every factory owner knows what a fire would mean to his business no matter how well insured he may be; every theatre manager and owner knows his responsibility well, and knows that the audience of to-day wishes to feel safe when taking their amusement. *The opposition of 1897, to my mind, mainly emanates from the architect.* And I will go farther and say that it emanates not only from an inherent love for opposition to any so-called Building Act, but also from the architect's desire to show his client what he is worth. Now, gentlemen, leave that kind of thing to the bad architect, who has no reputation to lose. Follow the lead of such men as your old friend Mr. Ernest Runtz, or say Mr. Darbyshire, of the North, who, though both keenly asserting the rights of their clients, always try to give their places of entertainment good straightforward planning, in full accord with modern requirements. Give a hand yourself in stopping this fashion of opposition. Withhold your admiration from architects who are setting the bad example. Boycott such arch-miscreants as Mr. No-Acts and Mr. L.C.C. Hater, though they are old friends of ours. Otherwise, measures will have to be adopted to make architects personally responsible for their buildings, as is the case in other countries, and I am sure you would not like that.

The Bazaar Building and the Fire.—After these preliminary remarks, let me give a few facts about the Paris Bazaar Fire, and the construction of the building which was the scene of the holocaust.

Firstly, it should be noticed that the scene of the catastrophe was in a temporary structure. After the fearful loss of life in this building whilst used for bazaar purposes, and hence having its floor space in no wise blocked by seats or barriers, it would be well to remember that the premises had actually been previously used for theatrical purposes. The building had been equipped with a stage, with a raking floor, with fixed seats, and all paraphernalia and illuminants for dramatic performances, and such entertainments had actually been given on the premises.

Both the stage and seats had only been removed to enable the structure to be adapted for the organisation of a Charity Bazaar. Much has been said as to the premises being a place of public resort. It is, however, difficult to decide whether the entertainment was a public one in the sense understood in this country; for though it appears that the visitors attended by invitation only, and not by ticket purchasable at the doors, custom seems to have required a "voluntary" payment to be made on entry. In most countries any payment at the doors, even for a programme, invests the entertainment with a public character in the eyes of the law.

Next it should be noted that the site of the building was in the Rue Jean Goujon, close to Rond Point of the Champs-Élysées on the one hand, and to the Cours la Reine on the other,

and hence it was situated in a much frequented part of the city. It was not hidden away in some back garden or placed in some outlying suburb. Roughly speaking, the ground has a frontage of over 90 metres, or nearly 300 ft. Its depth averages 45 metres or 150 ft. It is within a few hundred yards of a small police-station in the Palais de l'Industrie, which also has a permanent fire-watch from the "Regiment des Sapeurs Pompiers." An important station of the latter body is not far distant. The Rue Jean Goujon, as will be seen from the site plan, ends at the Place de l'Alma, and there is an abundant water supply from the river Seine for any number of steam fire-engines; but as far as the water service in the roads is concerned, I understand it was not the most satisfactory. The site can in an emergency be approached from the back, by the fire brigade passing through the houses facing the river.

Speaking of the structure, nearly 80 metres of the frontage was taken up by the temporary building, the average depth of which was 13 metres, and there were several small additions to the back, namely, a refreshment-room, a large store-room, used at the time of the catastrophe as a cloak-room, and the fatal cinematographe room. The last-named annex, which will be seen from the ground plan, was not, as far as the plan shows, in direct communication with the main building for entry and exit, the approach being from outside, and the visitors passing through door No. 3. The main building covered about a third of the superficial area of the site, while two-thirds, having an average depth of 32 metres, had not been built on. The site was enclosed on the back and two sides by walls of various heights, from 15 ft. upwards, and by the party-walls of some adjoining houses. One of these blocks, the Hôtel du Palais, has windows overlooking the ground.

The plan of the building shows a long gallery constructed of a series of framed trusses, the whole of the work being in timber. All the walls were match-lined on both sides. The roof was partly covered with tarred felt and partly with glass. The total cost of the structure was about 12,000 francs, or about 480*l.*, of which sum nearly half was spent on the materials employed. The contractor carried out the work with particular regard to economy, and hence, perhaps, the lightness of the materials employed. So far as the contractor was concerned, the building appears to have been considered of a private character, little or no supervision apparently being exercised by any of the Local Authorities. The principal entry was through two doors, placed centrally, No. 1 and No. 2, and the visitors passed through a small vestibule and inner lobby in each case. There were four additional exits at the back, Nos. 3, 4, 5, and 6, of which No. 3 alone seems to have been well known, owing to its forming the approach to the cinematographe annex already referred to. There was another exit, No. 7, used for service purposes, with which

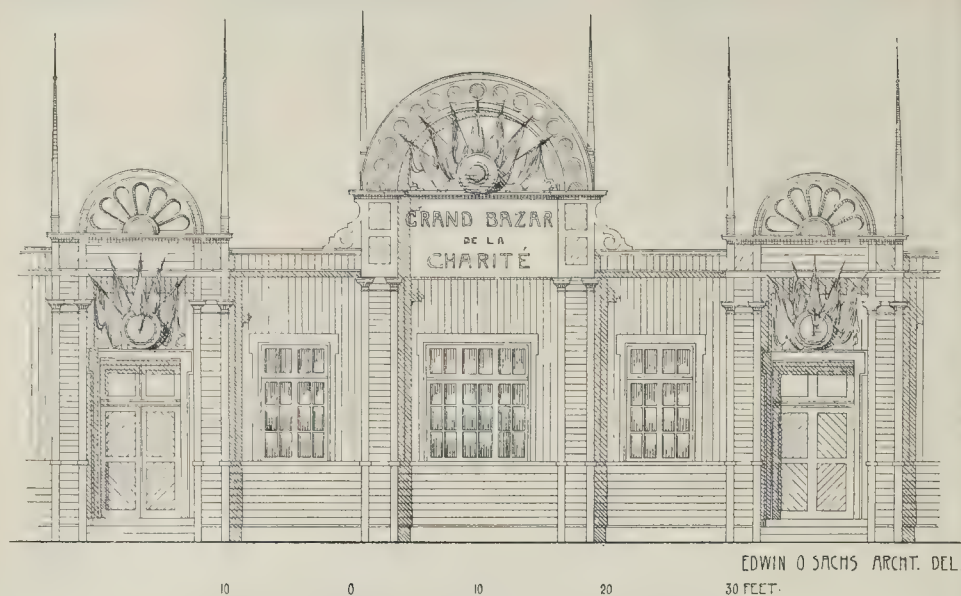


Fig. 2.—Front of the Paris Bazaar.

only the management and the stall-holders were acquainted, and there was also a small door from the refreshment annexe, No. 8, into the open. In the front of the building there were several windows to the office, the ladies' room, &c.

On both sides of the gallery there were rows of stalls, and the construction of these, together with the section of the building, is shown in the diagram I have had specially prepared from the working drawings in the hands of the contractor. The frontages of these stalls were faced with scenery, whilst the top of the hall was closed in by a velum of canvas. The decorations were elaborate, and, I must again add, particularly inflammable, while the articles for sale on the stalls were, of course, of a similarly dangerous character. Perhaps I should also mention that the decorations to the stalls were old, worn, and very dry. The floor was of wood, resting on timber sleepers. On the exteriors the only attempt at decoration had been in the central feature.

There is no doubt that the fire originated in the cinematographic annexe, and the actual cause was due to carelessness in using the special lamp employed; but I will not go into detail on the point of the actual cause of the outbreak, as this would not teach us much, and only afford another instance of the criminal recklessness with which mineral oils and explosives are handled. It appears that the flames at once broke through to the gallery, and were drawn immediately across the hall to entrance No. 1. It will be seen from the drawings that the glass at the top of the building must have been broken almost immediately, through the enormous velarium becoming a sheet of fire. Further, it is evident that the velarium must have broken away from the points at which it was hung, falling on those beneath it. The tar on the roof also dropped in a molten or burning state. The plan will explain how those farthest away from the centre on the cinematographic side of the building must have been cut off directly the flames took a hold of the doors No. 3 and No. 1. It was, further, natural that there should then be a general stampede towards entrance No. 2, and to that part of the hall farthest from the cinematographic. The extra doors, No. 5 and No. 6, were apparently so little known that they were not used, and it appears that many of the visitors were caught at the entrance to the store annexe, which, as I have already stated, was then serving as a cloak-room, and hence well-known to many of the ladies, who, in the excitement of the moment, must have asso-

ciated it with an exit. In this annexe most of the bodies were found, the other points at which deaths occurred being marked with an X on the site plan. The diagram (fig. 1) shows that some of these positions are very near the doors Nos. 6, 7, and 2.

It is not my purpose to discuss the plan in detail, but there is one thing certain, and that is, that at first sight the number of exits, eight in all, would appear sufficient for a substantially built structure which had its floor on ground level. I would even go so far as to say that there are not many galleries of the same dimensions, standing under the control of a public authority in this country, that have a larger number of exits; but here it should not be forgotten that in the planning of places of public entertainment, precautions are not based on the assumption that flames will spread with such rapidity as was the case among the decorations, fittings, and general appliances of this fatal structure. In a well-planned theatre of the most modern type there is always the supposition that some four or five minutes' time will be given to the audience to leave their seats in the auditorium proper. There is one unfortunate feature of the planning of the Paris Bazaar I cannot, however, help noticing, and that is the manner in which the lobby to entrances Nos. 1 and 2 were set out with the view of excluding draughts. I am unable to get information if the wings to these doors swung outwards. As to the doors Nos. 3, 4, 5, 6, however, I know that they opened inwards, and that one of them was blocked or bolted at the time of the catastrophe.

Looking at the plan of the building, its construction, and contents, and considering well all the defects that such a structure must contain, I would yet point out that the extent of this calamity was due in a great measure to the fact that the majority of those present were ladies, whose clothes must have undoubtedly caught fire immediately the lengths of canvas velarium, and burning tar fell. I have on a former occasion argued that English women are far more fearless in facing danger than their sisters of other nations, owing to their constant association with the various forms of sport practised in this country, and much has unfortunately been said to the effect that a panic of such dimensions would be impossible in Great Britain. I scarcely, however, think that my argument holds good in a case like the recent catastrophe at Paris, for the scene must have immediately been of such a terrible nature that even those whose profession makes them

acquainted with the terrors of fire would, in all probability, have lost their presence of mind. It would not be doing justice to our French neighbours if I were not to say that in spite of the severity of the panic, heroic deeds were done and many deaths died in doing gallant acts—acts which English men and women would have been proud to be associated with.

To recapitulate the main features of this catastrophe. Let me repeat that the building had its floor practically on pavement level, and stood on its own ground, with its front on a broad public thoroughfare. There was vacant land at the back, a broad passage on the one side, and a narrow one on the other. There were eight exits leading direct into the open, with an aggregate width of some 40 ft. The visitors were mostly ladies dressed in spring apparel; the spread of the flames was exceedingly rapid, and their garments became ignited almost immediately. The general aspect of the fire was particularly dangerous. There is no doubt that many of the visitors practically died where they stood at the time of the outbreak, being enveloped almost immediately in the burning canvas which fell from above. Of the others who succumbed, many were entrapped either by being cut off from the exit, by finding these blocked when they reached them, or by not knowing their exact position. Of those who escaped by the principal exits, a large number were injured by the crush at the doors. Though the police and the fire brigade were within easy call, even the instantaneous arrival of a large force on the spot could scarcely have lessened the death roll, owing to the rapidity of the fire and the extent of the panic. I have not heard of any watchman or fireman having been stationed in the building; but had this been the case, it is not in the least likely that his efforts would have had any appreciable effect. The great heat from the fire appears to have prevented those who reached the land at the back from utilising this space as a refuge. A window of the Hôtel du Palais was used by many escaping to the rear of the building, as the broad passage opening into the Rue Jean Goujon was apparently overlooked. A number of the visitors were, however, either killed or badly injured in the crush to reach this improvised means of escape through the window. As to the extent of the destruction, a good idea can be formed by the enlarged copy of a sketch made on the spot by a young Australian friend of mine, Mr. Harry Budden, who has for several years been my trusty lieutenant in recording

fires of this description. In closing these remarks on the actual fire and the fatal building, let me again remind you that no less than one hundred and twenty-four lives were lost, and of the injured many even to-day are in a serious condition or are practically human wrecks owing to the nervous shock which they sustained.

Fire Prevention of To-Day.—Now, if I may be allowed to classify, the Paris Charity Bazaar was a semi-public entertainment, held in a provisional building. As you know, our entertainments are either of a private character, of a semi-public, or of a public character, whilst the buildings utilised are either permanent structures specially erected for a specific purpose, permanent structures temporarily adapted for some such purpose, or they are provisional buildings.

Safety at Public Entertainments.—As far as public entertainments in buildings specially erected for the purpose are concerned, nearly every country has already inaugurated some policy for preventing catastrophes. I here speak of the theatre, the music hall, the assembly room, &c. Europe has, in fact, every kind of legislation conceivable for the protection of the public in this class of structure. There have been hysterical panic legislation; ponderous regulations in which every detail is defined by law, also codes written of an executive of experts, and regulations which are merely so by name, and are a farce because they cannot be put into force. There is no uniformity in the preventive legislation of the world, even in its elementary principles. If we study the regulations of different countries consecutively with an idea of discovering what is really necessary, the result is most confusing. Now I am not going into detail. Don't be afraid; I shall not quote clauses. But for all that, I will say broadly that some countries seem to consider that good construction is the essence of safety, whilst clear planning, watching, and inspection, are forgotten. Other countries give all attention to endless regular inspection and omit the watching; others, again, require inspection only; whilst others, perhaps, insist on good planning, construction, and ample inspection, but disregard the watching. It is time for some representative body of experts to decide what they consider necessary to the interests of the public. I am not going to raise the many questions as to the proper executive for locally determining or enforcing the requirements, nor shall I enter into the merits of individual regulations. I will simply call your attention to the want of uniformity in the main and elementary principles for obtaining safety where we have to deal with buildings erected for specific purposes, and where specific forms of entertainment are given.

Personally, I hold that for a theatre or music hall, clear planning is of greater importance to the audience than clever forms of construction, or the employment of materials having a considerable power of fire-resistance; and, further, I contend that in such buildings the regular attendance of fire-watches day and night, and more especially during performances, is more essential than any amount of regular, or even surprise, inspection. But remember, this is only a personal opinion. There are no definite conclusions as yet arrived at by any body of experts representing the conflicting interests which play such a prominent rôle where our public entertainments are concerned.

In expressing my opinion on the matter, I should, perhaps, say at once that I consider it the duty of the authorities to attend to the protection of life in the first place, and to the protection of property in the second. As we all know how easily panic occurs without any fire, and how dangerous the rush of a frightened audience can be, the clear exit of ample dimensions and most direct route will be the safest, and perfect symmetry of plan of most value. The prevention of a cause for panic is best guarded against by the constant presence of experienced and responsible firemen, who will in the one side recognise the possibilities of danger in time to prevent a fire, and on the other are able to act smartly in case of an outbreak. I do not wish to disparage good construction, or regular and surprise inspections; but I consider the most careful regulations as to construction and materials practically valueless, if at the same time the safety of the audience is concerned, if the same time the planning is not straightforward, and responsible firemen are not regularly in attendance. To take an extreme case, wood

stairs will take the audience quite as quickly into the open as stone ones; and stone stairs with many winders, and a complicated plan, will be far more dangerous than wooden ones of straight flights of, say, fourteen steps each. Don't let me be misunderstood; of course, good construction and fire-resisting materials lessen the risk of an outbreak of fire, and I shall always advocate such construction and materials. But I have inspected many theatres, built of slow combustion materials, and yet have found them dangerous in the extreme through bad planning; and I wish to point out that a building erected entirely of fire-resisting materials is not necessarily the safest. It is also on account of my acquaintance with the fact that many important cities, though equipped with modern regulations for the erection of theatres, have no powers to enforce the presence of an official fire-watch during the performances, that I am anxious to lay stress on the necessity of watching, and not only inspecting the theatre and music-hall of to-day.

Preventative Means at Semi-Public and Private Entertainments.—But now, gentlemen, all that I have said so far refers to the permanent building erected for a specific public entertainment, and even here, with given facts, I have to tender personal opinion because we have not yet arrived at definite conclusions on the subject. What, may I ask, is the state of affairs as to semi-public and private entertainments in buildings, halls, or rooms, only temporarily utilised for gatherings of this description? Why, gentlemen, so far, nothing whatever has scarcely been essayed, let alone decided. Legislation on the subject in this country is as non-existent as it is on the Continent. Why, we have not even as yet any practical definitions as to what a private or a semi-public entertainment is. The whole subject is so delicate a one that even such despotic police administrations as those of Prussia and Russia have not yet felt their way. Where do the privileges of private entertainment cease? And when does an entertainment assume a public character, not only as such, but more especially in respect to public safety? Cannot every man do exactly what he pleases on his own property so far as entertainment is concerned, and as long as the general public is not admitted by payment? But is not a Foreign Office reception on her Majesty's birthday to all intents and purposes a public entertainment? And, similarly, the ladies' political drawing-room meeting in Park-lane? Is not a bazaar, held in a tent, say, at the Botanical Gardens, and to which only members of the society with their friends are admitted, a public entertainment? How many bazaars, let me ask, are held without payment for admission on a private property, which are essentially of a public character? Think of the many meetings, so-called private theatricals, subscription balls, and other fêtes! How is classification to be attempted? How are we to define our entertainments? But here a suggestion. Is it necessary to classify at all? Is it essential to make limitations as to the different classes of our entertainments? I think not. Whilst most of our legislators at home and abroad are trying to define our entertainments and then to frame certain requirements for the safety of the public, why not let the character of the entertainment take care of itself? Let us look upon every room over a given size as a place in which we may or may not congregate with or without payment—to dance, to sing, to let others sing and dance, just as the case may be. Let the superficial area of any given room and its position alone govern our requirements for safety, not the fact that it is a private dwelling-house, a saloon at an inn, a school-room, or a board room.

If the Building Act of to-day defines the thickness of a party wall, and its height above the roof, quite independent of the fact of a man giving a party, or lending his house for a drawing-room meeting, having a chemical laboratory in the place, dancing classes, or a school, why should there not be such planning compulsory as to prevent any room over a given size, be it a ball room or a studio, being used without risk to life? Why should not every large drawing room on the first floor have sufficient exit and staircase accommodation to deal with the maximum number of people who press into that drawing-room? And let the same hold good for every class of structure, if a public house, a school-room, or a chapel. Do we not all know the bazaars held in houses kindly lent by charitable owners? I have a

house in mind in Carlton-terrace, where the first-floor drawing-rooms are at times simply packed, and the staircases so crowded, that it takes a full half-hour to get from one floor to another. The function was essentially of a semi-public character, and as dangerous a one as I can remember. You all know the entertainment in the parish school-room, given ostensibly by the schoolmaster to the friends of the pupils. Well, again, don't let us bother too much as to the exact purpose of any gathering, but let us build our larger rooms so as to allow for assemblies of any description with safe and speedy exit in case of need.

But now, gentlemen, another point. How are we to assure ourselves that even if any one room or hall fulfils the ordinary requirements of safety, as far as plan and construction are concerned, that the variations in the interior arrangement, in the decoration, &c., do not more than annul what the architect has done. Of course, a building, a room, or a temporary structure, should be used for what it is designed, and for no other purpose. But in reality we must consider the possible purposes to which a room can be put; in fact, the dangers of any decoration or paraphernalia necessary for the fulfilment of various objects must be considered at the time of construction. A hall which is used as a ball-room, and which is perfectly safe as such, may be a veritable mouse-trap when used for theatrical entertainments. A hall designed only for banquets, public dinners, &c., may become dangerous when utilised for bazaars, with all its temporary stalls and side-shows. The building must be designed to fulfil conditions of the greatest possible danger. Of course, many hold that we cannot limit ourselves to controlling the erection of buildings, but we must see to obtain control over their employment, and the manner in which they are equipped for different purposes. No doubt it is just the ordinary drawing-room, the ordinary assembly-room, the school-room, &c., which is used for so many purposes for which it is never intended, and that there are many dangers incurred on that account. Such control has been attempted in some Continental countries. But I think such control would be very hateful in these free islands. We would, I am sure, rather build our houses and halls at once in such a manner as to be prepared for all risks rather than be constantly worried by inspections and the like. What may be good for a Continental country is not suitable for us. We all abominate anything like perpetual grandmotherly interference. Hence, I say, rather let us at once build suitably for all emergencies. If we do that, we need not be constantly worried. Perhaps even the improvement of plan and construction at the outset of a new building appears a very serious matter to you, but think what does it really mean in nine cases of ten? A few extra doors, and these so hung as to swing outwards; staircases perhaps somewhat broader, and not of the dangerous hanging type; hand-rails perhaps on both sides; a few safety bolts or latches. Surely this would not even interfere with a great architect's design, his colour scheme or details? And would this not save us endless worries of control over all private and semi-public entertainments?

Unsuitable Provisional Buildings.—And now comes the question of provisional buildings erected for some specific purpose such as a bazaar, and often allowed to remain in position for some indefinite period. Again, we find nothing has so far been done or decided so as to minimise danger in these structures; in fact the meaning of a temporary structure has scarcely been defined. Is the large tent, built in the garden of a private residence, or on some verandah, a temporary structure or not in the meaning of the Act? And if so, why are such tents erected with impunity for all manner of social functions throughout the London "Season"? Well, gentlemen, to my mind the less temporary structures are encouraged the better, and this, no matter what their character or purpose. But when erected, let the same importance be accorded to the same importance as to planning and watching be accorded to the provisional building as is essential for a permanent structure. Gentlemen, let us also remember the Charity Bazaar fire, and let us consistently avoid the flimsy and dangerous materials used for its construction. Why, we can even have temporary iron buildings at a very reasonable expense. But above all, gentlemen, planning and watching should be kept strictly in mind.

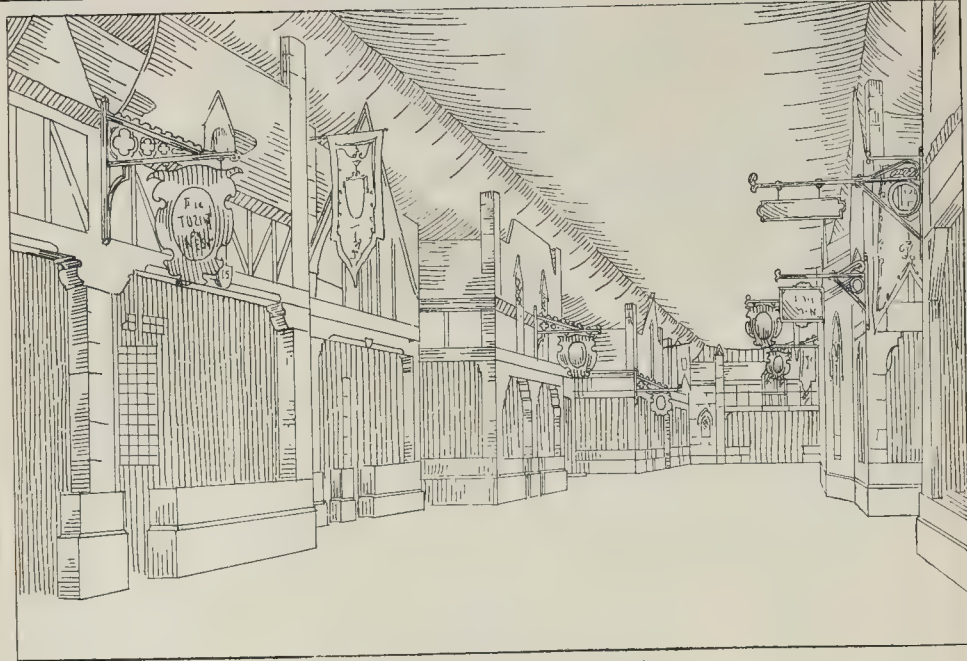


Fig. 3.—Interior of the Paris Bazaar before the Fire.

I am not going into details this evening, but if you wish to have some valuable information as to what can be done, and what the architect should bear in mind when associated with a temporary building, I cannot do better than refer you to an article by an old friend of the Association, Mr. H. Heathcote Statham, published in the *Engineering Magazine* of July last.

Dangerous Decorations.—As I have said, it is not my object here to deal with details, neither in regard to the construction of our permanent theatres or public halls, our private drawing-rooms, and our temporary buildings. The diagrams of the temporary structure at Paris serve as sufficient warning as to what must be avoided in this direction. It is likewise not my wish to enter into details on the question of equipment, for here again the diagrams will show everything that is to be condemned. There is so far, I am aware, little or no regulation as regards such equipment of to-day. The matter has, in fact, scarcely ever been discussed, though an all-important one as far as safety of life is concerned. I do not wish to air personal opinions on the subject of equipment, for it would take a long time to explain the possibilities, probabilities, &c., of the question. If I may be allowed to call attention to any one thing, it is, however, that I wish to impress upon you the fact that whatever the architect may do in any class of building used for entertainment with full consideration of the fact that his efforts can so easily be annulled by flimsy decorations, appointments, equipment, &c., it is just that this so-called decoration combined with carelessness on the part of the individual that is the actual cause of most fires. Apart from facilitating the escape of the individual, the architect's efforts are to a great extent limited, as far as the actual fire is concerned, first to avoiding the possibility of an outbreak occurring in connexion with the structure proper, and secondly, seeing that should an outbreak occur his structure does not facilitate its spread. The architect cannot prevent a drawing-room or a school-room being decorated with bunting, Liberty silk, or paper rosettes, and, as I have said, control in these matters would probably not be advisable in England. He cannot prevent the smoker "lighting up" at his smoking concert, or prevent the use of open lights, and official interference in such matters would be unacceptable to the average English-

man. We can, no doubt, prevent many dangers in the usage of buildings erected for public entertainments. We could and should prohibit the wood stage of the theatre; we can prevent muslin hangings in the auditorium, and not allow smoking except in specified rooms. But such restrictions would be inadvisable and extreme if applied to rooms used for private and semi-public gatherings. It would not be practical. Thus again, remember, we have to deal with certain well-known possibilities of fire with certain given facts, and for these facts you have to provide. The actual disuse of those Liberty silks, open lights, muslin, paper roses, in our private and semi-public entertainments, rests entirely with the good sense of the general public. Until the general public boycott them you will, gentlemen, have to take them into account when you are at your drawing-board, or superintending your jobs.

Conclusion.

And now, what is to be the remedy for the present state of affairs regarding safety of life at entertainments and gatherings of different descriptions?

The first and principal remedy, to my mind, as I have already indicated, lies in your hands, as representatives of the architectural profession. It will be the architect mainly to whom we shall have to look for safety: we have to rely on the spirit with which he designs his structure, no matter what the regulations may be. At present, I am afraid safety of life is about the last thing that the designer thinks of. Safe-planning and fire-resisting construction will have to become subjects in the student's curriculum, and the practitioner of to-day must have his attention called to these matters.

Secondly, we must depend largely for improved protection on the general public, who will to a great extent sooner or later have to take upon themselves the rôle of being their own guardians. At present there is not the slightest interest in this country in the question of protection from fire, whether it be in connexion with our entertainments, or with the fire losses generally. That interest will have to be awakened. The public will have to call for protection, and will have to give protection from fire the same amount of attention which is accorded to safety in travelling, safety of health through sanitation, and safety from social disturbance through police supervision. Whilst the architects, on the one hand, will

be acting as experts and giving the British public safer buildings, that British public will in time see that these buildings are employed for what they were originally intended, and that no unsuitable decoration or equipment is permitted. Such gross mistakes as are now being constantly made will, if I may say so, some day be instinctively avoided.

Thirdly, architects and public opinion will have to be supported, their hands strengthened or governed, as the case may be, by further legislation, giving the necessary powers to those in authority to intervene where necessary, and laying down the principles that have to be followed; and with new legislation, we should also remember that we shall require more officials who will in every way be capable of carrying out its administration and the execution of any specific code with tact, knowledge, and sound common sense. Legislation on building matters always requires a certain power of discretion for the officials. We do not want the red-tape automaton so conspicuous in some of the Continental countries.

But how are these remedies to be brought about? Of course, there is always a considerable literature forthcoming on a subject of this description after every catastrophe. We have had literature enough after former fires, but unfortunately, except for the steps already taken as to theatres and licensed premises both at home and abroad, it has been literature alone. There has been much writing, but very little action. It is now time to take action. We do not wish London to be the scene of a calamity similar to that by which Paris has been recently visited.

How are we to get the architect in practice to take a little interest in fire protection, not only in its general aspect, but specially in connexion with our entertainments? How is the student to be encouraged to take the matter up? How, again, is the general public not only to be interested, but educated? How are our authorities to be assisted in arriving at practical conclusions and regulations, and our officials kept in touch with what is going on in these matters?

It is a large question, gentlemen, for I go so far as to say that in regard to the general public we should even let the Board school standard reader have pretty fables dealing with the dangers of fire rather than some of the useless stories that appear to-day. Don't think I am proposing anything new. Sweden



Fig. 4.—The Paris Bazaar after the Fire.

has long utilised its standard reader for impressing matters of importance on the rising generation. We all remember our fables. Surely they would impress on our minds such things as the danger of throwing matches about? I go farther still and say that the public Press, that great educational factor of to-day, might be induced to give us something more instructive about fires than mere reports of conflagrations, the efforts of our gallant firemen, and the exact number of feet of hose that are taken to a large fire: we might hear more of the origin of fires and the possibilities of prevention.

How are we to attain these improvements? Well, gentlemen, to my mind the right note has been struck at Paris. It has said: "Call together your leading architects and surveyors, your civil and mechanical engineers, your experts in chemical and other sciences. Call together your leading officials, the leading Government and municipal workers, and others seriously and scientifically interested in the technical and economical problems of to-day. Don't forget the leading fire brigade officers, nor the owners of warehouses, theatres, and other dangerous property. Combine the many conflicting interests. Don't be afraid of compromise. Avoid one-sidedness. Examine what has so far been done at home and elsewhere. Find out what proposals are stowed away in men's minds. Confer. Then act, and act soon. But mind, no one-sidedness or petty prejudices." That is the advice from Paris, where it is being acted upon. Other countries will act on it too, and I hope Great Britain will be foremost among them. A small start has, in fact, already been made. At the initiative from Paris a small committee has been formed, which is taking up this matter of fire prevention. This is scarcely the place to mention names, but perhaps I may say there are among the members men whom you know and admire. That committee, made up of representatives of the different interests, will soon find a way to help the architect, to see that the general public does not forget the lessons of the Paris fire, and that our legislators have sound independent assistance when required. Well, gentlemen, I hope some of the prominent members of the Association will be among the first to join and help his committee, and thus show that the opposition I first spoke of is not favoured by its readers of our profession. It is fire prevention, mind you—preventing fires—that we have most to-day to think of, not putting the fire out when it is there. Let our gallant fireman look after the fire-fighting when the fire fiend is actually among us; but let us, however, see that our firemen have as little work to do as possible, and that they are not handicapped to the extent they are at present.

The Chairman, in calling on Mr. R. Roberts, Vice-Chairman of the Theatres Committee of the London County Council, to open the discussion, said that the subject was one which concerned all, whether as practising architects or as members of the general public.

Mr. Roberts said they were all indebted to Mr. Sachs for the continuous interest he took in the question. It was necessary to keep the public mind alive on such questions. It was well, perhaps, that people were apt to forget the dangers by which they were surrounded, as it was, of course, impossible to eliminate every kind of risk. The London County Council had done a good work in this matter. They had been advised and guided by their permanent officials, Mr. Blashill and his assistants, whose work in fact, to a great extent, it had been. Mr. Sachs had pointed out that the velarium was a great danger in a building. It was all a matter of degree. We could not expect to live in iron safes. For his part he would not like to see Liberty silks and decorations done away with. He believed there was a good deal in the suggestions put forward that in addition to watching and construction (and that was the chief work of the Council), it should be seen that the building was properly planned. He believed that fires could often be prevented by some system of watching. It was practically impossible always to be on our guard, but we could be more so than in the past. He had heard that the Association had been somewhat remiss in this matter, and if architects were guilty, how could they expect the public to be more watchful or careful? If they, with all their knowledge as to the combustibility of material, ran this risk, they must expect the general public to do so. He hoped an impression would be made on the younger generation of architects, and that we should have more buildings in the future designed with a view to preventing risk from fire. It was also necessary to take public opinion with them, and he might say that the requisitions of the officials of the County Council were of a good and high standard. The lay members of the Theatres Committee were responsible for making those requisitions somewhat less onerous than they were when first propounded. They owed a great deal to Mr. Blashill and his assistants at the Council for continuously pressing upon the members of the committee the question of danger from fire and panic. He did not quite agree with Mr. Sachs that architects were inclined to make the requisitions less exacting. There were, of course, militant architects who, while taking care that their buildings were safely constructed, were full of the fighting spirit—though, perhaps, it was good for the official architect to occasionally meet a militant professional man. The question of temporary structures was of growing importance. The risk in a temporary structure was not so great as in a permanent one because the risk was not spread over any considerable time, though, undoubtedly, the temporary structure was often built of very unsatisfactory materials. The County Council did its utmost to prevent a calamity, and they were assisted to a considerable extent by owners. He was always sorry to see an application for a temporary structure, and the general practice of the L.C.C. Building Act Committee, of which he was a member, was to never grant permission for a temporary

structure except for a religious, school, or philanthropic purpose. They did not, as a rule, grant permission for temporary buildings for entertainments, and never for trade purposes. It must be to the interest of architects that buildings should be permanent and well-built, and he hoped that architects would set their faces as far as they could against temporary buildings of all kinds. The theatres which were being erected in the suburbs of London were perfectly well-planned, though he could not say much about their artistic merits.

Mr. S. G. Gamble, of the Metropolitan Fire Brigade, said it was the duty of architects to do all they could to make buildings for public entertainment as slow burning as possible. Referring to statistics quoted by the lecturer, he said that most deaths from fire arose from persons clothing catching light, or from the explosion of mineral oil lamps, while the loss from the actual fire was very small indeed. In his experience some architects did much to evade the actual regulations. In regard to the Paris catastrophe, he thought that if the glass roof had broken it would have been a very good thing for the people in the building, because the heat and smoke would then have escaped, and he thought that Mr. Sachs was in error in stating that the glass cracked and fell very early in the fire. He thought the glass must have withstood the fire for a long time, unless cold water was thrown upon it. In regard to death from suffocation or heat, it was surprising what a little heat proved fatal. He did not believe that any general regulations for the construction and control of public and semi-public buildings all over the country could be drawn up, but he hoped that we might learn something from the deliberations of the Paris Conference which Mr. Sachs had referred to. No amount of inspection would make a badly-planned building anything less than a death-trap should there be a panic, but more could be done in this direction than at present. He agreed with Mr. Sachs that firemen who were engaged in watching should not be, as they were at some places of amusement in London, at the beck and call of any member of the staff. One of the great difficulties the Fire Brigade had to contend with was with regard to buildings that were cut about and altered after the architect had left them. No doubt architects were often blamed for work of this kind which they had never done. Buildings were frequently altered without the Local Authorities or the District Surveyors knowing anything about the matter, and the owners who were not occupiers were frequently in ignorance, too. He knew of a case in which a house was turned into a dancing academy by simply cutting away and altering indiscriminately. The building collapsed and two firemen lost their lives.

Major Fox, Chief Officer London Salvage Corps, said that he had an opportunity of visiting the ruins of the Paris fire twenty-four hours after its occurrence, and what remained of the structure could have been put comfortably into a Pickford's van. They might construct the

finest building on the face of the earth, but if there was a panic, more often than not there was loss of life. In the Gateshead Theatre, for instance, there was very little fire. If it had been a music hall where smoking was allowed, nothing would have been noticed. But there was a panic, and several people were killed. The subject of churches was a very serious one for those who had to consider the safety of the public. When they remembered the number of people that filled the galleries of some churches, the narrow staircases they had to descend, and the time that it took to clear these buildings, they would agree that churches should be examined and passed in the same way as other public buildings. The great safety of churches was due to the fact that the place was broken up by seats and pews, although they must not forget the terrible disaster which took place at Santiago. Great credit was due to the officials of the County Council for their efforts in endeavouring to reduce danger from fire and panic. The conditions to-day were much more satisfactory than those of twenty years ago. A great deal was now done to minimise the dangers to life and property. He agreed with Mr. Gamble that it would have been better had the glass at the Paris Bazaar fire gone sooner than it did. He did not think Mr. Sachs was correct in his statement on the point, for glass held out a long time, unless water got to it. The great danger at the Bazaar was the velarium, and because of that, even had there been a fire brigade on the spot, the loss of life was bound to have been great. The window through which sixty people escaped was as high as his shoulder—not a great height, but rather a serious height for a panic-stricken woman. He was once in a circus building, just after the Exeter fire, and the manager, wishing to inspire confidence in his audience, came on to the stage and said, pointing to the rings of gas jets, "in the event of fire every one of these jets would be instantly extinguished and the place deluged with water through the same pipes." They might imagine what the result would have been.

Mr. T. Blashill, Superintending Architect, London County Council, said that, in dealing with places of public entertainment, he felt it his duty to examine everything that could possibly be a cause of danger, and to be rather strong in his requisitions. The matter then came before a committee of laymen, and it must be remembered that they represented the public, and knew better how much risk the public would take than he was officially bound to know. Practically, he did not believe that the public took the slightest interest in these affairs until the moment when the fire broke out. They had a three days' horror about a catastrophe, but after that the whole thing died out. Managers and persons connected with theatres were not by any means the worst offenders, for they were mostly experienced men; but he had much greater fear of those who were connected with temporary entertainments. Clergymen, schoolmasters, those who desired a temporary stage licence to make a little money for some good and pious object—these were the people who were absolutely reckless. He had never been able to make the slightest impression on them, and that was where the greatest danger must lie. With regard to theatres, he was very pleased to say, after an experience of ten or eleven years, that it was now very rare to have a thoroughly bad plan submitted for a theatre of any pretension whatever, or that any forcible arguments had to be used to induce the architect to amend it. To practical men the Paris fire conveyed no lessons whatever. They all knew that in structure, arrangement, management, and user, the whole thing was the completest combination of recklessness that had ever been known. Such recklessness he had met with in the course of his own official experience. On one occasion drawings for the rearrangement of a large building for purposes of public entertainment had been agreed to, after a long struggle with the parties concerned. On the day before the opening of the building, in accordance with his practice, he went to look at the structure, which had seating capacity for some thousands of people. During the few days that had intervened since his previous inspection, the building had been decorated with a large number of streamers, at the bottom of which had been attached large bunches of light paper. Of course, there was a velarium over the whole thing, and every column was wreathed with paper flowers down to the ground. With a

match he could have set it all on fire irredeemably. Of course, he ordered the whole of these decorations to be taken down. They must not forget that directly a building left the hands of the architect it got into the hands of people who were often very reckless. Persons in charge of doors, for instance, and others, would store things on a staircase in order to make more room at entertainments. On one occasion the manager had locked all the exit doors of the building. "Why," said he to the official, "you have locked all the doors." "Oh yes!" said the manager, with an air of jaunty satisfaction, "I have got the keys. I shall let them all out when the performance is over." He frequently had architects and others argue in making their applications that their application was only for one night. It was difficult to persuade them that there was as great danger on that one night as on any one night of a long run at a theatre. Public audiences ought to be protected, and with regard to licensed buildings it was not a question of payment at the door or tickets that made an entertainment a public one. Every large audience ought to be sufficiently protected by law. He had a word of advice to give to young architects who came to him sometimes, in his official capacity, and tried to persuade him against his better judgment. They might not succeed in doing so, but they sometimes got the lay committee in kindness to relax their requisitions. He should like young architects to consider what would be the position of the architect if any catastrophe occurred subsequently. He would be the only professional man who had given his approbation to the scheme. It was a little unfair that men who did not intend to take the slightest responsibility themselves should be satisfied with the permission of a Council obtained by their own persuasive eloquence.

Mr. William Archer said that he was very glad to hear Mr. Sachs addressing architects in the way he did; he was also glad to hear the testimony which had been given of the excellence of suburban theatres. He, the speaker, was more concerned with West End theatres, which were mostly old and placed on inconvenient sites. He never entered some of the older houses without feeling that he would be thankful if he ever got out again. He thought it would be a good thing if the public were more nervous than they are; but they had an optimistic theory that something might happen at some time or other, but not while they were there, and consequently they put up with a great deal of lax regulation which, if there were proper pressure of public opinion, could easily be dealt with. He had one question to ask of the lecturer: at most theatres he saw over certain doors the words, "Extra exit in case of need," and "Emergency door," but he did not think he had ever seen those doors open. He would like to know whether these doors could, as a general rule, be opened in case of emergency? He thought a regulation might very well be enforced that as a guarantee that the doors could be used for their purpose they should be opened every evening, some time during the performance. That would give a sense of confidence to the public, for the way to avoid panic was to enable an audience to realise that whatever happened there would be no necessity for rushing and scrambling.

Captain Dyson, of the Windsor Fire Brigade, said that if a chemical fire-engine had been placed in the cinematograph-room at the Bazaar, and used wisely and in time, a great deal could have been done to prevent the calamity which followed. It was a wonder, with such a flimsy building, that the people inside did not think to break down the walls. The speaker then referred to the necessity of attending to exits from town-halls and other public buildings in the provinces, and in doing so referred to the Windsor Town Hall as "a regular death trap," if a fire were to occur at the top of the only staircase. He also referred to fires in ancient and modern buildings. At Windsor, when a fire occurred, there was very little danger of falling walls in the old buildings, since the beams were usually of great thickness; in modern so-called fireproof buildings, on the other hand, the result of a fire was very different. In conclusion, he said that in his opinion the present was a suitable time for issuing a word of warning to shopkeepers and others as to the danger they run in decorating their windows with flimsy and highly inflammable articles.

Mr. Henry Lovegrove, in proposing a vote of thanks to Mr. Sachs for his paper, said he agreed with Mr. Sachs that very frequently the

client was more at fault than the architect. He was glad to hear Mr. Roberts's remarks in regard to temporary structures, and he wished that their hands could be strengthened by retrospective legislation in regard to such structures. The authorities could not get them removed, and they were frequently a great source of danger to an entire neighbourhood. At a recent fire he found that three or four permanent buildings had been connected years ago by a temporary structure, with the result that the fire involved all the buildings. People, as a rule, were suffocated, and not burnt, by fire, and it was desirable, therefore, that provision should be made for proper exits in all parts of the building. Plans for theatres which were now submitted by architects were better than they were some years ago, for architects were beginning to feel that better work was to the advantage of the public. He was glad that other buildings than theatres had been referred to, and there were hundreds of churches all over London where there were great fire risks. He was glad that the present Building Act applied to such buildings to be erected in the future, as well as to places of public entertainments.

Mr. Max Clarke, in seconding the vote of thanks, said he disagreed with Mr. Sachs as to the responsibility of the architect. The view hitherto held had been that since a theatre was more or less a speculation, the responsibility rested with the speculator, and the architect who had given the owner most for his money had been the most successful man. It was due to the old Metropolitan Board of Works, and subsequently to the County Council, that the cheap methods of construction which were hitherto possible had been done away with. Mr. Sachs advocated the view that good planning was to be preferred to fire-resisting structures. But having got a good plan (and no plan which was not a good one should be approved by any of the authorities, whether in London or the provinces), it was of the greatest importance to use everything they could in their building of a fire-resisting character. A building, unless it were crowded with hangings and materials of that kind, would not become enveloped in flame and smoke before the people had had time to get out. Places where fires had occurred were, as a rule, of an inflammable nature, and it was owing to the public having an idea, more or less hazy, that such was the case that they must attribute the terrible panics which occurred when even a cry of fire was raised. Until recently theatres had been constructed to a large extent of very light timber and material of that kind, which, left for, say, ten years, became very inflammable. With regard to the question of the velarium, was one ever to be used again, and was the one at the Albert Hall to be removed? Was it not possible to make the velarium non-combustible? If this could not be done, all such hangings should be removed from a building; but he was of opinion that there were chemical preparations which would render material of this kind quite non-inflammable. He had seen such preparations used himself with success. It would be interesting to know what was a fire-resisting material. In his opinion four-fifths of the London theatres contained decorations round the proscenium which could hardly be called fire-resisting. In nine cases out of ten the material was fibrous plaster backed with wood. Was not that as dangerous as the velarium? It was not only necessary to educate the public mind in regard to these matters, but something should be done to enlighten the daily press. The *Daily Telegraph*, in referring recently to a new theatre, wrote as follows:—"Those hideous things known as iron curtains have been dispensed with, as the arrangements for checking fire in the wings and flies, are perfect." There was not a theatre in London where the arrangements for checking fire in the wings and flies were absolutely complete. What was needed, particularly in the old theatres, was a fire-resisting partition between the stage and the auditorium, so that if the stage caught alight the public would not be suffocated. In regard to the Exeter theatre fire, he was told by a lady who was sitting in the dress circle, and who did not lose her head, that within three or four minutes from the outbreak of the fire the heat from the proscenium opening was so great that she could not remain in her seat. In the construction of the theatre of the future wood or felt should not be used in the roof, but a material which would prevent the flames passing along rapidly from one end to the other.

The Chairman, in putting the vote of thanks, said that he thought the principal lesson conveyed by the Paris fire was that it called attention to the great dangers and risks attending public entertainments. From what they had heard that night, it would be realised that our theatres and music halls were very well looked after. In regard to the planning of new buildings, it was, he thought, as perfect as it could be, but in regard to other entertainments held in provisional and even permanent buildings, there was much greater risk attaching to them. There were buildings in which dramatic entertainments were sometimes held, in schools and buildings like that, which, with every precautionary measure, were necessarily subject to fire or panic. Nothing had or could be said as to the prevention of dangers of this kind. There was no doubt that the policy of watching at such places was really the best protection. Architects thought a little more of the risks in buildings from fire and panic, they would more carefully consider exits and staircases. It was true that a great amount of danger existed in our churches, but the danger was not so great in buildings where there were no accessories to a fire such as flimsy decorations. The truth was that they had to plan, not against fire, but rather against panic. He thoroughly agreed with Mr. Max Clarke's remarks in regard to fire-resisting materials. The first requisite was a good plan, but unless they used fire-resisting materials in the construction of their building, they had not done all that they should as architects. He thought that Mr. Sachs had done well in calling attention to the necessity of planning buildings so that exits, staircases, and general arrangements should be designed with view to ready escape in case of fire. The vote of thanks was then put and carried unanimously.

Mr. Sachs, in reply, said that it was quite true that glass had a great power of resistance, but the glass used at the Paris bazaar was of a very rotten kind. It was brittle, and he would not be surprised to hear that it had holes and cracks in it before the outbreak. In any case could not have stood the fire long. He might add that with the falling canvas glass fell also. People were killed very rapidly by heat, and the heat at the Paris fire was of scorching intensity nearly as far away as the wall behind the bazaar building. It was so hot at the window of the hotel, by means of which so many people escaped, that it was impossible to stand there. But for the great heat, the ground in the back would have afforded a refuge for the people. In answer to Mr. Archer, he might say that all extra exits should be tried before a performance. There was no reason, so far as he could see, why they should not be actually open during the performance. He was not an opponent of fire-resisting construction. What he did contend was that a stone staircase was of little use if it were tortuous; it would rather have a straight, two-legged staircase of wood if people could be brought out into the open more quickly by it. As to non-inflammable material, that was a question which would be decided in the future. They could not get reliable information now. Manufacturers and inventors told very fine stories about their non-inflammable materials, but an absolutely impartial committee would have to inquire into the merits of such inventions and materials before they could be brought into use. In Berlin, in 1892, a committee was formed to test fire-resisting construction, and at some experiments which were carried out it was curious to notice what the makers had often irrepressibly done to some of the materials to make them appear more fire-resisting. As soon as enlightened tests could be carried out in this country it would be satisfactory both to the public and to the inventor. He certainly thought it necessary that all our churches should at least have their doors opening outwards.

The Chairman announced that the next meeting would be held on the 5th prox., when paper would be read by Mr. S. Flint Clarkson on "Classification of Trades." At the same meeting Mr. H. D. Searles-Wood would read a paper entitled "Some New Materials for Use in Building."

The meeting then terminated.

REDEDOS, ST. MATTHEW'S CHURCH, KENSINGTON.—In further commemoration of her Majesty's Jubilee, a reredos has been placed in the Church of St. Matthew's, Sinclair-road, Kensington. The reredos is from designs by Mr. Litchfield, is constructed of stone, and is in the Gothic style.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.—At the opening meeting on the 20th inst. Mr. Matthew Garbutt, Chairman for the session, presided, and a paper was read by Mr. H. B. Creswell entitled, "The Advantages of Being an Artist." Mr. Creswell, who treated his subject in an ironical and paradoxical vein, said that since he had undertaken to write his paper he had discovered that no advantages attached to being an artist at all, and enlarged at some length upon the latent selfishness and egotism of the artist, and described the latter as being the essential basis of the artistic temperament, and that it arose from the instinct of the artist for self-concentration, and his fostered isolation from the real facts of existence. The artist's ideals were no more than highly-coloured representations of himself, and the high elation awakened in him by the constant spectacle of what naturally seemed to him to be the consummation of all that was lovely out of heaven, he ascribed to his *soul*. Mr. Creswell strongly deprecated the modern habit of prattling of "soul," and complained that it was now safe to ascribe to soul the most of what our ancestors attributed to stomach. The speaker enlarged on the uselessness of the artist to the community, particularly in the event of a national calamity, and brought his remarks to the logical conclusion that "the advantages of being an artist relied on the absence of art," and that "it was only when the artist turned his art to advantage that he experienced the advantages of being an artist!" Such an attack on a class of individuals, believed in and envied perhaps by every one present, naturally provoked a good discussion, which was brought to a conclusion by some interesting remarks by Mr. P. J. Kirnan. Mr. Kirnan differentiated between people who merely call themselves artists and those who really possess the artistic spirit. He thought the greatest artist was he who could, without putting himself in front of his art, project his own personality into his work, and at the same time draw into his work the personalities of those about him. The next meeting of the Section will be held on November 3, when Mr. H. V. Crawforth Smith will read a paper on "The Interior Arrangement of Churches."

EDINBURGH ARCHITECTURAL SOCIETY.—The eleventh meeting of the Session was held on the 20th inst., Mr. J. A. Williamson, President, in the chair. Mr. W. A. Mellon read a paper entitled "Half-Timber Work." Mr. Mellon gave a historical description of characteristic examples of the style, both Gothic and Renaissance, and then gave a short comparison between British and Continental work, and concluded by stating how far, in his opinion, half-timber work was applicable to present-day building in Scotland. The paper was largely illustrated by pen and ink cartoons by the author.

GLASGOW INSTITUTE OF ARCHITECTS.—The annual meeting of the members of the Glasgow Institute was held on the 19th inst. in the offices of the Institute, Pitt-street, Glasgow. In the absence of the President (Mr. George Burnett), Mr. David Barclay occupied the chair. The annual report, which was adopted, stated that during the year six new members had been admitted, bringing the number on the roll, exclusive of honorary members, to sixty-six, the largest membership since the Institute was incorporated. The report further stated that proposals had been received for the revision of the rules of measurement of brick, painter, plaster, and glazier work, but the Council were of opinion that a revision of the rules is not a matter of urgency, and the matter was deferred. The financial statement submitted showed the income to be 85*l.* 1*s.* 1*d.*, and the expenditure 85*l.* 1*s.* 1*d.* The statement was adopted.

GLASGOW ARCHITECTURAL ASSOCIATION.—The usual monthly meeting of this Association was held in the Rooms, 187, Pitt-street, on the 19th inst., when Mr. Richard Ferris read a paper entitled "Modelling in Relation to Sculpture and Decoration." The lecturer began by characterising modelling as the beginning of all things, for by it the ideas were gradually developed in a tangible form changeable at will. The model in clay or other plastic material was a necessity for anything of importance to be executed in relief, representing work as it would appear when finished, and had been employed for such different subjects as statuary, silversmith work, and even a cake of chocolate. The essayist then touched on the many points of connexion

between the model and the replica in the different materials, finishing up with a selection of lantern views of models and the work executed therefrom.

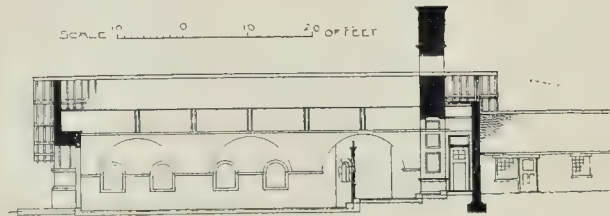
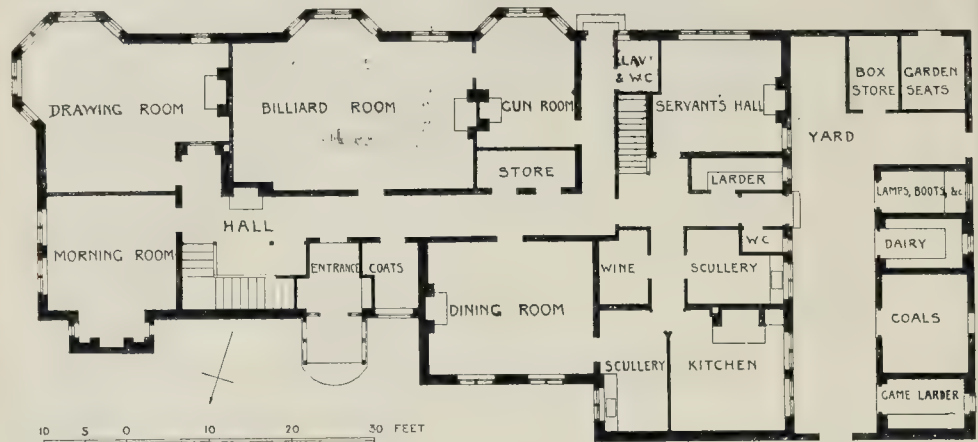
ARCHITECTURAL ASSOCIATION OF IRELAND.—On the 19th inst., in the Grosvenor Hotel, Westland-row, Dublin, the opening meeting of the winter session of this Association was held. Mr. R. Caulfield Orpen, who presided, announced that the Maguire prize of 10*l.* for a drawing of a building of a style prior to the eighteenth century had been awarded to Mr. J. Delany, the judges being Messrs. G. C. Ashlin, R.H.A., and T. M. Deane, M.A. Three sets for designs of a suburban villa had been sent in competition for the Ashlin Prize of 10*l.*, but the prize had not been awarded on the ground that the plans received could not be carried into effect for the sum mentioned in the terms of the competition, which amounted to 2,000*l.* Mr. R. Butler had been awarded the prize for the best essay on "The Influence of Climate on National Domestic Architecture."—Mr. Pentland then delivered a lecture on "Open Roofs," in the course of which he gave an outline of the history of house construction in ancient times, dealing with the various styles adopted by the Pelasgians, Etruscans, Romans, and others, explaining the differences between each and their analogy, in some instances, to modern buildings. He also gave some particulars concerning Italian architecture, dealing shortly with the construction of the domes on ancient buildings and modern European cathedrals. He referred to the flat-roofed houses of the Syrians, and their resemblance to those of modern structures, as also to the climatic effects on architecture.—Mr. J. J. O'Callaghan proposed, and Mr. Geoghegan seconded, a vote of thanks to the lecturer, which was agreed to, and Mr. Pentland briefly replied. Mr. Butler subsequently proposed a vote of thanks to Mr. Noblett, Cork, for the series of views taken by him during the visit to Lancaster and neighbourhood of the Architectural Association, and also to Mr. T. E. Hudman for his kindness in presenting photographs of the groups taken by him on the occasion of the annual excursion of the Architectural Association of Ireland to Mellifont. Mr. Drew seconded the motion, which was passed.

ENGINEERING SOCIETIES.

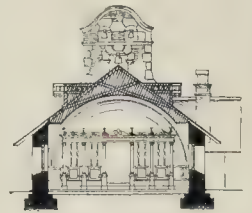
THE INSTITUTION OF JUNIOR ENGINEERS.—The annual general meeting of this Institution was held on the 22nd inst., at the Westminster Palace Hotel, Mr. H. B. Vorley, Chairman of the Council, presiding. After the usual preliminary business, the Council's report was read by the secretary, Mr. W. T. Dunn. It contained a very satisfactory record of the proceedings of the society during the past year. Sixty-eight new members have been elected, and after allowing for removals of names from the register, the total membership at the present time is 480. Seven meetings for the reading and discussion of papers have been held, eleven visits to engineering works in the London district have been made, and numerous other works have been seen during the summer meeting in the north of Ireland. The Institution Premium was awarded to Mr. W. R. Beckton for his paper on "The Protection of Buildings, &c., from Fire." The congratulatory address to the Queen, the conversazione, anniversary dinner, office fund, financial position, and Sanitary Congress, were other matters referred to in the report, and an appreciative allusion was made to the services rendered by Mr. H. Kempster, now retiring from the post of hon. librarian, which he has ably filled for the past two years. It was announced that Sir A. R. Binnie, the retiring President, would be succeeded by Mr. John A. F. Aspinall, Chief Mechanical Engineer to the Lancashire and Yorkshire Railway; and that the election of officers had resulted as follows:—Chairman, Mr. H. B. Vorley; Vice-Chairman, Mr. Basil H. Joy; hon. librarian, Mr. J. N. Boot; hon. auditors, Messrs. W. H. De Ritter and P. Marshall; members of the council, Messrs. Walter J. Hunter, A. Marshall, R. Marshall, and L. H. Rugg.

ARCHITECTURE OF BIRMINGHAM.—The article on the Architecture of Birmingham, No. XI. in our series of articles on the architecture of our Large Provincial Towns, is postponed from the advertised date of November 20, to November 27, some of our illustration plates for November 20 being required for another purpose.

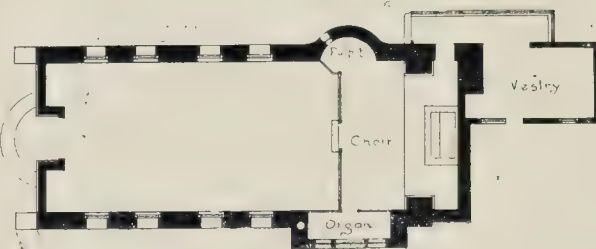
HOUSE AT ROWGARDENS WOOD, FOR C.WANSDELL. ESQ.



Section looking North.



Section looking East



Plan

Plan and Sections of St. Martin's, Blackheath, Womersley.

Illustrations.

DESIGN FOR A MAUSOLEUM.

THIS design, by Mr. Jas. C. Watt, was exhibited at the last Royal Academy. In regard to description, Mr. Watt writes "I cannot think of anything to say which would not be a repetition of what is already on the drawing in the shape of notes."

ST. MARY'S, KETTERING.

THIS church is the gift of an anonymous donor, whose idea was that the church should be devoted to mission work and be situated among a working-class population away from a main thoroughfare. Following on these lines, the building is planned on the modern idea of getting the congregation grouped between the main walls, with an uninterrupted view of the officiating clergy, access to the seats being provided in narrow passages or side-aisles. The buttresses which take the thrust of the roof are arched over these side-aisles, as shown upon the section. The arches dividing the aisles from the nave are kept low and flat; the pillars and the

side walls are cemented to a height of about 7 ft., with a view of being painted from time to time if they should become dirty. An attempt is made to promote the comfort of the congregation by ample warming and ventilation and by lobbies with swing doors at the entrances. The warming is effected by hot-water pipes and ventilating coils, the vitiated air finding its way out at the turret on the roof. The choir seats and pulpit are of oak, the other seats generally being chairs. The fabric is of local brown stone with dressings of Weldon stone, and the roof is tiled. The glazing is designed with a view to lend a little interest to the building until further donors come forward with offers of stained glass. Throughout the building various forms of the letter M have been used as the basis of decoration.

Messrs. Gotch & Sanders, of Kettering, were the architects, and Mr. G. Henson, of Wellingborough, the builder.

The drawing was exhibited at the last Royal Academy.

"ROWGARDENS WOOD."

The house is entirely built of local bricks, with a red tiled roof, and all the painted wood-

work white. The porch, entrance door, staircase, floors, and woodwork in hall, and floors in reception rooms are in oak. The builders were Messrs. Foster & Dicksee, of Rugby, and the architect was Mr. Allan F. Vigers. The drawing was exhibited at the last Royal Academy.

ST. MARTIN'S, BLACKHEATH
WONERSLEY, SURREY.

The mission church of St. Martin, Womersley, Surrey, of which we publish a plan and section in the text, and a general view, has been built to meet the needs of the hamlet of Blackheath.

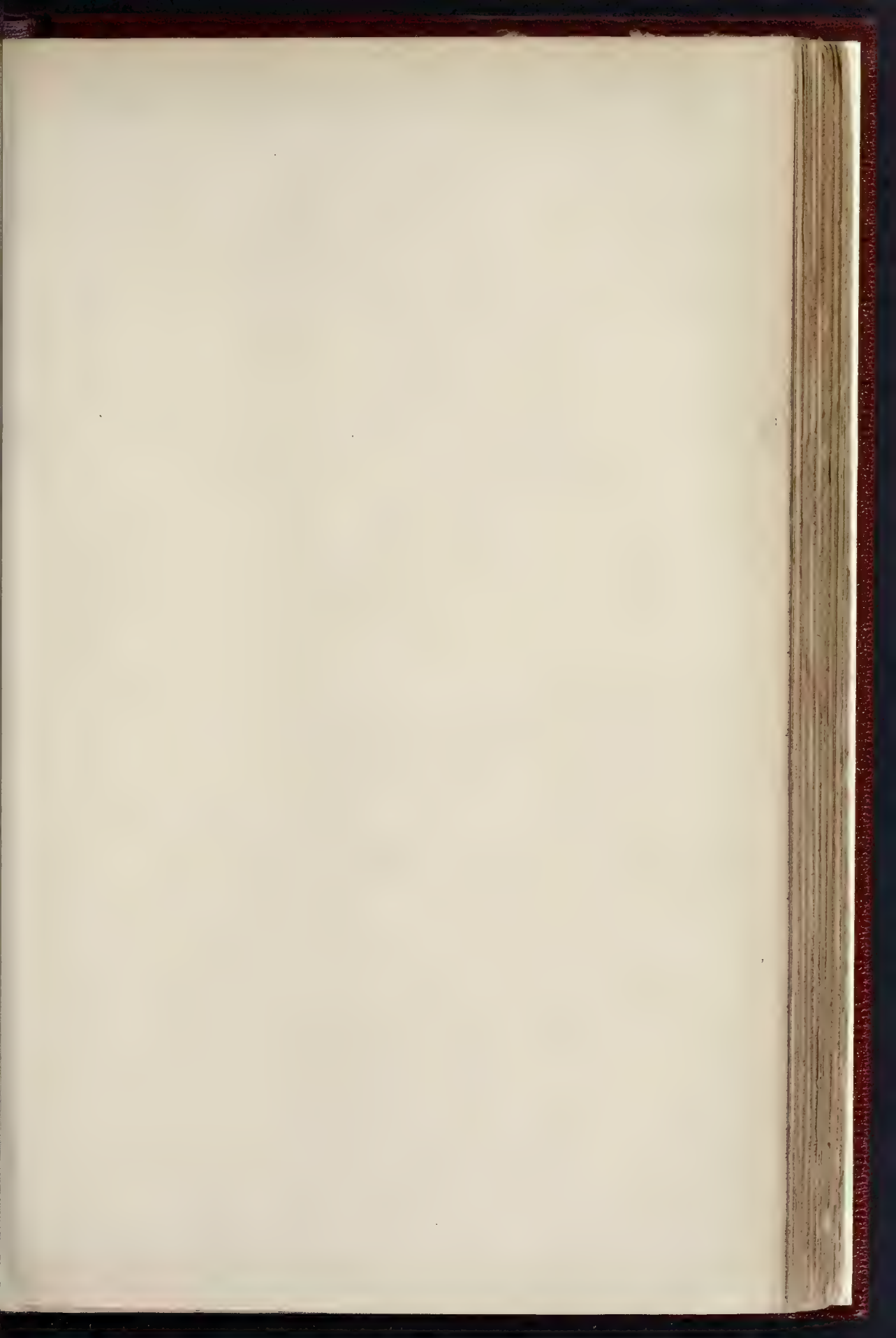
The walls, which are 2 ft. 9 in. in thickness, are of concrete, covered as regards the exterior with rough smudged plaster, and the dressings to the buttresses, windows, and door are of stone, left as quarried, and not with a tooled face. The roof is covered with local pantiles, and projects at the eaves 3 ft. The barrel ceiling is broken over the pairs of windows by "bonnet-heads," and the resulting spandrels between these have been treated with a series of figure-subjects, executed in fresco by Mrs. Lea-Merritt. The flat spaces under the bonnet-heads are covered with ashlar blocks of alabaster.

The screen, which is carried out in carved wood and gilded, is to have a series of painted and gesso emblems of the Evangelists in the four lower panels. It is intended eventually to place the organ at the west end of the church, partly over the entrance vestibule, though the manuals, &c.—connected with it electrically—will be in the small transept on the south. The altar piece will be a copy of Dai Libri's beautiful picture in the National Gallery.

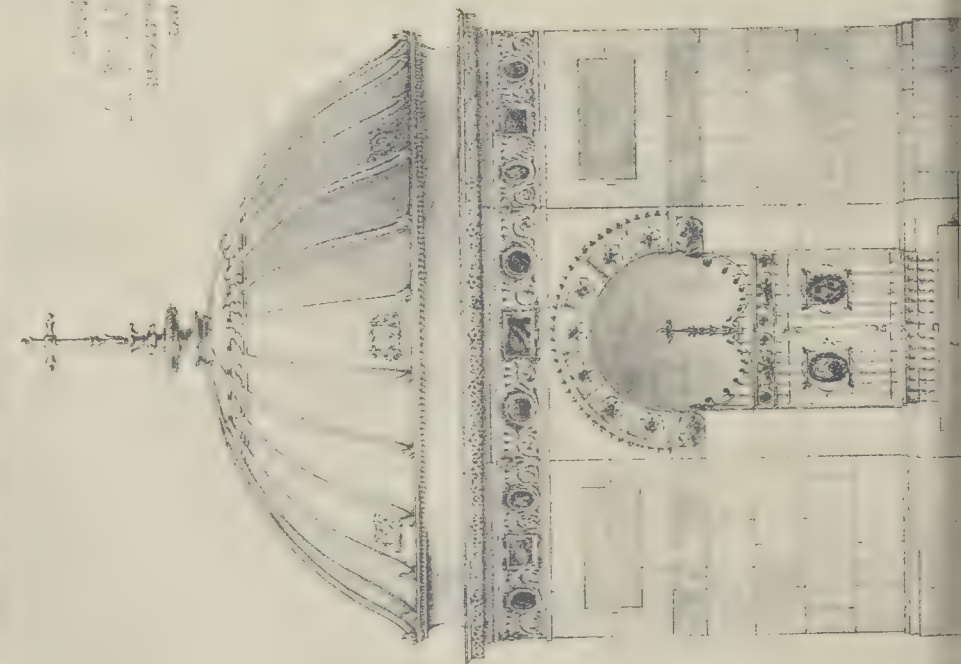
The builders were Messrs. Brown Bros., of Bramley, Surrey, and the architect Mr. C. Harrison Townsend, of London.

LIVING-ROOM, WOODCOTE, CHURCH
STRETTON; AND ARTISAN'S ROOM.

The interior of the living-room at Woodcote, Church Stretton, is a sketch of the prin-



THE BUILDER, OCTOBER 30, 1897





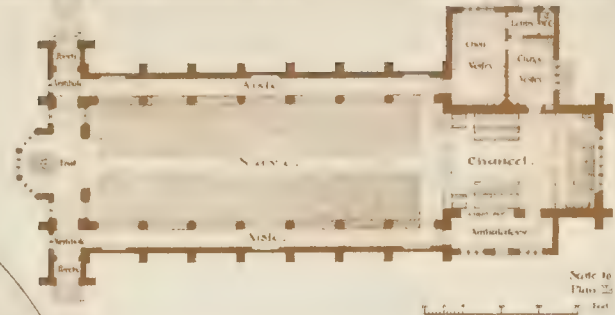
INTERIOR COLUMN
FRONT VIEW, NORTH SIDE



FRONT AND INTERIOR VIEW OF COLUMN

S. MARY'S CHURCH, KETTERING.

PLAN OF
CHURCH.



DETAIL OF
PULPIT



SCALE TO
PULPIT



EXTERIOR FROM
THE South-West.



INTERIOR FROM
THE WEST END.

HALF TRANSVERSE SECTION
THRO' NAVE & AISLE

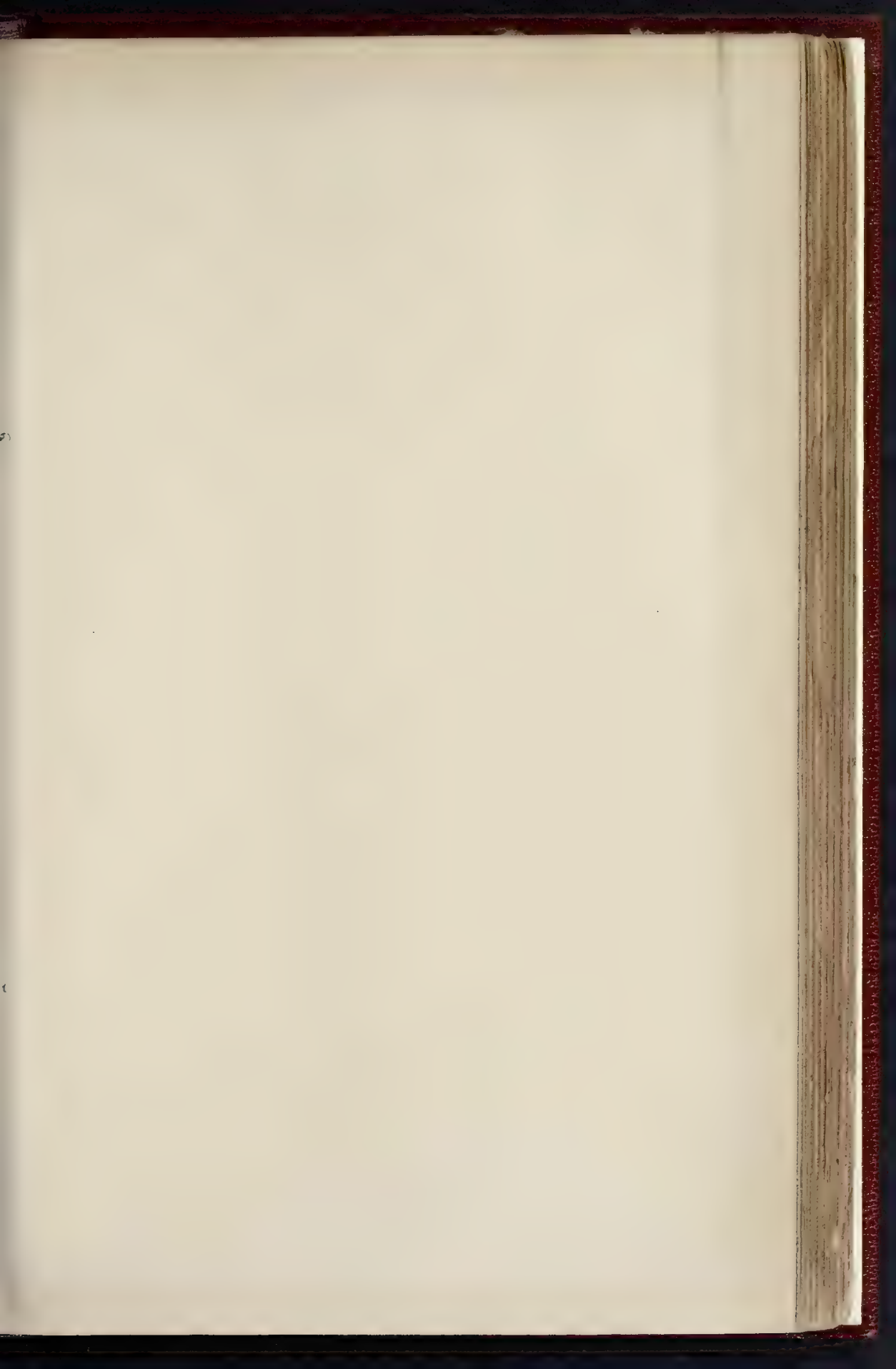
Scale 1/4 inch = 1 foot

SCALE TO DETAILS
OF NAVE INTERIOR



ELEVATION OF ONE BAY
OF NAVE & INTERIOR

J. H. & Co. Architects

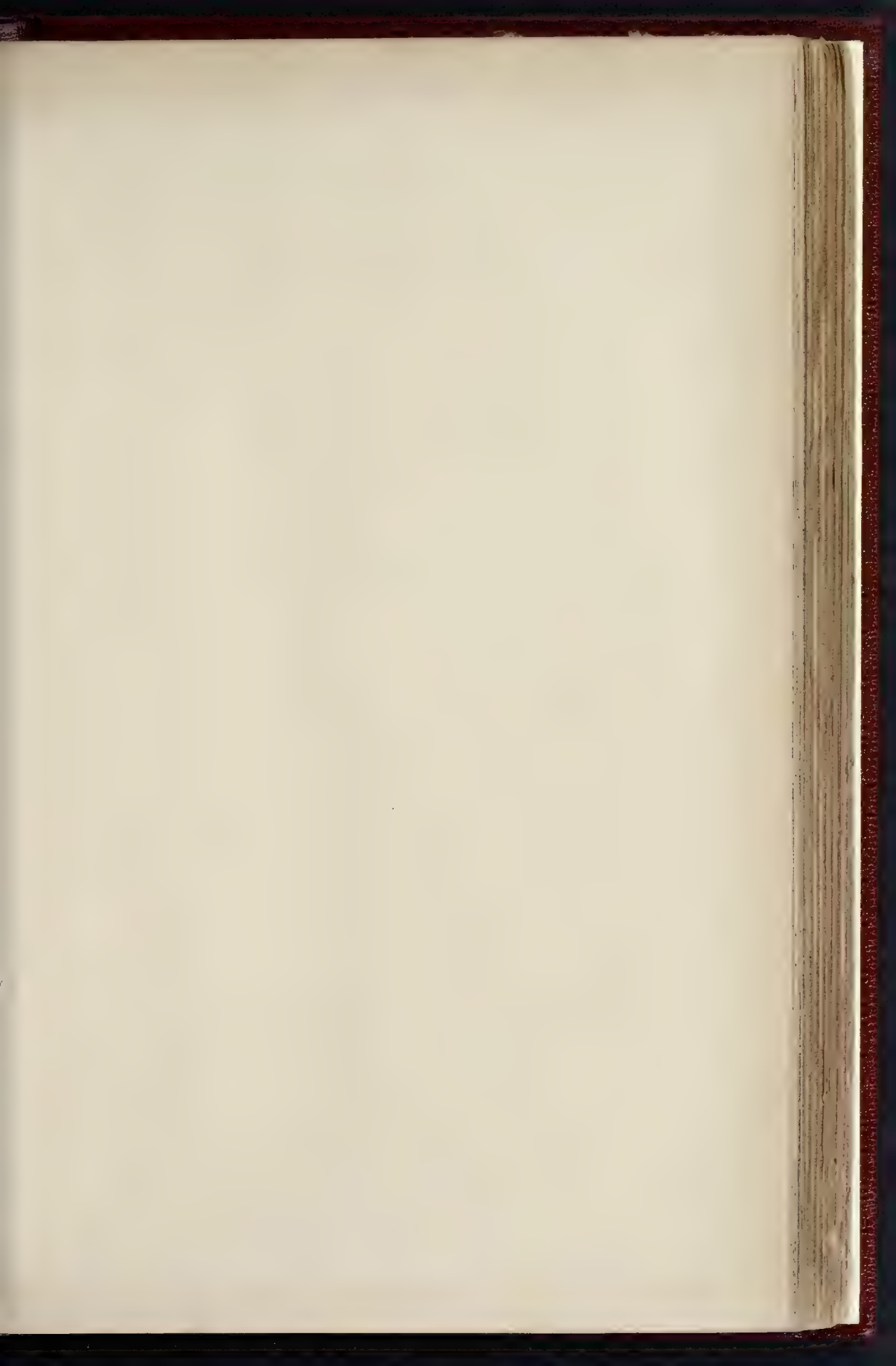


THE BUILDER, OCTOBER 30, 1897

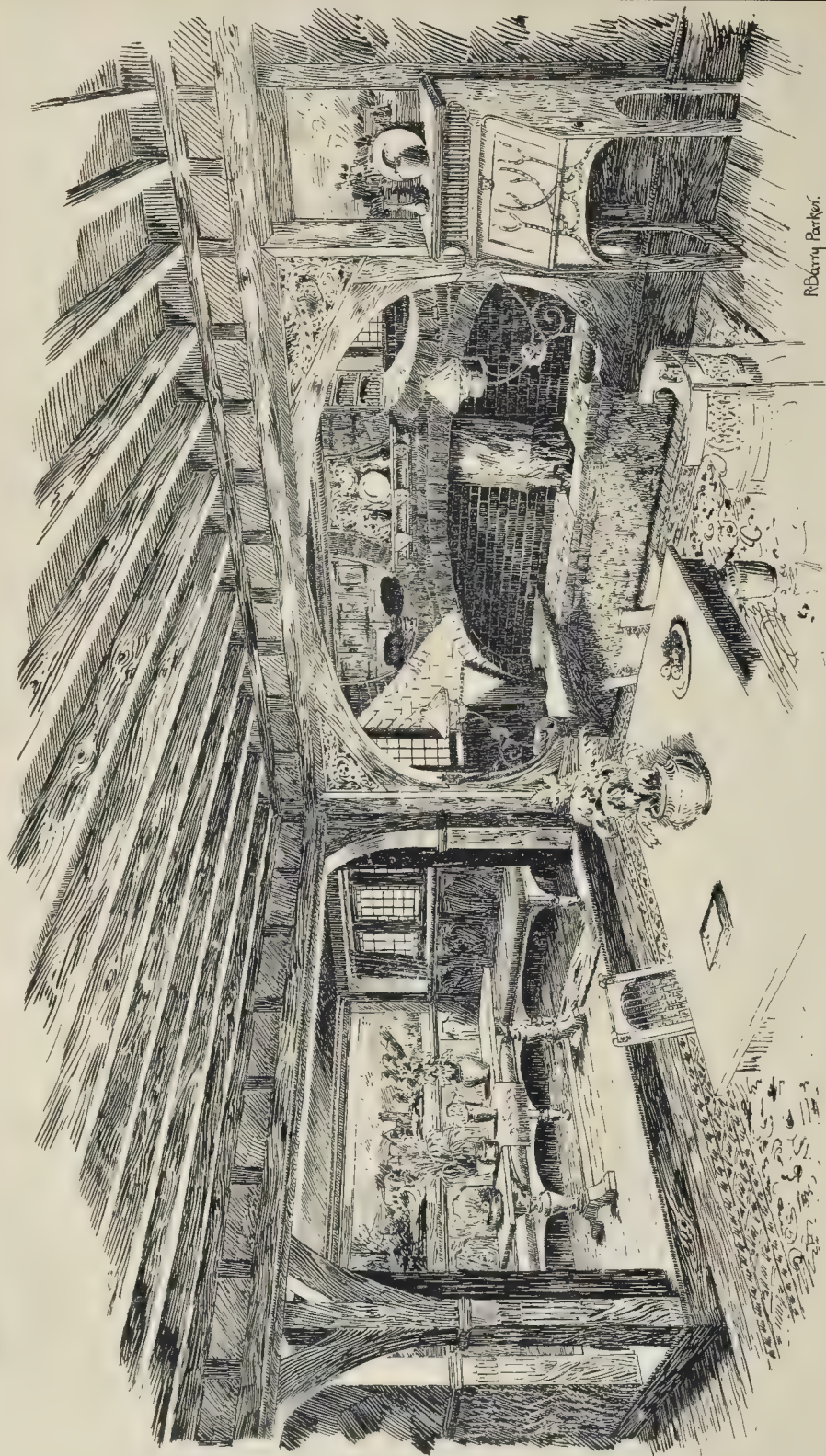




ST MARTIN'S CHURCH, BLACKHEATH, WOKING, SURREY - MR C HARRISON, TOWNSEND, F.R.I.B.A., ARCHTCT



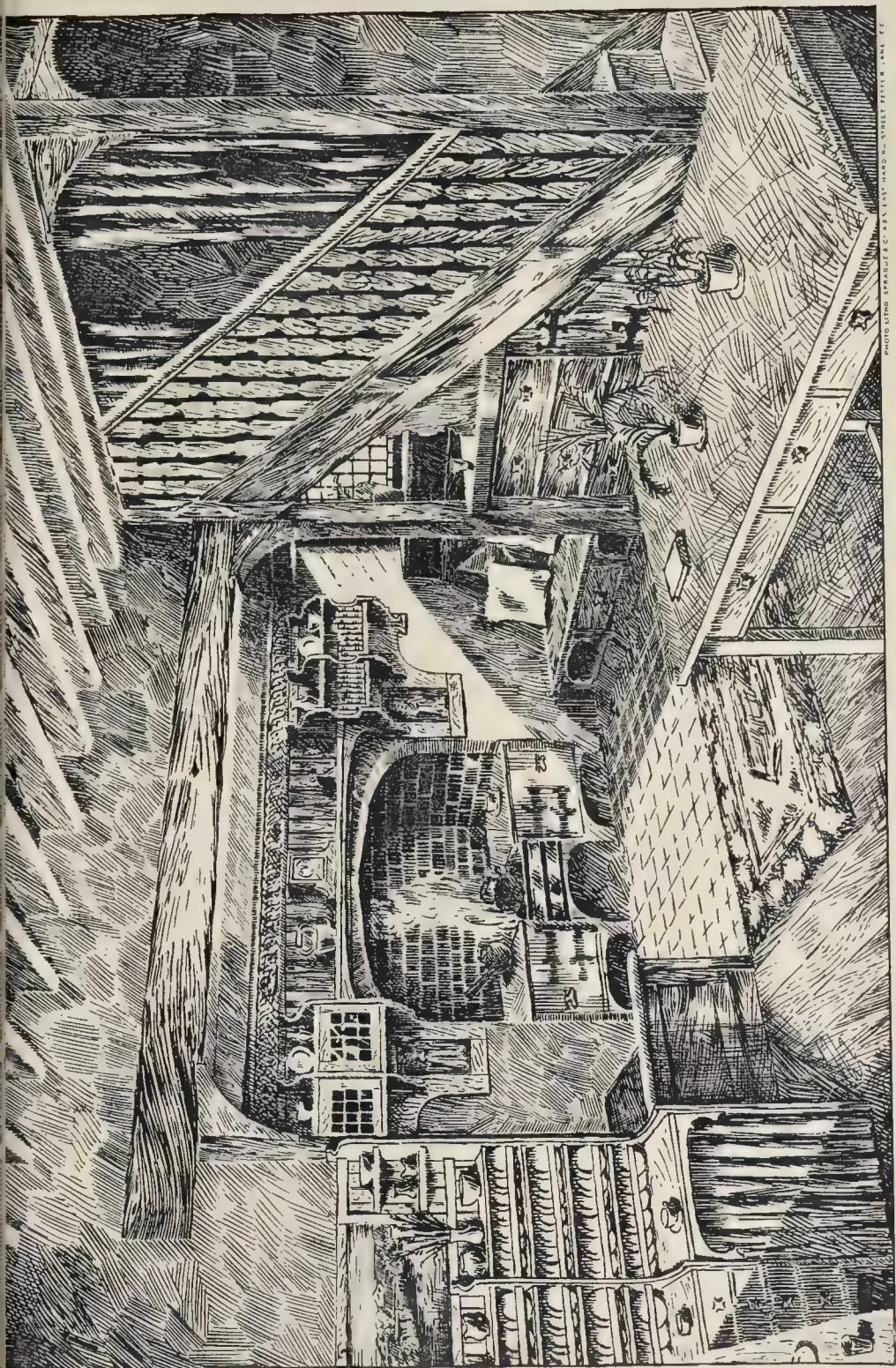
THE BUILDER, OCTOBER 30, 1897.



R. Barry Parker.

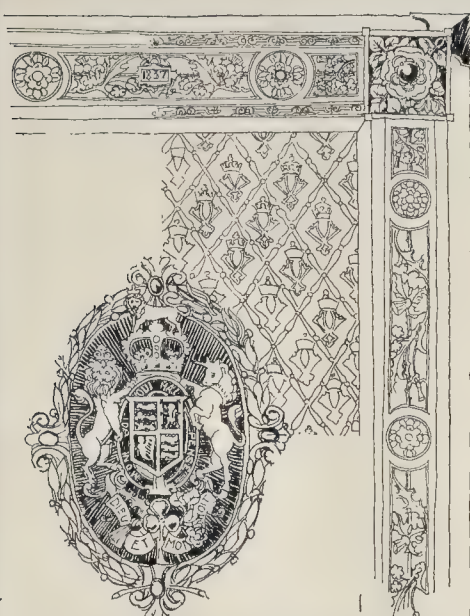
PHOTO LITHO SPRAGUE & CO. 455 EAST HAWKINS STREET CHICAGO, ILL.

THE LIVING-ROOM. "WOODCOLE." CHURCH STRETTON, MESSRS. R. BARRY PARKER AND R. W. IN, ARCHITECTS.

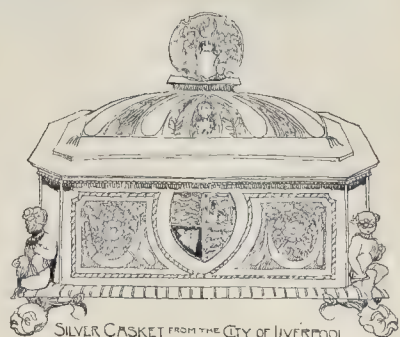


AN ARTISAN'S ROOM—MR. R. BARRY PARKER, ARCHITECT

PHOTOGRAPH BY SPARKS & CO. 101 EAST-HARD-ST. STREET LONDON, W.



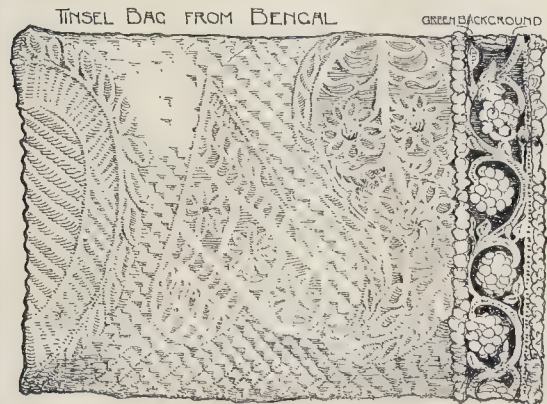
PART OF A VELVET COVER, GOLD AND SILVER MOUNTS SET WITH PRECIOUS STONES.



SILVER CASKET FROM THE CITY OF LIVERPOOL.

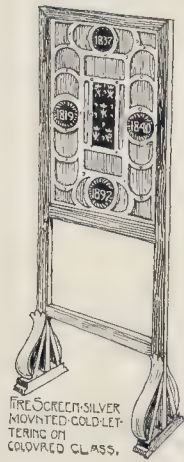


AN OAK CHEST



TINSEL BAG FROM BENGAL

GREEN BACKGROUND



FIRE SCREEN—SILVER MOUNTED GOLD LETTERING ON COLOURED GLASS.

Sketches from some of the Jubilee Presents at the Imperial Institute.

ARCHÆOLOGICAL SOCIETIES.

pal room in a house we (Messrs. Parker & Winin) are building on a hill overlooking that picturesque Shropshire village. The living-room is, on the whole, a fairly good illustration of the principles which I have always advocated, viz., that architects should make use of the decorative properties inherent in the things necessary to the room and its constructional features. Make the necessary and useful things beautiful, instead of introducing things for effect only, which are not useful or necessary. It is unnecessary to say anything about the Artisan's Room "beyond that it is another illustration of the above principles. The ordinary Artisan's house has a little front parlour, which is very occasionally used, from the most contentious motives; a little kitchen at the back, and a narrow passage. By throwing these three into one he could at any time have, for the same cost, one tolerably comfortable and healthy room.

R. BARRY PARKER.

ESSEX ARCHÆOLOGICAL SOCIETY.—The Essex Archaeological Society recently visited Takeley, Great Canfield, and Hatfield Broad Oak. The meeting place was Takeley railway station. Mr. G. Alan Lowndes, President, acted as conductor, and described Takeley Church, which is of the Perpendicular period. On the north side of the nave were pointed out the original oak benches and pulpit. A Jacobean or Elizabethan wardrobe in the vestry, used for surplices, gave rise to some discussion as to its original use in the church. Leaving Takeley, the party proceeded to Great Canfield, where a long stay was made. The Vicar, the Rev. G. M. Wilson, read a paper written by Mr. J. G. Waller, on the inscription and symbols found on the pillars of the church porch. On the capitals of the pillars were pointed out some designs of symbolic ornamentation, while on the left jamb was shown and explained an Oriental legend

of great antiquity. In the chancel the Rev. G. M. Wilson read an article by Mr. Waller on the fresco paintings under the east window, which, after being whitewashed over and lost sight of for centuries, were accidentally discovered in 1876, when the church was restored. The late Bishop of Colchester was the authority for establishing the fact that the church was originally dedicated to the Virgin Mary, as shown by these paintings. The chancel arch was said to be Scandinavian, and in it were seen some very ancient carvings, which lead to the supposition that the stonework formerly belonged to some other structure. Canfield Mount was next visited, and on the top of this earthwork Mr. G. F. Beaumont, F.S.A., the hon. secretary, read a paper by Mr. E. A. Downman, on this and similar mounds in the county. The next move was to Barrington Hall, Hatfield Broad Oak, the residence of the President. Mr. Lowndes welcomed the guests to his house, and, in the drawing-room, read a

paper dealing with the history of Hatfield Broad Oak and its manors. A walk across the park brought the visitors to Hatfield Church, where they were met by the Vicar, the Rev. F. W. Galpin. The Vicar, who has recently by excavation discovered the exact site and proportions of the old conventual church and monastic buildings, adjoining the present church, read a paper on the subject, and illustrated the ground plan of the ancient structures on a blackboard.—*Essex County Chronicle*.

COMPETITIONS.

POLICE BUILDINGS, BLAENAU FESTINIOG, NORTH WALES.—In an open competition for the new County Police Buildings, the design of Mr. T. Taliesin Rees, A.R.I.B.A., has been selected. The accommodation had to include charge room, cells, magistrates' room, court room, solicitors' room, witnesses' room, superintendent's office, &c., together with residence for inspector. There were eighteen sets of plans sent in.

WOLVERHAMPTON NEW FREE LIBRARY.—The Wolverhampton Jubilee Committee have appointed Mr. Alfred Waterhouse, R.A., assessor in the competition for the new free library, which it is proposed to erect at a cost of 10,000*l.*, as a memorial of the Diamond Jubilee. The time for the preparation of plans has been extended till February 14, 1898. The competition will be confined to twelve selected architects, and a premium of 100 guineas is offered for the design considered by the committee first in order of merit, and a further premium of 50 guineas for the second best. The Corporation do not bind themselves to carry out the work proposed by any of the plans. The chief materials to be used in the shell of the building are to be brick and terracotta.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Battersea Vestry 720*l.*, for painting and decorating works at the Vestry Hall and offices; the Wandsworth and Clapham Union 10,000*l.*, for alterations to the laundry of the Infirmary; and the Shoreditch Vestry 14,000*l.*, towards defraying the cost of the erection of baths and washhouses.

The Works Department.—Mr. White asked when the statement of works completed by the Works Department up to September 30 last was likely to be before the Council.

Lord Welby replied that the Finance Committee were doing their utmost to get the statement ready in December.

The Superintending Architect.—The General Purposes Committee reported as follows, the recommendation being agreed to:—

"The Council, on December 8, 1896, passed, in connexion with the standing order as to the retirement of officials at the age of 65 years, the following resolution, viz:—'That as the retirement of Mr. T. Blashill would cause inconvenience to the public service, he do continue to hold his appointment for another year.' The year being about to expire we have again had the matter before us. We reported last year that there were many matters under the consideration of the Council upon which it was desirable for the Council to have the advantage of Mr. Blashill's advice and assistance. We are still of opinion that the retirement of Mr. Blashill would be a serious inconvenience and loss to the public service, and that therefore his services should be retained for another year. Mr. Blashill is enjoying good health, and is willing to place his services at the disposal of the Council for another year. We recommend—That as the retirement of Mr. T. Blashill would cause inconvenience to the public service, he do continue to hold his appointment for another year as from December 8 next."

Street Improvements.—On the recommendation of the Improvements Committee, the Council sanctioned an expenditure of 207,400*l.* for the carrying out of the Long-lane and Tabard-street, Southwark, improvement, for which the sanction of Parliament has already been obtained. The scheme provides for the widening of Long-lane and the continuation of Tabard-street, through St. George's Churchyard, into Borough High-street.

Barnum and Bailey's Show.—The Theatres Committee brought up a report stating that a set of amended plans had been submitted for the fitting up of Olympia for the purposes of

Messrs. Barnum & Bailey's show. The original plans, which were rejected by the Council, did not provide any proper division between the stage and the auditorium, and the arrangements for the stabling of the horses were not satisfactory. The new plans showed an iron screen with asbestos on expanded wire to be built on both sides of the stage to form the wings of the proscenium, and the portion over the proscenium opening would be suspended from the roof, and would consist of an iron frame with a covering of asbestos cloth. A movable curtain of the same construction, which could be readily raised by machinery and lowered by one action of the operator, would be provided to the proscenium opening. Increased gangway accommodation was also shown. With certain conditions attached (one being that the velarium over the auditorium be entirely removed), which the promoters were willing to comply with, the Committee thought the plans might be approved.

The report was adopted.
Erection of Store, Laboratory, Office, &c., Barking Outfall.—The Main Drainage Committee reported as follows, the recommendation being agreed to:—

"On October 12 the Council referred to us six tenders for the erection of a new building for stores, laboratory, offices, &c., at the Barking outfall. The amounts of the several tenders as corrected according to the priced bills of quantities are as follows:—Mr. John Jackson, 2,011*l.* 10*s.* 8*d.*; Mr. Edward Proctor, 2,441*l.* 6*s.* 10*d.*; Mr. H. H. Sherwin, 2,737*l.* 15*s.*; Messrs. Munday & Sons, 2,318*l.* 9*s.* 2*d.*; Mr. George Sharpe, 2,362*l.* 12*s.*; Messrs. Thomas & Edge, 2,490*l.* 12*s.* This work was originally referred to the Works Department for execution at the amount of the Engineer's estimate, which is 1,800*l.*, but the Works Committee having reported that they were not satisfied with the sufficiency of the estimate, tenders were subsequently invited. We may remind the Council that the estimate first submitted in respect of the work, without including the cost of supervision and incidental expenses, was 1,500*l.* This figure was, however, stated at the time to be given as an approximate estimate only for the purpose of complying with the standing order before bills of quantities had been taken out, and before it had been decided whether the work should be advertised or not. Since that time there has, moreover, been an increase in wages and in the prices of materials. It will be seen that the amount of the lowest tender as corrected is 2,111*l.* 10*s.* 8*d.* more than the Engineer's estimate, or 117*s.* per cent. The Council has already passed votes for 1,825*l.* in respect of the work, and we have therefore submitted a supplemental estimate of 310*l.* to the Finance Committee to cover the cost of erection and supervision. Mr. Jackson, the lowest tenderer, has carried out work for the Council satisfactorily, and we therefore recommend that the supplemental estimate of 310*l.* submitted by the Finance Committee be approved, that the tender of Mr. John Jackson, of Eastwold, amounting to 2,011*l.* 10*s.* 8*d.* for the erection of a building for stores, laboratory, offices, &c., at the Barking outfall, be accepted, and that the solicitor be instructed to prepare the contract."

Prizes for Building Designs.—The report of the Technical Education Board contained the following paragraph:—"The Board acknowledges with thanks the offer of Mr. T. W. L. Emden, a member of the Council, of a prize of 5*l.* to be awarded next May for the design of a building or important part of a building by a student of architecture attending a school assisted by the Board."

The Works Department.—The Earl of Hardwicke gave notice of the following motion:—"That the Finance Committee be requested to furnish to the Council before the first meeting in the month of December, the estimated and actual cost of all works completed prior to September 25, together with a return of works refused by the Works Department, for which tenders were afterwards received from contractors, in continuation of the return presented on May 11 of this year."

After disposing of other business, the Council adjourned.

THE INSTITUTION OF CIVIL ENGINEERS.

The Medals and Premiums of this Institution awarded for the session 1896-97 will be presented on the 2nd prox., at the opening meeting of the new session.

The Howard Quinquennial Prize, of the value of fifty guineas, has been awarded to Mr. Hilary Bauerman, in recognition of his work on the Metallurgy of Iron.

For original papers read and discussed at the ordinary meetings, the following is the list

of awards:—A Telford Medal and a Telford Premium to Mr. Herbert Alfred Humphrey, for his paper on "The Mond Gas-Producer Plant and its Application." A George Stephenson Medal and a Telford Premium to Mr. George Edward Wilson Crutwell,* for his description of "The Tower Bridge: Superstructure." A Telford Medal and a Telford Premium to Colonel John Pennycuik, C.S.I., R.E., for his account of "The Diversion of the Periyar, Watt Medals and Telford Premiums to Messrs. David Hay and Maurice Fitzmaurice, for their joint paper on "The Blackwall Tunnel." A Telford Medal and a Telford Premium to Mr. Edward Clapp Shankland, for his paper on "Steel Skeleton Construction in Chicago." A Telford Premium to Mr. Hay Frederick Donaldson, for his paper "Cold Storage at the London and India Docks." A Telford Premium to Mr. William Ripper, for his paper on "Superheated-Steam Engine Trials." A Telford Premium to Mr. Henry Willock Ravenshaw, for his paper on "Electric Lifts and Cranes." Telford Premiums to Messrs. John Edward Worth and William Santo Crimp,* for their joint paper on "The Main Drainage of London." A Telford Premium to Mr. Samuel George Homfray, for his description of "The Machinery of the Tower Bridge."

The following is the award for papers printed in Section II. of the Proceedings for the Session 1896-97:—A Telford Medal and a Telford Premium to Mr. Thomas Holgate, for his paper on "The Enrichment of Coal-Gas." A Telford Medal and a Telford Premium to Mr. Dugald Drummond,† for his "Investigation into the Use of Progressive High Pressures in Non-compound Locomotive Engines." A George Stephenson Medal and a Telford Premium to Professor William Cawthorne Unwin,† for his paper on "A New Indentation Test for Determining the Hardness of Metals." A Telford Premium to Major Smith S. Leach, Corps of Engineers United States Army, for his paper "Inland Navigation in the United States." A Telford Premium to Mr. Othniel Foster Nichols, for his paper on "The Brooklyn Elevated Railway." A Telford Premium to Mr. James Ramsay, for his description of "The Mushkaf-Bolan Railway, Baluchistan, India." A Telford Premium to Mr. Harold Duke Smith, for his paper "Transverse Strength of Large Beams of Yellow-Pine Timber."

For papers read before meetings of students:—The James Forrest Medal and a Miller Prize to Mr. Alexander Hope Jameson, for his paper on "The Strength of Materials," read before the Manchester Association of Students; the James Prescott Joule Medal and a Miller Prize to Mr. Harold Wood Barker, for his paper on "Cooling Reservoirs for Condensing Engines," read at the Institution. Miller Prizes have been awarded to the following, for papers read at the Institution:—Mr. Walter Beer,‡ for his paper on "The Monier System of Construction;" Mr. Henry Francis Brand, for his paper on "The Inverness Section of the Inverness and Aviemore Railway;" Mr. Harold Berridge, for his paper on "Poole Harbour;" Mr. John William Kitchen, for his paper "Wells and Well Sinking;" and, for papers read before Local Associations of Students:—Mr. Charles Henry Godfrey (Manchester), for his paper "Effects of Frost on Portland Cement;" Mr. Robert Halley Garvie (Manchester), for his account of the "Reconstruction of Latchford Lock Gates;" Mr. Thomas Carter (Newcastle), for his paper on the "Theory of Two-Phase Continuous-Current Dynamo;" and to Mr. Francis William Richard Hurt (Leeds), for his paper on "Superheaters."

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

At a special general meeting of the donors and subscribers of this Institution, held at the offices of the Institution, 21, New Bridge-street, Blackfriars, E.C., on the 26th inst., a resolution was passed increasing the annual pensions to males from 25*l.* to 30*l.*, and the pensions to widows from 20*l.* to 24*l.*, and at the same time extending the limit of income (apart from the pension), from 25*l.* to 35*l.* per annum in both cases. Mr. Thomas Hall, the President, occupied the chair, and at the close of the proceedings was warmly thanked for his services.

* Have previously received Telford Premiums.
† Has previously received Telford Premiums and Telford and Watt Medals.
‡ Has previously received a Miller Prize.

APPLICATIONS UNDER THE 1894
LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 Building Act. Those applications to which consent was given were noted on certain conditions* :—

Lines of Frontage.

Polioch.—Houses west side of Plum-lane, north of Genesta-road, Plumstead (Mr. H. H. Church on behalf of Mr. J. R. Jolly).—Granted.

ulham.—Three houses east side of Burlington-d, New King's-road (Mr. J. Palmer).—Granted.

ethelard Green, North-east.—Infirmary east side of bridge-road, between Nos. 214 and 216 (Messrs. Messrs. Gough, and Trollope, on behalf of guardians of Bethel Green).—Granted.

insbury, East.—One-story shops upon forecourts Nos. 241, 243, 245, and 247, City-road, St. Luke's. Messrs. Barnes-Williams, Ford, & Griffin, for Messrs. Betts & Co., Limited).—Granted.

hackney, North.—Oriel window at first and second floors on level of the Bud Inn, High-street, (Mr. H. M. Wakley, for Mr. R. Chattey).—Granted.

hackney, North.—One-story surgery at rear of No. 183, Evering-road, Stoke Newington, to abut a Brooke-road (Mr. G. E. Withers, for Dr. G. A. Wery, and executors of Mr. E. Withers, deceased).—Granted by plan, and also the ground-plan of surgery on the drawing showing the sections of elevation respectively, submitted with the said application, not approved.

ampstead.—Two two-story bay windows to a posed house south side of Lyndhurst-road, corner Lyndhurst-gardens (Mr. H. Field, for Messrs. R. and R. Res).—Granted.

antworth.—Open glass and iron porch in front of No. 45, Compayne-gardens, Finchley-road (Messrs. M. and Co., for Mr. C. Haynes).—Granted.

outhwark, West.—Two-story bay windows in front Nos. 15, 17, 19, 21, 23, and 25, Hayles-street, St. George's-road (Messrs. Waring & Nicholson, for Messrs. Hayle's Charity).—Granted.

ackney, North.—House east side of Garratt-lane, bank upon Franche court-road (Messrs. J. Garrett Son, for Mr. W. Loat).—Granted.

St. Pancras, West.—One-story shop upon part of court of No. 78, Hampstead-road (Mr. R. Parry, Mr. T. Sandilands).—Refused. A proposal to go forward the main building 6 ft., and to give to the public the land in front thereof, would be granted.

arylebone, West.—Rebuilding of Pontefract Castle house, No. 48, Chapel-street Marylebone-road, abut also upon Marylebone-road (Mr. T. Wilson, Mr. W. Holman).—Refused.

ermouthsey.—One-story bay window at the first or level, in front of No. 69, Abbey-street (Mr. J. and Co., for Mr. A. Johnson).—Refused.

ackney, North.—Glass and iron shelters, and a concrete and iron balcony at entrances to Alexandra theatre, in Stoke Newington-road and Wiesbaden (Mr. F. Matcham).—Refused.

ammersmith.—That Mr. J. Shewan be informed that the Council is not prepared to accede to his request for the Council's licence in respect of a new building set up at the rear of No. 243, bridge-road, and abutting upon Askew-road. That the Solicitor do continue the proceedings to gain the removal of the structure.

axton.—Inclosed wood and iron footbridge over lining-street, Shoreditch, to connect Messrs. Clark, and Co.'s premises (Mr. W. G. Scott).—Refused.

ewisham.—Houses with one-story shops on east side of High-street, and houses in George-lane (Mr. H. Selby, for Mr. J. Aird, M.P.).—Refused.

St. George, Hanover-square.—Overhanging glass iron porch or hood at the entrance to No. 7, at Stanhope-street (Mr. C. E. Sayer).—Refused.

tepney.—Glass and iron illuminated fascia above entrance of shops at Nos. 266, 268, and 270, Mile End-road, Mile End Old Town, and projecting over the public way (Mr. I. Cohen).—Refused.

Width of Way.

Valworth.—Buildings on north and south sides of passage-way leading from Sayer-street to Lion-lane (Mr. J. W. Brooker, for Mr. Rodgers).—Granted.

oplar.—Dwelling-houses for persons of the work-class, west side of Ann-street (Messrs. Davis & Daniel, for the East End Dwellings Company, Limited).—Granted.

ensington, South.—Bay window, oriels, and canopies to three residential studios on south-west side of Yeoman's-row, Brompton-road (Mr. W. Aber, for Messrs. Lovering, McCallum, and Lughan).—Granted.

inehouse.—Warehouse on the site of Nos. 66, 68, 70, High-street, Wapping (Mr. C. Dunch, for Messrs. H. A. Litchfield).—Granted.

andrewell, North.—Parish room, Thompson's, and a new road to operative Builders, Limited, the Rev. C. E. Brooke).—Granted.

ennington.—Temporary wood and iron mission on land adjoining St. Anne's Church, Miles.

* Names of applicants are given in brackets. Buildings new erections unless otherwise stated.

street, South Lambeth-road, with the forecourt wall or boundary at less than the prescribed distance from centre of road (Mr. J. A. J. Woodward, for the Rev. W. A. Morris).—Refused.

Open Space about Buildings.

Deford.—Corrugated iron roof over yard at rear of No. 64, New Cross-road (Mr. A. Blackford, for Messrs. Josephs Brothers).—Granted.

Hampstead.—Rebuilding of No. 48, Heath-street (Mr. P. W. Talbot, for Mr. E. R. Hodges).—Refused.

Deviation from Certified Plans.

Holborn.—Certain deviations from the plan certified by the District Surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the Wheatsheaf Tavern, Hand-court (Mr. H. M. Wakley, for Messrs. Porter Brothers).—Granted.

Width of Way and Space at Rear.

Hackney, South.—Stable, with workshop over, on land adjoining No. 14, Gainsborough-square, Hackney Wick, with open space at rear of new building (Mr. W. B. Ellis, for Mr. A. D. Thornton).—Granted.

St. George, Hanover-square.—That the consent be given, under Section 13 of the London Building Act, 1894, to the erection of a two-story addition at the rear of No. 20, South Molton-street, to abut upon South Molton-lane, and that the sanction be given to such deviations from the plan, certified by the District Surveyor, under Section 43 of the Act, of the space previously occupied by buildings on the site, as will permit of the erection of the said two-story addition upon the site (Mr. F. Corbett, for Mr. W. E. Wright).

Line of Fronts and Width of Way.

Rotherhithe.—Rebuilding of Nos. 77 and 79, Jamaica-road (but the Crown and Anchor tavern and a house and shop adjoining), to abut also upon New Church-street (Mr. C. H. Flack, for Mr. B. P. Lucas).—Granted.

Line of Fronts, Width of Way, and Space at Rear.

Stepney.—Rebuilding of a foreman's dwelling-house in the cooage on south side of Raven-row, to abut also upon Russell-street, Whitechapel-road (Mr. R. Spence (Messrs. Mann, Crossman, & Paulin).—Granted.

Formation of Streets.

Fulham.—The formation or laying out of a new street, 40 ft. wide, for carriage traffic, in continuation of Fulham Park-gardens, widening of portions of New King's-road, Burlington-road and Rigault-road, and abandonment of formation of Malvolio-road (Mr. R. Groom, for Mr. J. Nicholls). That the name Fulham Park-gardens (in continuation) be approved for the new street.—Granted.

Lewisham.—Formation or laying out of a new street, 40 ft. wide, for carriage traffic, to lead out of north side of Ringstead-road, Catford (Mr. A. Blake). That the name Cudham-street be approved for the new street.—Granted.

Handsworth.—Formation or laying out of a new street, 40 ft. wide, for carriage traffic between north-west angle of Guelph-street, Garratt-lane, and the river Wandle (Messrs. Guillaume & Sons, for Mr. W. F. Palmer). That the name Guelph-street (in continuation) be approved for the new street.—Granted.

St. Pancras, North.—Formation or laying out for carriage traffic of a new street, varying from 40 ft. to 50 ft. in width, to lead out of Highgate-road (Messrs. Boehmer & Gibbs, for Mr. A. W. Armstrong).—Refused.

Dulwich.—The formation or laying out for carriage traffic of a new street, 36 ft. wide, to lead out of the east side of Beaulval-road, Lordship-lane (Mr. F. Spark, for Mr. R. P. Tebb).—Refused.

Cubical Extent.

Deford.—Extension of a workshop at Hatcham Ironworks, No. 43, Pomeroy-street, Hatcham, such workshop with the proposed extension to exceed in extent 250,000 cubic feet but not 450,000 cubic feet, and to be used only for the manufacture, &c., of engines and boilers for the Royal Navy and mercantile marine, (Mr. E. Flint, for the General Engine and Boiler Company, Limited).—Granted.

Separation of Buildings.

City of London.—Certain alterations to the Five Bells public-house, No. 21, Moorfields (Mr. A. Tosh, for Mr. T. A. Sharpe).

Recommendations marked † are contrary to the views of the Local Authorities.

BUSINESS PREMISES, NEWCASTLE.—New premises for Mr. J. Cooper have just been erected in Westgate-road, Newcastle. The building has a frontage of 200 ft. in Westgate-road, and overlooks the railway. It is of red brick, with an ornamental stone front at the main entrance. The architect of the building was Mr. Dawson, Messrs. J. & W. Lowrey were the contractors, and Mr. C. Dixon acted as clerk of the works. Mr. Hindson, of Gateshead, was the contractor for the iron roof, and Messrs. Swinney & Stewart, of Newcastle, contracted for the iron girders and stable fittings.

Correspondence.

To the Editor of THE BUILDER.

CLASSIFYING BUILDERS' WORK.

SIR,—On Friday evening, November 5, at 7.30 p.m., I have promised to bring forward, at the Architectural Association, a proposal for classifying builders' work. The intention is to assist architects, contractors, and the public, by defining, say, three classes of work—A (fair); B (good); and C (best); and to urge all engaged in building to refer to these accepted classes in obtaining tenders, making bargains and contracts, and in carrying out works, so that some wide disparities in prices and some disputes may be avoided. The following are the headings to the paper which is to introduce the subject: "Gradations in Quality of Builders' Work;" "Competition Tenders;" "Disparities in Tenders;" "Classes A, B, and C described;" "Objections;" "Contractors may keep to the Wrong End of the Class;" "Meagre Specifications not Satisfactory, &c.;" "Classification Useful for Work Done in a Hurry;" "As Record of Intentions when Contract was entered into;" "Not a Panacea, but a Practical Proposal which should be Generally Accepted." I hope those interested in the matter will make a point of attending the meeting on November 5.

S. FLINT CLARKSON.

TOTTENHAM SCHOOL BOARD OFFICES
COMPETITION.

SIR,—Herewith I enclose copies of the conditions of the above competition, the letter just received from the Clerk to the Board, and my reply thereto. I offer no comment, but would like to ask if no action can be taken to compel the Board to decide the competition according to the written and implied terms of the conditions; perhaps other competitors will offer suggestions.

CHARLES V. JOHNSON.

* * The letter from the Clerk of the Board informs the competitors that the Board arrived at an ultimate decision not to accept any one of the plans sent in, and to return those received to the various competitors, and to have a fresh competition; and concludes, "on hearing from you I shall be happy to send you a fresh set of conditions" (!) Not a word is said about the reasons for this extraordinary proceeding. In the conditions, which are very loosely drawn up and give very vague information, there is no statement that the Board do not bind themselves to accept any design; and in that case it appears to us they have to select plans and employ the architect, or otherwise they have entirely broken faith with the competitors.—Ed.

CARVERS' AND CARPENTERS'
WORKSHOPS.

SIR,—May I ask your various readers whether they can give me any advice in the following matter? Wanted to erect workshops for (1) Carvers, and (2) Carpenters and joiners, on the most modern principles as to light and dimensions, &c. Can any of your readers refer me to an example erected recently, or do they know of any book published on this subject? PROVINCIAL ARCHITECT.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XV.—MODES OF MEASUREMENT.

Glaziers', Painters', and Paperhangers' Work.

GLAZIERS' WORK.—In measuring glass it should be borne in mind that all parts of an inch are reckoned the full inch. It is especially necessary to note this in the case of sashes or casements divided into very small squares, as the difference then is considerable in proportion to the total quantity of the glass.

Sheet glass, per foot superficial.—State weight per foot superficial and also the quality, and keep squares not exceeding 2 ft. superficial, as in "small squares," and square above this size in variations of 12 ft., e.g., "not exceeding 4 ft. superficial," or 6 ft., &c., as the case may be. In the event of a large number of squares under 1 ft. superficial, it is as well to keep these separate. Keep glass "cut to shapes" separate, measuring the extreme sizes of squares, and if edges circular cut, described as "circular cut one edge," "two edges," or otherwise, as the case may be.

Very small squares of glass cut to shape are better numbered. Take bending glass separate at per foot superficial, stating the size of square and the radius of the bent portion.

Ground Sheet Glass, per foot superficial.—Measure as described for clear sheet glass.

Describe the edges to be sized before glazing. This prevents the oil from the putty spreading over the surface.

Fluted Sheet Glass, per foot superficial.—State weight per foot superficial and describe width of flutes, whether "wide," "medium," or "narrow pattern;" otherwise measure as described for sheet glass.

Coloured Sheet Glass, per foot superficial.—Measured as described for clear sheet glass, stating the colour. The latter is important, as there is a great variation in the prices of the various colours.

Murane Glass, per foot superficial.—State pattern (if possible) and the colour; otherwise measure as described for sheet glass.

Hartley's, and other Rough Glass, per foot superficial.—State thickness, and if "Hartley's rolled" the description of ribbing if anything out of the ordinary, as "fluted rolled," describing whether "large," or "small" pattern, or "diamond rolled," with similar distinctions.

Glass in long lengths in skylights should be kept separate, giving the lengths of the squares.

If no thickness is specified for rough glass it is generally accepted that the ordinary thickness ($\frac{1}{8}$ in.) is what is required.

Cathedral Glass, per foot superficial.—Give full description and the colour; otherwise measure, as described for sheet glass.

Polished Plate Glass, per foot superficial.—Measure as described for sheet glass, with the exception that plate glass is billed in variations of 1 ft. in a square up to 10 ft. superficial, and above this at 2 ft.

Note.—Plate glass is about $\frac{1}{4}$ in. in thickness, but if any special thickness is described an extra price will be charged, even if less than $\frac{1}{4}$ in.

The edges of plate glass should be described to be blacked to prevent the unsightly cut edge showing.

Silvered Glass, per foot superficial.—Measure as described for plate glass. As glass for silvering requires to be of specially selected quality, it is well to include the silvering with the glass. If, however, the silvering is measured separately, the glass must be described as "silvering quality."

Embossing, &c.—The ornamentation of glass varies so considerably in character that this is usually billed at a p.c. sum either at per foot superficial or a lump sum as provision.

Bevelled Edges of Glass, per foot run, stating the width, and keeping circular work separate from the remainder.

Note.—Glass in door panels is usually bedded in chamois leather or indiarubber strips; include this with the description.

Lead Lights, per foot superficial.—If ordinary sheet or cathedral glass in plain squares, describe the glass, the width of the lead cases, and the sizes and shapes of the squares, and whether with border, keeping portion in circular or shaped heads separate.

If lead glazing is in any degree elaborate a p.c. per foot should be specified. In this case ascertain whether the price includes for saddles, bars.

State whether lead glazing is fixed in deal sashes, iron casements, or grooves in stone or brickwork.

It is generally accepted that any square containing less than 1 ft. superficial shall be counted as a foot, whilst some makers claim for any lights under 1 ft. in width (whatever their length) shall be measured as a foot. It is advisable to state in the heading how the lights are measured.

If a p.c. price is stated for lead lights, an item should appear in the bill stating that the contractor is to supply all dimensions, templates, paper patterns, &c.

Painters' Work.—Distemper.

Walls and Ceilings, per yard superficial.—State if in more than one tint, and if colours of any special manufacture. Keep walls and ceilings separate. Measure dividing lines, borders, &c., at per yard run, stating the width, numbering any ornamental corners, &c.

Cornices, per yard run, stating the girth of cornice and number of tints, and if enriched, and if enrichment picked out, mention this also.

Painting Ironwork.

Girders, Stanchions, &c., per yard superficial.—Stating the number of coats before and after fixing, the latter frequently having to be done off ladders. This will apply generally to painting on ironwork.

Pavement Lights and Gratings, per yard super-

ficial.—Stating if one or both sides measured, and measure accordingly. In the case of gratings it is advisable to mention, including edges, as the edges form such a large proportion of the whole.

Railings.—If plain bar, measure at per foot run as "on bar," but if ornamental at per yard superficial, stating if one or both sides measured, and measure accordingly.

The following items are billed at per foot run. Bolts and straps, eaves gutters (including brackets, if any); rain pipes (adding the lengths of shoes, swan-necks, &c.), crestings (stating the height), and any narrow running items, such as ventilating gratings, &c.

The following items should be billed as **Numbers**.—Rain-water heads, hinges (in pairs, and stating length and description), small gratings (stating if one or both sides), brackets, chimney-pieces, and all small items.

Painting Woodwork.

In describing painting to woodwork make it distinctly understood whether the priming is intended to be counted as a coat or not. It is advisable to describe the work as "knot stop, prime and paint in addition oils," which leaves no doubt as to the intention. Some architects specify a different colour for each coat, to enable the number of coats to be counted.

Woodwork generally, per yard superficial for work over 12 in. wide.—To save the trouble of measuring the edges, one-eighth is usually added to the quantity to cover this and also for panelling. This will be found in most cases sufficient, but in the case of very small or elaborately moulded panels will not be found so.

The surveyor must, therefore, judge for himself as to this, and add accordingly.

Door Frames.—These are usually measured in with the linings and architraves, but, if as is sometimes the case, the frame is treated differently on one side to the other, it should be measured separately at per foot run each side and described as "one side."

Skirtings, per foot run.—If more than 12 in. high, state the height and whether double-faced.

Rails, per foot run, generally to work under 6 in. girt.

Wall Strings, per foot run, as described to skirtings.

Outer Strings, per foot run.—State if "cut" or "close." If the latter, state that it is for "both sides."

Balusters, per foot run.—State if "square" or "turned."

Newels, per foot run.—As last described, but giving the size.

Skylight Rail, per foot run, measuring both sides and stating that it is for "one side."

Skylight Bar, per foot run, as last described.

Squares, number at per dozen.—Take both sides, thus one square counts as two. If over 2 ft. superficial, describe as "large," and if over 4 ft. as "extra large."

Window Frames, number.—Take both sides. If over 24 ft. superficial, describe as "large," and if over 36 ft. as "extra large." If with mullions and transoms, describe the number of lights.

Casement Edges, number these regardless of size.

Number also small items, such as brackets and similar items where measurement does not represent the quantity of work, also dressers. In the latter case describe as "Dresser as described on page of Bill."

General Note.—If the work is to be finished in more than one tint, state the number. Picking out members of mouldings should, however, be measured separately at per yard run.

Painting on carving and dentil courses should be measured as an "extra," at per foot superficial, per foot run, or number, as the case may require.

If work to be "flatted," describe this.

Staining and Varnishing.—Measure as described for painting, stating the number of coats of size, stain, and varnish, and also the description of the stain and varnish, with the colour of the former, and if the work is finished in more than one tint.

Varnishing over Paint.—Measure as described for painting, giving a description of the varnish and the number of coats.

Graining and Marbling.—Measure as described for painting, describing the wood or marble imitated.

Polishing, per foot superficial generally. As this is a somewhat expensive item, it must be carefully measured, including all edges, grits of

mouldings, &c. Measure at per foot run as "extra" carved enrichments and dentil courses. Measure also at per foot run handrails, giving the size, if large, and including both the item for papering and tying up with string for protection.

Paperhangers' Work.—Wall papers appear in the bill at per piece at a p.c. or "stamped price," as the case may be. They are usually measured at the same time as the plastering. English papers are nominally 12 yds. long and 21 in. wide, which equals 63 ft. superficial, but as they cut to waste it is usual to allow one piece in seven for this; and so, to arrive at the number of pieces, the number of superficial feet is divided by fifty-four. This allowance, whilst being sufficient for ordinary small patterns, will not be so for large ones. The surveyor must therefore use his judgment in this, as he will have to in a good many points that will come under his notice. Foreign papers vary both in width and length, therefore, in measuring these the surveyor must ascertain what the widths and lengths are before reducing the superficial area to the number of pieces. He will also have to do this in the cases of Japanese papers, Lincrusta, Anaglypta, and the numerous other wall coverings that are now in use. They are sometimes billed at a p.c. price per 2 ft. superficial.

Paper hung on ceilings should be kept separate from those on walls, and so described.

Friezes and Borders are generally billed at per yard run, in the case of the latter frequently at per dozen.

Include with the description of hanging papers, sizing and preparing walls.

Varnishing on Paper, per yard superficial.—Stating the number of coats of size and varnish, and description of varnish.

GENERAL BUILDING NEWS.

CHRIST'S HOSPITAL SCHOOLS, HORSHAM.—On the 23rd inst. the Prince of Wales laid the foundation stone of the new buildings of Christ's Hospital at Slammersham, near Horsham. The cost of the buildings is estimated between 280,000l. and 300,000l. The architects are Messrs. Aston Webb & Ingress Bell, and the builders are Messrs. Longley, of Crawley. The buildings have been illustrated and described in our issues for June 16 and 23, 1894, and November 2, 1895.

MISSION HALL, PENTONVILLE.—At St. Silas, Pentonville, a parochial mission-hall and clergy house are being built from designs by Mr. Wm. White (London). The hall is 70 ft. by 28 ft., besides a large recess on one side, with space beneath for club and class-rooms, gymnasium, &c. The clergy house is to accommodate two curates and a caretaker, with one spare room for a guest in the upper floor. The curates' rooms occupy the first and second floors, with bath-room, pantry, &c. The building is of stock brick with red dressings and red-tiled roof. The windows next Penton-street have stone mullions. The hall has two large open fireplaces, two large light windows in one gable, and six windows in roof, there being no right of light to the sides. On either side of the platform is a green-room, store-room, &c. The main entrance is from Penton-street, the back entrance from Warren-street. The total cost for the building is about 4,000l., and for the site, 1,500l.

RESTORATION OF BEERCROCOMBE CHURCH, SOMERSETSHIRE.—St. James's Church, Beercrocombe, Somersetshire, has just been reopened, after restoration by the Bishop of Bath and Wells. The nave roof has been related, the slates being laid of boarding and felt, and a new ridge provided. Internally, the dilapidated plaster has been removed from the roof and the chamfered oak ribs and purlins repaired, the panels formed by the ribs being filled with oak boarding and plain pieces of oak placed at the intersections. The nave floor has been raised, when such can be provided in the future. The external plastering has been removed from the north wall of the nave and the stone work pointed. Inside the walls of the tower have also been pointed and the constructive stonework brought into view. The whole of the flooring has been taken from the nave and tower and a bed of concrete laid under the tower floor, which consists of Maw's tiles in the tower, wood blocks under the seats, and stone in the passages, the best of the old stones being used again for the latter purpose. The font has been placed in the tower, which now forms the baptistry, an existing oak screen dividing it from the nave. A projection in the north wall of the nave, both on the inside and outside, seemed to indicate the existence of a recessed tomb. During the restoration this portion of the wall has been examined, and two moulded jamb stones, one member in both being enriched with cinque-foil Tudor roses, brought into view. Another stone *in situ* indicates the springing line of the arch which once connected these two jambs, and there are remains of two flanking shafts completing the decorative architectural features which formed the tomb. The older seats have been

arranged on both sides of the nave at its western end, and a new wooden oak seats provided for the use of the nave. The pulpit has been lowered and read from point and placed upon a new oak base. The whole of the work has been executed by Mr. Alexander Poole, of Ilminster. The restoration has been carried out from the plans and under the personal supervision of the architect, Mr. J. Houghton Spencer, of Taunton.

CHURCH OF ST. BASIL, RASTICLIFE, YORKSHIRE.—The new infants' school in connexion with Rastcliffe Church School was opened on the 23rd inst. by Mr. E. Hildred Carille. The school is situate in St. Stephen's-road, opposite the church, and is Gothic in design, in consonance with the church. It contains a central hall 31 ft. 6 in. by 24 ft., and two classrooms providing accommodation for thirty children each, and a babies' room for fifty children, whilst twenty-five places are provided in the central hall, making a total of 185 places. The divisions between class-rooms and hall are movable glazed partitions, so that all the rooms can be transformed into one, and made to serve the purposes of a parochial hall. There is also a cloak-room and lavatory. The principal entrance is from Bland-street. All the external joinery work is of pitch pine (varnished). The school is heated with hot water on the low-pressure system. The accepted tenders amount to the sum of 1,570l. The plans have been prepared by Mr. J. Berry, architect, Huddersfield, and the works have been carried out by the following contractors:—Messrs. B. Graham & Sons; Messrs. Sanderson Brothers; plasterers and slaters, Mr. T. Longbottom & Sons; painters, Messrs. Laigh & Shaw; concrete and stone mason, Mr. John Cooke; movable partitions, Mr. John Stones, Rossie, Ulverston; heating engineers, Messrs. Calvert & Co.

ST. MARK'S CHURCH, BARNET.—The foundation stone of the new Church of St. Mark, Barnet, was laid on the 6th inst. The plan of the church is a parallelogram, about 108 ft. long and 51 ft. wide, divided into a nave 74 ft. long and 20 ft. 6 in. wide, a chancel 34 ft. long and the same width as the nave, and with north and south aisles both to the nave and chancel. The transepts are 10 ft. wide, and project some 10 ft. beyond the aisle wall. Vestries, &c. are situated on the north side of the chancel. Flint is used for the walls, with quoins of Little Casterstone. The windows, doorways, arcades, and all their dressings are also of Little Casterstone. The main roofs are to be covered with tiles, those of the aisles with lead. The nave is the portion which is now being erected. It is divided longitudinally into five bays, with clustered shafts supporting lofty arches. The chancel is divided into three bays. The east window is of seven lights, 24 ft. wide and 22 ft. high; the west window of five lights, 23 ft. high and 11 ft. wide. A circular window fills the gable of the north transept; the entrance is reserved for the organ. The altars are in the western bay of the aisles north and south, and are protected by projecting porches. There are no buttresses to the side walls, but the walls have massive buttresses with terminating pinnacles. The gable ends are diapered with alternate squares of stone and flint. A bell gable over two bells marks the commencement of the chancel. A tower is contemplated, but this is not comprised in the present undertaking. Mr. E. T. Pearson is clerk of the works. Mr. J. L. Pearson, of A., is the architect.

VOLUNTEER BARRACKS, DARWEN.—New barracks, for the Volunteers of Darwen, have just been opened by Major Rutherford, M.P. The barracks have been erected at the top of the Wood-street Recreation Ground, from the plans of Messrs. McCall & Robinson, architects, of Blackburn, and will cost, with equipment, about 2,000l. The frontage is of brick with stone dressing, and has a stately appearance.

PARISH HALL AND INSTITUTE, BRYANSTON-SQUARE, LONDON.—Princess Christian laid the foundation stone on the 20th inst. of the new parish hall and institute connected with St. Mary's, Bryanston-square. The new building, which is to form the nucleus of the church, has been designed by Sir A. Blomfield, and is to be three stories high. In the basement will be a boys' club. On the ground-floor there will be a hall to seat 400 persons, for parish entertainments or other purposes, and fitted up as a museum.

RENOVATION OF RISLEY CHURCH, DERBYSHIRE.—During the past fifteen months a series of improvements have been effected in the parish church at Risley. The architects under whose supervision the work has been carried out were Messrs. Evans & Son, and the contractors were Messrs. Hodson & Son, while the pulpit and more elaborate carving have been executed by Mr. W. L. Abbott, all of Nottingham.

CHURCH OF ST. GABRIEL, WILLESDEN GREEN.—In our last issue we stated that the church of St. Gabriel, Willesden Green, which was consecrated on the 7th inst., was designed by Mr. R. Philip Day. We are informed that the building was designed by Messrs. W. & C. A. Bassett-Smith, in conjunction with Mr. R. Philip Day. The error was not ours.

NEW ST. ANDREW'S VIADUCT, ABERDEEN.—Operations have been commenced for erecting a large block of buildings for the Aberdeen Town and County Property Company, Limited

The site is a triangular one at the junction of Skene-terrace with Rosemount-viaduct, to which latter it has a frontage of 200 ft. The building is six stories in height. Accommodation has been provided for eight shops of various sizes, with saloon space behind and cellars in the basement floor. The upper floors have been arranged in tenements. The cost of the work, which has been let to local contractors, will be about 15,000l. Messrs. Brown & Watt, of Aberdeen, are the architects.

CHURCH EXTENSION, BLYTH, NORTHUMBRIA.—The scheme for enlarging St. Mary's Church, Waterlool, Blyth, has taken practical shape, and workmen are now engaged in making the needful improvements. At present the sittings will only accommodate 261 people. The Diocesan architect, Mr. Hicks, having prepared plans embracing a scheme of gradual extension, and eventually affording accommodation for 1,000 people, the vicar and churchwardens adopted this scheme, and let the contract to Messrs. Simpson. The first portion of the work includes the extension of the chancel, the building of a north aisle with organ chamber, clergy vestry, and boiler house for a new heating apparatus.

PROPOSED MUSIC HALL, BRADFORD.—A movement is on foot, it is stated, for the erection of a new music hall in Bradford, adjoining the Alexandra Hotel, and Mr. W. G. Sprague is engaged on plans which show a theatre of varieties that will have a holding capacity of over three thousand persons. The present frontage of the hotel will be removed.

ALTERATIONS TO ST. MARY'S PARISH CHURCH, EDINBURGH.—St. Mary's Parish Church, Bellevue, Edinburgh, has undergone extensive alterations and improvements. The electric light has been introduced into the building, new heating arrangements have been carried out, the sitting accommodation has been altered, and the interior has been decorated. The cost of the alterations and improvements, the plans of which were prepared by Messrs. Sydney Mitchell & Wilson, architects, was about 1,000l.

NEW BUILDINGS FOR THE GLASGOW SCHOOL OF ART.—The site of this building has a frontage to Renfrew-street, between Dalhousie-street on the east, and Scott-street on the west, with a length of 250 ft. to Renfrew-street, and a depth of 77 ft., and the building will face north, and be of three floors. The foundations of the whole structure will be laid at the beginning, but only a portion of the building will be undertaken in the meantime. The cost of this portion is estimated at a little over 18,000l., and the area covered will be about 1,200 square yards. The architects are Messrs. Honeyman & Keppie.

CATHOLIC CHURCH, DENABY MAIN, YORKSHIRE.—On the 18th inst., the Bishop of Leeds laid the foundation stone of a new Roman Catholic Church at Denaby Main. Messrs. Empsal & Clarkson, of Bradford, are the architects, and Mr. F. Robinson, of Thornton, near Bradford, is the builder and contractor. The cost of the building is estimated at about 5,000l. It is to be built of stone from the Mexboro' Quarries, lined with brick. Attached to the church will be the residence for the priest.

CONGREGATIONAL CHURCH, PERTH.—The memorial stone of a new church for the united Congregational and Evangelical Union bodies in Perth was laid recently. The new church, which is estimated to cost 5,000l., is situated at the junction of Kinnoil-street and Murray-street. The architects of the building are Messrs. Steele & Balfour, of Edinburgh.

CONSTITUTIONAL CLUB, HAWICK, Roxburgh.—The Countess of Dalkeith recently laid the memorial stone of the premises in course of erection in Hawick for the purposes of the local Constitutional Club. The buildings are situated in Bourtree-place, at the corner of a side street, having a frontage of 93 ft. to Bourtree-place and 78 ft. to the side street. The front portion is in two floors, the back portion having only one story. The building is expected to cost fully 3,000l. The architect is Mr. James P. Alison.

TOWER, THORNABY CHURCH, YORKSHIRE.—The building operations in connexion with the new tower for Thornaby Parish Church have been commenced. The contract has been let to Mr. T. Dickinson, of Middlesbrough. The architects for the new tower are Messrs. T. & F. Healey, the successors to Messrs. Mallinson & Healey, of Bradford, who designed the church when it was built in 1858.

VARNA-STREET BOARD SCHOOLS, OPENSHAW.—These schools, built by the Manchester School Board to replace the school in Cornwall-street, transferred in 1894 to the Board by the M.S. and L. Railway Company, were opened on the 22nd inst. The schools afford accommodation for 2,000 children—900 boys, 600 girls, and 500 infants. They are on the Central Hall plan, and in the main building provision is made for the teaching of cookery and laundry-work to the girls, and drawing and manual instruction to the boys. The architects were Messrs. Potts, Son, & Pickup, and the builders Messrs. W. Southern & Sons, Salford.

PROPOSED CIRCUS, LEICESTER-SQUARE, LONDON.—It is stated that a permanent circus is to be built in Leicester-square, London. The scheme includes a complete island of buildings, adjacent to Daly's Theatre, surrounded by a thoroughfare. The structure will comprise a circus, with a water space

for aquatic shows, a hotel, winter gardens, shops and residential flats. The architect is Mr. Frank Matcham.

MUNICIPAL BUILDINGS, MARKINCH, FIFE.—New municipal buildings are to be erected at Markinch. Messrs. James Gillespie & Scott, of St. Andrews, are the architects. The following are the contractors:—Mr. D. Nairn, Ladybank, mason; James Ness, Markinch, joiner; William Spittal, plumber; Thomas Davidson, slater; and Robb & McIntosh, plasterers. The buildings are expected to cost between 1,200l. and 1,300l.

PROPOSED NEW PARISH CHURCH, HANLEY.—A new church for St. Jude's Parish, Hanley, is to be erected from plans prepared by Messrs. Scrivener, architects, Hanley. The plans provide accommodation for 850 people, at an estimated cost of 7,000l.

BOARD SCHOOL, HORNSEY.—The Campbourne Board School, Boynton-road, Hornsey, was opened on the 23rd inst. by Mr. H. C. Stephens, M.P. The school has entrances both in Boynton and Eastfield roads, and will accommodate 1,400 children. The building is two stories in height, the top floor having accommodation for 450 boys, and the ground floor for the same number of girls. The infants' block accommodates 510 children in seven class-rooms. Each of the three departments is provided with a separate hall. An assembly hall, 50 ft. by 25 ft., is provided for the use of the infants. The manual instruction department has accommodation for twenty-four pupils, and the cookery for forty. The work was executed by Messrs. Kirk & Randall from designs prepared by Mr. Howard Chaffield Clarke.

THE EDINBURGH BUILDING TRADE.—At the weekly meeting of the Dean of Guild Court, on the 21st inst., twenty-two applications were considered, and nine warrants granted. The plans for the North British Railway Company's hotel and offices were passed. Mr. Hamilton Beattie is the architect. Warrants were also granted as follows:—Messrs. T. & J. Bernard—elevator tower at brewery, Slateford-road; Mr. John Scott—tenement at 5, Cornhill-ton-terrace; and Mr. D. Adamson—nineteen houses on ground at Merchiston Bank.

PROPOSED HOTEL, ANNAN, DUMFRIES.—It is proposed to erect a large hotel close to the Glasgow & South-Western Station, Annan. The architect is Mr. F. Carruthers, of Dumfries.

CHURCH, HARROGATE.—On the 18th inst. the Bishop of Ripon consecrated the new church which has recently been erected in Walker-road, Harrogate, and dedicated to St. Luke. The new church contains a nave, 85 ft. long, by 27 ft. wide, chancel 30 ft. long, by 23 ft. wide; north and south aisles, south chapel, double transepts on the north and south sides of the nave, organ chamber on the north side of the chancel, and vestries for the clergy and choir. The principal dimensions are: Length, within the walls, 120 ft., and breadth across the transepts, 70 ft., and height of the nave from floor to ridge, 54 ft. A tower and spire are designed for the west front, but the tower stage only has been built, and this forms the baptistry. The nave is divided into six bays, with lofty octagonal pillars, carrying moulded capitals. The east window of the chancel is of five lights, filled with stained glass by Messrs. Burlison & Grylls, of London, and on the north and south sides of the chancel are inserted triangular clerestory windows. Fixed sitting accommodation is provided for 700 worshippers, a space being reserved at the west end for choirs, which will increase the accommodation to 850. The floors of the passages and chancel are laid with tiles, and the warming is by hot-water pipes. The work has been carried out by the following contractors:—Mason, Mr. Isaac Dickinson, Harrogate; joiner, Mr. James Taylor, Readon; plumbers and glaziers, Messrs. E. Pratt & Son, Harrogate; plasterers, Messrs. B. Sugden & Son, Bradford; slater, Mr. W. Baynes, Harrogate; painter, Mr. G. Dent, Harrogate. The stone carving is by Mr. J. Elliott and Mr. S. Charnock, the pulpit and font by Mr. P. Woods, Harrogate; gas fittings, Mr. T. Powers, of Manchester; and warming apparatus by Messrs. Seward, of Lancaster. The total cost of the building will amount to 8,000l. Mr. G. H. Elliot was the clerk of works, and the architects were Messrs. T. H. & F. Healey, Bradford.

BAPTIST SCHOOL-ROOM, LONG SUTTON.—New Baptist Sunday schools and class-rooms have been erected at Long Sutton. Mr. Jackson, of Holbeach, was the architect, and Messrs. Bracking & Goodman, of Long Sutton, the builders.

MISSION BUILDINGS, BELFAST.—The foundation stones have just been laid of the new buildings which are about to be erected in connexion with the Shankill-road Mission, Belfast. Mr. W. J. W. Roome is the architect, and Messrs. McLaughlin & Harvey are the contractors.

SWIMMING BATHS, HARROGATE.—On the 23rd inst. Mr. Amos Chippindale, Chairman of the Harrogate Swimming Baths Committee, laid the corner stone of the new baths which are to face the Skipton-road. The total cost of the land, buildings, and furnishings is estimated to reach 5,000l., and the erection is proceeding from designs prepared by Messrs. H. E. & A. Bown, architects, of Harrogate. The bath will be 75 ft. by 30 ft., and the building contain a recreation-room with two billiard tables.

BIBLE CHRISTIAN CHAPEL, WOOLTON, ISLE OF WIGHT.—The memorial stones have just been laid of a new chapel near the railway-station, Woolton,

for the Bible Christians. Mr. O. James, of Ryde is the builder, and Mr. S. E. Tomkins is the architect. The structure will be of red brick, with Bath stone dressings. The chapel will be 50 ft. long and 25 ft. in width, and the school-room 20 ft. by 16 ft. The windows will be of stained glass.

RESTORATION OF PINCHBECK WEST CHURCH, LINCOLN.—The Church of St. Bartholomew, at Pinchbeck West, which has recently been undergoing restoration, has just been re-opened by the Bishop of Lincoln. The church is in the Early Decorated style, and was erected from designs by Mr. Butterfield. About a year ago Mr. J. C. Traylen, architect, of Stamford, was consulted, and it was found that prompt measures were necessary to ensure the safety of the fabric. The present restoration scheme was set on foot last November. A contract for necessary work was entered into with Mr. F. S. Halliday, of Stamford.

CONGREGATIONAL SCHOOLS, CARLTON, SUFFOLK.—The new school buildings at Carlton Colville have just been opened. Mr. John Ashby was the builder, Mr. G. T. Knights, of Lowestoft, being the architect.

THE OLD ART GALLERY, NEWCASTLE.—Alterations to the Art Gallery, Grainger-street, Newcastle, have just been completed, and the institution is now to be used as a theatre, club, and restaurant, the latter being an entirely new feature. The club will be known as the Arts Club. The remodelling, decoration, and furnishing of the theatre have been carried out by Messrs. Dean & Co., of Birmingham; the decorations and furnishing of the club rooms and restaurant have been entrusted to Mr. Gullachsen, and the painting in the same departments has been done by Messrs. Adam Robertson & Co.; Messrs. Embley & Co. provided the cooking, heating, &c., appliances; Messrs. Rowland Barnett & Co. installed the electric light; and Mr. Smart did the building work in connexion with the club rooms. Mr. J. T. Cackett, architect, was responsible for the reconstruction and designing of the club rooms and restaurant.

NEW THEATRE FOR NEWPORT.—A new theatre, the Lyceum, has been erected on the site of the old Victoria Theatre, Newport (which was burnt out in the spring of last year). The outer walls of the old structure, including the facade to Station-street, with its row of Corinthian pillars, and the statue of the Queen surmounting the whole, have been retained, the freestone having been scraped and cleaned. But the interior is entirely new. Mr. W. R. Sprague, of London, was commissioned to design the new building, and Mr. John Linton, of Newport, has carried out the work of building. The structure is fireproof. Iron and concrete are the prevailing materials in the construction of the auditorium, and the fittings of the stage are fireproof. The doors communicating with the auditorium and the stage are of iron, and the roof is of asphalt, on concrete. There are in the way of egress six doors from the stalls and pit, special exits from the dress circle, balcony, and gallery, and the stage itself has three separate places for people to leave. Three entrances from Station-street are to be covered with a rain-shelter of iron and glass. The entrance vestibule opens on to the grand crush-room. Connected with the dress and balcony saloon is a large open-air balcony over the portico. At the back of the circle are six boxes, with separate entrances from the promenade, at the rear of which is the bar. Bars are provided, separated, for each floor, viz., pit, circle, and gallery. In addition to the six boxes at the rear of the dress-circle, there are two larger ones on either side of the proscenium. The decorations are in the Renaissance style. Cream and gold are the prevailing tints. A dome, 65 ft. above the level of the pit, is decorated with paintings of Cupids, representing the arts. The proscenium and balconies have been decorated with open scroll-work and figures. The walls of the circle and stalls are panelled out with silk tapestries and mirrors. The illumination of the house is duplicated by the introduction of both gas and electricity.

SANITARY AND ENGINEERING NEWS.

THE MANCHESTER SEWAGE SCHEME.—A circular has been addressed by the Rivers Committee of the Manchester Corporation to the ratepayers of Manchester upon this subject. The circular is in the following terms:—"On October 25 you will be asked to vote for or against the sewage effluent culvert scheme. You are strongly advised to vote for the culvert. It means a rate of not more than one penny in the pound. If you reject the culvert, the city will be compelled to provide filtration at great cost, involving a rate of over three pence in the pound. Your Rivers Committee and your City Council have given long and anxious consideration to the subject, and your Council have adopted the culvert scheme by a vote of seventy-one to three. It is recommended by Sir Benjamin Baker, Mr. Santo Crisp, and other eminent authorities. The culvert is the best, the cheapest, and the only final scheme."

THURLESTONE SEWERAGE WORKS, NEAR SHEFFIELD.—The sewage disposal works, at Thurlstone, were opened on the 22nd inst. The work in connexion with the scheme was let by contract to Mr. Frank Eyre, of Sheffield. Mr. Murray was the engineer. The cost of the work as finished is about 3,900l.

FOREIGN.

FRANCE.—At the Ecole des Beaux-Arts the two Attainville competitions have just been judged, in which seventeen participants took part for the decorative competition, of which the subject was "Un Foyer de la Danse à l'Opéra," the prize was allotted to M. Sabatier, pupil of M. Gustave Moreau. The formation of a new artistic association has been announced, calling itself the "Société de l'Art Précieux en France," and which numbers amongst its founders M. M. Thesmar, Gerôme, Damp, Botche, and Theodore Riviere. On Sunday last the monument to the memory of Guy de Maupassant was inaugurated in the Parc Monceau. The architectural part is the work of M. Deglane. The Paris Municipal Council has just authorised the erection of a monument to the celebrated chemist Lavoisier, in the Place de la Madeleine on the axis of the Rue Tronchet. The monument is being carried out by Ernest Barrias, sculptor. M. Chretien has been commissioned by the Government to execute two busts, of Pierre Puget and Nicholas Poussin, which are to be placed over the entrance door of the Ecole des Beaux-Arts, in the Rue Bonaparte. On Sunday last monuments in memory of the men who fell in the 1870-1871 war were inaugurated at Matignicourt, at Clamecy, and at Millau. The latter, which is by far the most important, is the work of M. Denys Puech, and consists of a marble column, the capital of which supports a bronze figure symbolising Military Genius. A draped female figure in a military cloak stands at the foot of the column leaning on a sword. This figure represents the Marseillaise.

The Bordeaux Municipality are shortly going to undertake some important architectural works in the way of beautifying and restoring interesting religious buildings, such as the Church of Sainte Croix and the Church of Sainte Eulalie. The work of making the new "Bassin de la Pinède," and prolonging the north harbour, will shortly be commenced at Marseilles. The name of M. Morin is announced at the age of eighty-seven. He was an old pupil of Huyot and of the Ecole des Beaux-Arts. He has been successively architect of the towns of Haguenau and of Strasburg, head architect in the Department of the Bas Rhin, and architect of the Imperial Château of Strasburg. Having resigned these duties at the time of the war, he returned to Paris, and courageously created a new position for himself. From 1871 he belonged to the Société Centrale, was elected diocesan architect of Frejus and of Digne, then architect of the Department of the Gironde, where he directed in a remarkable manner the work of restoring the Cathedral of Bordeaux. He was made Chevalier of the Legion of Honour, and latterly was expert of the Civil Tribunal of the Seine. The death is also announced of M. Pitre, architect, principal honorary controller of "Batiments Civils et Palais Nationaux."

GERMANY.—At the annual meeting of the Vereinigung Berliner Architekten, Herr von der Hude was re-elected the President. Herr Jassoy remains Chairman of the Lecture Committee, and Herr Moehring hon. secretary. Attention was called at the meeting to the necessity of German architects being well represented at the Paris Exhibition of 1900. From Munich we hear that the new Ursula Church has been completed. The work has been in hand for three years; the architect is Professor Aug. Fersch. There is seating capacity for a congregation of 2,600. In reference to the international competition for the design of a museum at Riga, we see from the *Deutsche Bauzeitung* that the total expenditure is to be 125,000 roubles; on the other hand, we observe that the assessors are all local men, who will not encourage foreign participation.

MISCELLANEOUS.

"ANCIENT ARCHITECTURE OF IRELAND."—The fifth and concluding chapter of Professor Baldwin Brown's essay will appear in our next issue.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. William David, the founder and managing director of the firm of David & Sant, Forest of Dean Stone Quarry proprietors, Parkend, has been appointed general manager and director of the Bath Stone Firms, Limited, Bath.

GRANITE MONUMENT, DUTHIE PARK, ABERDEEN.—The contract for the granite monument to be erected by the Aberdeen Town Council in Duthie Park, in commemoration of the generosity of the late Miss Duthie, donor of the park, has been awarded to Mr. Arthur Taylor, monumental sculptor, Aberdeen. The monument will be 29 ft. high, over all.

BRADFORD BUILDING TRADES AND STONE EXCHANGE.—The rooms in Town Hall-square, Bradford, which have been acquired and adapted for the purposes of a Building Trades and Stone Exchange, were formally declared open on the 19th inst. when the members, numbering about 200, attended the inaugural dinner. For many years past those connected with the trades have made their headquarters at the New Inn, but the rapid growth of building operations in Bradford and district, and the consequent increase of business accruing, rendered it necessary to remove to more commodious premises. The President (Mr. Ellis

Robinson) occupied the chair. Alderman Holdsworth, in performing the opening ceremony, said that he could remember the time when the building and stone trades were not acknowledged as sufficiently worthy of status to be admitted on the local public bodies, but he thought it would be admitted that nowadays a considerable alteration had taken place in that respect, and they contended that they were fully entitled to the improved position which they had reached in the public estimation. With regard to the Exchange, his only surprise was that some movement in that direction was not set on foot ten years ago. He believed it was not intended that the enterprise should be in the nature of a speculation, but that facilities might be afforded for the transaction of business with a greater degree of comfort for both buyer and seller. Already 200 members had been enrolled. After formally declaring the rooms open, he proposed "Success to the Building Trades and Stone Exchange," coupling with the toast the names of the President and Alderman Moulson, who duly responded. Mr. Julius Whitehead submitted the toast of "The Mayor and Corporation of Bradford." The Mayor, Mr. Thomas Speight, responded. A number of other toasts were also proposed, including "The City and Trade of Bradford," "The Architects and Kindred Professions," and "The Chairman."

PETERBOROUGH MASTER BUILDERS' DINNER.—The second annual dinner of the Peterborough Master Builders' Association has just been held at the Angel Hotel. The chair was occupied by Mr. D. Gray (President of the Association). After the loyal toasts, the Chairman proposed "The Architects of Peterborough," coupled with the names of Messrs. Ruttle and Cooke, who replied. The toast of the evening, "The Peterborough Master Builders' Association," was given by the Vice-Chairman, Mr. J. Ruddle, who said the Association seemed to have achieved the object for which it was established. The building trade in Peterborough seemed to be unusually prosperous, whilst the brick-making industry in the neighbourhood had acquired an almost world-wide renown. The name of Mr. J. W. Rowe was coupled with the toast. He said the Association was formed just prior to the dispute which arose between the bricklayers and the master builders. That dispute was amicably settled, and no doubt had not the matter been delicately handled they would have had a strike among the carpenters and joiners. That, fortunately, had been amicably settled, and the men were perfectly satisfied. Some of the master builders of Peterborough did not seem to recognise the fact that combination must be met by combination. All the men in their employ belonged to Trade Unions, and before long they would no doubt see a Labour Union started in connexion with the men employed at the brick works. Mr. Cooke gave "The Chairman" the name of Mr. J. W. Rowe, and should like to see the Association embrace all the builders in Peterborough. Mr. Hammond proposed the Officers and Committee, the toast being acknowledged by Messrs. Hicks and Jellings. Other toasts followed.

PROPOSED IMPROVEMENTS, LONDON-WALL.—Mr. Alderman Bell presided on Thursday last week at a wardmote of the inhabitants of Coleman-street Ward, specially convened to consider a report presented to the Court of Common Council by the Bridge House Estates Committee, with reference to the demolition of a part of Finsbury-circus, Finsbury-pavement, and London-wall. Mr. Emanuel moved a resolution to the effect that the wardmote was of opinion that the scheme in question involved the destruction of the houses in Finsbury-circus, and betrayed an entire disregard for the interests of the old tenants of the estate; and that the natural desire to increase the income of the estate could be accomplished without evicting a large number of old tenants, to whom moreover, it was not proposed to make an offer in the first place for the re-letting. Mr. Jansen seconded the resolution, observing that many of the tenants had spent large sums on their premises in the absolute confidence that their leases would be renewed. It was proposed as an amendment to leave out the special reference to Finsbury-circus, so as to draw no distinction between the occupants in London-wall and in the circus. The Alderman pointed out that the question was not whether there was a difference between the condition of the houses in London-wall and in the circus. After some further discussion the amendment was withdrawn, and the resolution adopted. It was also decided to send copies of the resolution signed by the Alderman to the Bridge House Estates Committee and the Corporation.

"WATER-SUPPLY."—The Sanitary Institute, Margaret-street, W., on the 21st inst., Professor W. H. Corfield delivered a lecture on "Water Supply, Drinking Water, and Pollution of Water." He said that the principle upon which London was obtaining its supply at present was a wrong one. River water was taken, and then those responsible for the supply trusted to filtration to purify it. Distribution might be carried out on the intermittent or on the constant supply system. In the former case the water was turned on for a certain time each day, and receptacles were necessary. Its principal disadvantage was that during the time the water was turned off foul air got into the mains, and thus subsequently polluted the water. With the constant system, receptacles were supposed not

to be necessary; the East-end water famine, however, showed that such a supposition was incorrect. It would seem at first sight that the supply system would give security against contamination, but in practice it was found undesirable to turn off the water at certain times for repairs of pipes, reservoirs, &c., and then the pipes running direct from the mains to water-closets were found to act as suction-pipes drawing foul gas into the mains. This had been the cause of many outbreaks of enteric or typhoid fever. Diarrhoea, and in certain cases, dysentery, were caused by suspended matter in the drinking water. Cholera was caused by contaminated water, and the great outbreak of that disease in East London in 1866 was conclusively traced to the unfiltered water of the River Lea, which had been contaminated by a cholera patient. Millbank Prison was for a long time a hotbed of enteric and typhoid fever. During that period it was customary to dip the water from the Thames flowing past the walls. When this source of supply was given up and water was taken from the artesian wells which now supply the fountains in Trafalgar-square, the disease was eliminated from the prison. Another notable instance was that of a Swiss village. In that case the water, which caused the outbreak, was shown to have filtered through a rock, a distance of a mile.

SURVEYORSHIP APPOINTMENT.—Mr. William E. Weston, F.R.I.B.A., F.S.I., of 7, East India-avenue, Adenham-street, E.C., has been elected to the post of Surveyor to the Worshipful Company of Cutlers. **THE LONDON BUILDING ACT, 1894: TRIBUNAL OF APPEAL.**—On the application of the respondents to the London County Council, and as the result of an interview between the solicitors to the appellant (Lord Llangatock) and the Chairman of the Building Act Committee and the Superintending Architect of the Council, and with the concurrence in writing of the appellant, the hearing of the appeal fixed for last Wednesday stands adjourned *sine die*.

PROPOSED SALES.—At the Mart, on November 3, 1, Cavendish-square, 1, to Margaret, having a return frontage of 21 ft. to Margaret's street (6,300 ft. super), which have long been known as the banking house of Sir Samuel Scott, Bart., &c., now occupied by Parr's Banking Co., who hold under a lease, three and a-half years unexpired, at £500 per annum. The square, *primo* Oxford-square, was laid out in 1718, on land belonging to Edward Harley, Earl of Oxford and Mortimer; the Duke of Chandos, and Lords Harcourt and Bingley were amongst the first who took building plots; one of the first residents was Lady Mary Wortley Montagu. **AT Cambridge, on November 5:** Fen Ditton Hall, with 458 acres, in fifty lots. The hall was granted by James I., in 1605, to the Willys family, and bought, in 1733, by Sarah, Duchess of Marlborough; it afterwards passed to the ducal house of Leeds; in the sale are included the Ditton meadows, on the left bank, well known to Cambridge men as running the riverside of "Long Reach," between Ditton-corner and the Great Eastern Railway bridge close Chesterton. A market, now disused, was granted in 1270 to the Bishop of Ely, who lived at a house in this parish. We read that Mr. H. J. Raphael, of Rosecourt, Havering, has bought, for £1,000, the Gidea Hall estate, near Romford, which holds a rent-roll of 1,200l. per annum. This property, of whose history we gave some particulars in a "Note" on April 1, 1893, formed an asset of the late Liberator Building Society, that Society's estate at Norbury-park, near Croydon, (68 acres), and the dingford and Tilbury Dock, properties have lately been disposed of. The goodwill and assets of the late Skating and Supply Company, with leasehold premises at Knightsbridge were recently bought for £1,000. The Studley Castle estate, of 2,550 acres, with a yearly rent-roll of 3,280l., was sold in thirty lots, on the 7th inst, for 40,643l.; the castle, erected at a great cost in 1833-4 by Sir Francis Goodricke, Bart., and its land, 340 acres, realised 7,450l.

THE SUBSIDENCES AT NORTHWICH.—On the 19th inst. the church of St. Paul, Northwich, was owing to the salt subsidences, closed to the public. A August a portion of the sanctuary floor collapsed. Since then, however, service has been regularly held in the church, as an architect has now condemned the building, as fresh cracks have developed in many parts of the structure. It has been found that the angel is built upon arches which are regarded as secure, and it has therefore been deemed advisable to suspend all gatherings in the church. The roof, in walls, and porch have suffered severely, and reconstruction is imperative.—Times.

THE MEMORIAL BOARD AT WILMS BOARD.—At the Metropolitan Asylums Board meeting on the 26th inst. a letter was read from the Local Government Board asking for information respecting the action of the Brook Hospital, the estimates of which have been exceeded by 64,000l. The Government Department demanded on whose recommendation the contracts had been altered, what services there had been in the matter, and what steps had been taken to require explanation from an architect for the cause of the enormous increase in the estimates.—The Board suggested that the accounts should be submitted to a competent surveyor for investigation. Mr. Brass moved that the whole matter be referred to the Works Committee for thorough investigation. He said that the

estimates of the several contracts had been exceeded by from 21 to 50 per cent. Sir E. Galsworthy, the Chairman, suggested that Mr. Brass should amend his proposal on the lines suggested by the Local Government Board. Mr. Brass agreed to this motion of Professor Smith, to appoint a Special Committee, to be empowered to get expert advice.

THE TYPHOID OUTBREAK AT MAIDSTONE.—The Worthing Town Council have placed the services of their Sanitary Inspector (Mr. C. T. Gardner) at the disposal of the Maidstone Town Council. Mr. Gardner was the Chief Inspector in Charge during the recent epidemic of typhoid at Worthing, when his services were favourably commented upon by the L.G.B. Inspector, Dr. Thompson, who is now engaged at Maidstone, inquiring into the cause of the present outbreak.

KENDALL'S REVERSIBLE WINDOW SASH.—In regard to this patent, noticed in our last, Messrs. Farrar & Co. write to say that they are not the makers but the London agents. The makers are the Kendall's Reversible Window Sash Company, Lea, Birmingham.

ALMS BOX, SNAITH CHURCH, YORKSHIRE.—The addition has just been made to this church of a carved oak alms box. It is bound together by hammered ornamental metal work. The addition is the work of Messrs. Harry Hems & Sons, of Evesham.

LEGAL.

"DANGEROUS STRUCTURES:" IMPORTANT POINT UNDER THE LONDON BUILDING ACT.

THE case of "The Queen v. Mead" came before a Divisional Court of Queen's Bench, composed of Mr. Justice Wright and Mr. Justice Kennedy, on the 26th inst. Mr. Horace Ivory moved on behalf of the London County Council for a rule nisi for a *mandamus* calling on Mr. Mead, the Metropolitan magistrate, to show cause why he should not hear a summons under the "Dangerous Buildings" Clause of the London Building Act, 1894, although it had only been served by being affixed to the premises. The County Council had not been able to find out who was the owner of the buildings in question, and accordingly the statutory duty had been served by affixing it to the premises. The learned counsel said there was no question that the affixing such a notice was sufficient under Section 106 of the Act, but the magistrate thought the summons against the unknown owner must be served personally, or by being left at his residence, as required by the Summary Jurisdiction Act. He (Mr. Ivory) pointed out that the matter was of great importance, as, if the magistrate's view were right, it would be impossible to carry out the Act in all cases of dangerous structures where the owners could not be ascertained.

Their lordships granted the rule, and made it returnable on the 2nd prox.

BUILDING LINE CASE AT BEXHILL: CASE IN THE QUEEN'S BENCH DIVISION.

THE case of "The Queen v. The Justices of Hastings" came before a Divisional Court of Queen's Bench on the 26th inst. In this case proceedings had been taken against a person named Kinnis for not erecting a building up to the building line at Bexhill. When the case came before the magistrates at Hastings last March they were equally divided and the summons was dismissed with costs. Coming two days late to ask for a special case to be stated for the opinion of the High Court, the complainant afterwards asked for a fresh summons. This was granted, and then Mr. Kinnis applied for a prohibition. Mr. H. C. Richards now showed cause against the rule, on the ground that there was no determination of the case, as the magistrates were divided in opinion.

Mr. Ashton, on the other hand, argued that the matter had been decided by the dismissal of the other summons, and that, therefore, the prohibition must go.

The Court discharged the rule for a prohibition on the ground that the magistrates had not acted in such a way, on the first occasion, as to oust their jurisdiction to hear the fresh summons which had been granted.

NEW BUILDINGS ON OLD BUILDING SITES.

At the Westminster Police-court recently, under the 15th section of the London Building Act, 1894, Mr. Marshall, by appointment, was called upon to decide matters in dispute between Mr. Cave, a builder, and Mr. Drury, the District Surveyor for the Westminster district.

Mr. Muir was Counsel for the appellant, Mr. Cave; and Mr. Berry was on the other side for the London County Council.

The point of substance affected the rights of holders of buildings erected upon streets formed prior to the passing of the Act of 1894. The appellant obtained a building agreement from the Crown in respect of buildings situated at Buckingham and Stafford-place, and was desirous of replacing them with erections much loftier and of a much more pretentious character. The District

Surveyor, Mr. Drury, objected to the plans, and gave the builder general notice of the objection, specifying, *inter alia*, that sufficient open space was not provided for at the rear of the projected new buildings.

The argument lasted the greater part of the afternoon, and Mr. Marshall decided one issue only—and that not the point of substance—viz., that the notice given by the District Surveyor was wrong and should have been differently framed.

The builder's appeal was accordingly allowed, with five guineas costs.—Morning Advertiser.

MEETINGS.

SATURDAY, OCTOBER 30.

Institution of Junior Engineers.—Visit at 3 p.m. to the Queen's-road Station of the Central London Railway Works.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Harrison & Barber's Knacker Yard, Winton-street, Whitechapel, 3 p.m.

London and Provincial Builders' Foremen's Association (Memorial Hall, Farringdon-road, E.C.).—Quarterly Meeting, 7.30 p.m.

Northern Architectural Association.—An Excursion Meeting. Members to assemble at Earl Grey's Monument, Newcastle, at 3.15 p.m.

Dundee Institute of Architecture.—Conversation, to be held in the Rooms of University College. Lectures by one or two Professors will be given. Exhibits of Architectural Drawings and other objects.

MONDAY, NOVEMBER 1.

Royal Institute of British Architects.—Opening Address of the Session by the President, Professor Aitchison, A.R.A., 8 p.m.

Carpenters' Hall, London Wall (Lectures on Building and Sanitary Construction).—Professor Banister Fletcher on "Sanitary Construction." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. Osborne Smith on "Principles of Calculating Areas, Cubic Space, &c., Interpretation of Plans and Sections to Scale." 8 p.m.

Society of Engineers.—Mr. Richard F. Grantham on "Sea Defences." 7.30 p.m.

Liverpool Architectural Society.—Mr. Huon A. Mearns on "The Birth and Development of Architecture." 6 p.m.

TUESDAY, NOVEMBER 2.

Institution of Civil Engineers.—Short address by Sir John Wolfe Barry, the President, and presentation of medals and prizes awarded by the Council. Reception by the President in the Library after the meeting. 8 p.m.

Society of Biblical Archaeology.—Biographical record of the late President, Sir P. Le Fage Renouf, by the Secretary, Mr. W. Harry Rylands. 8 p.m.

WEDNESDAY, NOVEMBER 3.

Royal Architectural Institute.—(1) Mr. J. Park Harrison, M.A., on "Carfax Tower, Oxford." (2) Mr. F. C. Hilton Price, F.S.A., on "The Remains of Carmelite Buildings upon the Site of Ye Marygold at Temple Bar." 4 p.m.

Architectural Association Discussion Section.—Mr. H. V. Crawford Smith on "The Interior Arrangements of Churches." 8 p.m.

Institution of Mechanical Engineers.—Ordinary General Meeting. Papers to be read, including one by Mr. W. G. Walker entitled "Experiments upon Propeller Ventilating Fans, and upon the Electric Motor Driving them." 7.30 p.m.

St. Paul's Ecclesiastical Society.—Dr. J. Wickham Legg, F.S.A., on "Two Forms of Linen Vestments seen in North Italy," followed by a paper on "An Early Irish Tract on the Consecration of a New Church," by the Rev. T. Olden, M.A. 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection of Unifaceting and Filtering Appliances at J. Delfries & Sons, Ltd., Hound-ditch, E.C. 3 p.m.

Builder's Foremen and Clerks of Works Institution.—Ordinary Meeting of the members. 8 p.m.

Edinburgh Architectural Society.—Mr. A. N. Paterson on "The Evolution of the House." 8 p.m.

THURSDAY, NOVEMBER 4.

Institution of Mechanical Engineers.—Ordinary General Meeting (concluded). 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. J. Priestley on "Ventilation, Warming, and Lighting." 8 p.m.

FRIDAY, NOVEMBER 5.

Architectural Association.—(1) Mr. S. F. Clarkson on "Classification of Trades"; (2) Mr. H. D. Searles-Wood on "Some New Materials for Use in Building." 7.30 p.m.

Institution of Junior Engineers (Westminster Palace Hotel).—Inaugural Meeting of Seventeenth Session. Presidential Address by Mr. Jobo A. F. Aspinall. 8 p.m.

SATURDAY, NOVEMBER 6.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Richmond Main Sewerage Works, Mortlake. 3 p.m.

South-West Polytechnic Institute (Manvers-road, Chelsea).—Miss Florence M. Gardner on the times of the British Furniture, from Anglo-Saxon times to the end of the Eighteenth Century." 1. 3 p.m.

British Institute of Carpenters (Carpenters' Hall).—Mr. J. G. Clarke on "Waste in Preparation of Joiner's Work." 6 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

21,450.—ORNAMENTING WOOD: E. Finn.—This invention has reference to the manufacture of wood blocks, comprising a base of wood cut across the grain and a surface of wood veneer cut in direction of grain, and affixed to the base by glue, &c. Upon this compound block the desired ornamentation is then impressed.

24,635.—ROOF CONSTRUCTION: F. L. Cook.—In order to provide improved means for trussing a roof against side thrust, inventor adopts in a roof a combination with side plates and a ridged beam of continuous or looped tension

Water-closets.—17,427, C. and O. Law, Reciprocating
Saws.—19,705, F. Hanna, Closet Seat.—20,858, R. Paver
Window Sash Fasteners.

LANCHESTER. Accepted for laying 557 yards of 9 in. pipe sewers with manholes &c at Holmside Village for the Rural

Director Central note. Mr. A. J. E. Parker, engineer, Post Office-chambers.
Non-com on Type —————
C. H. Bell, Banquo Auchland, £158 12 6

LIMAVADY (Ireland).—For the erection of a residence and
offices at Maun-street, Mr. J. E. Proctor, Linavady, Messrs.
W. & M. Green, architects, Diamond, Coleraine. No quantities.—
James W. & Co. £98 10 0 Thorp & McCracken,
John Holmes 812 3 0 Thorp & McCracken,
James Holmes 773 12 4 donderry (edged) £750 4 6

LONDON.—For alterations, and remodeling bars at the "Blind
Beggar public-house, 773 Whitehead-road, E. for Mr Charles
Hobbs, Mr Ernest H. Abbott, architect, 27, Warwick-court, High
Holborn, W.C. £1,000 0 0 Edmund Johnson, 29, Imperial
buildings, Ludgate Circus, E.C. £1,000 0 0
Forham 2,471 1 4 Hall, Biddall, & Co. £1,150
Harper 2,527 T. Russell 1,073
C. M. Murray & Sons 2,445 T. W. Smith & Son 1,933
W. Arnill & Co. 2,500

LONDON.—For the erection of sanitary work at the Hollows
recreation, for the London County Council.—
C. M. Murray & Sons £198 10 1 J. H. Southwell & Son £195 0 0
C. M. Murray & Sons 17 0 0 F. & F. Woods 117 0 0
Accepted.

LONDON.—For painting and repairs at the undermentioned
creations, for the London County Council —————

CANOPY PAINT STATION.
A. A. D. Smith & Sons £271 8 1 W. Maller £85 10 0
Samuel Salt 89 0 0 Fosse & Kentish 85
Macfarlane Bros. 88 5 1

BREWERY PAINT STATION.
G. N. & Wright £63 C. F. Keasley 49 0
L. M. L. Lattiot 39 0 0

CHERRY DRAINAGE PAINT STATION.
L. H. Whitehead & Co. £105 H. Line £91
H. Cooke 140 U. Parkes 95
Tudridge & Day 50

HUCKLEY STATION.
C. M. Murray & Sons £100 C. M. Murray & Sons £100

1. Cooke	£86 13	Tunbridge & Day.....	£50 0
Whitehead & Co.	79 0	H. Line ^b	48 0

H. Cooke	..... £64 15 |	J. Mills	..... £77 0
F. Laphorne & Co.	..... 84 0	R. Harding & Son	..... 76 10
G. Munday & Sons	..... 82 0	D. G. Laing & Son*	..... 73 0

* Accepted.

LONDON.—Accepted for repairs at Nuffield House, Balham
 Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C. 4.
 Somerset & Son* £134

LONDON—Accepted for repairs, &c., to No. 90, Dean-street
John. Mr. Walter J. Ebbetts, architect, Savoy House, 115, Strand,
W.C. —
J. M. Macey & Son.....£286

LONDON.—For a detached house and stable, Pelham-road, Gravesend, for Mr. Joseph Gray. Mr. E. J. Bennett, architect

Libby	£809	Martin	£809
Wuffe	889	Multon & Wallis	756
Dayfield	839		Accepted.

LONDON.—For the erection of stables, mortuary, &c., in Overy-green, Dartford, for the Urban District Council of Dartford. Mr.

LONDON.—For alterations and additions to the "Rose and Crown Tavern" and 171, Windmill-street, Graveend, for Mr. Houghty. Messrs. Eeale & Meyers, architects. Quantities by Mr.

Edison	4.805	W. H. Kraus	3.396
Theron	3.890	W. Tuffee	3.278
Alsh & Son	3.855	Multon & Wallis*	3.247
J. Jarrard & Son	3.528		

* Accepted.

LONDON.—For alterations and additions to No. 5, Whitehall-gardens. Mr. R. Curwen, architect, 149, Bishopsgate-street With-out, E.C.4.

Windsor & Co.	2,700	Hampson & Son	2,355
West & Wheeler	2,682	Hampson & Sons, Limited	2,280
Wm & Sons	2,678	Hill & Son	2,249
T. Chinchin	2,606	E. A. Roome*	2,150
T. Faulkner & Co.	2,556	Kidde & Lilly, Limited	2,051
Watkinson & Co.	2,530	Spies & Son	1,560

* Accepted for £2,100.
[All of London.]

LONDON.—For alterations and new saloon bar at "The Falk" public-house, 66, Falkland-road, Kentish Town, N.W., for Mr. A. L. Garrod. Mr. A. J. Periam, architect, 43, Cannon-

630 Green 585
 [Architect's estimate, £630.]

LONDON.—For alterations and new saloon bar to "The White

Stall & Son	£925	Rhodes, Stoke Newington,	
Mer	889	N.*	£749
Merchant & Hirst	872		* Accepted.

LONDON.—For additions to "The Bunch of Grapes," No. 45,
and, for Messrs. Antist & Son, Messrs. Wylyson & Long,
directs, 16, King William-street, Strand :—

ham	£2.44	Kirk & Kirk	£1.88s
butt	2.2 6	Richards (withdrawn) ..	1.88s
slav	1.80s		

* Accepted.

MANCHESTER.—For the erection of new premises, Mulberry-street, Hulme, for the Grange Park Dairy Company. Mr. E. W. Leeson, architect, 43, Princess-street, Manchester. Quantities by the architect—
 Quarmby & Co. £1,498 0 0
 James Byrom £1,450 0 0
 A. R. Bullivant £1,418 0 0
 Young, Tinker, & Sons £1,407 0 0
 John Bland £1,400 0 0
 Megarity & Co. £1,380 0 0
 R. Whitell £1,377 18 6
 Wilton & Co. £1,385 0 0
 Wick (accepted) £1,385 0 0

MIDDLESBROUGH.—For the erection of a children's hospital and porter's lodge, at the Broomland's, Linthorpe, for the Middlesbrough Board of Guardians. Messrs. R. Lofthouse & Sons, architects, 54, Albert-road, Middlesbrough. Quantities by Mr. H. T. Nelson, Darlington—
 M. Johnson £4,717 0 0
 Allison Bros. £4,503 0 0
 T. Pearson £4,315 11 7
 Hudson Bros. £4,290 0 0
 Bastman Bros. £4,278 13 0
 D. Doughty £4,466 0 0
 W. Peat £4,170 0 0
 Bray Bros. £4,141 0 0
 S. Coates £4,109 3 5
 W. G. King £4,077 14 3
 [All of Middlesbrough]
 * Accepted.

MIDDLESBROUGH.—Accepted for the erection of a shed at the workhouse, for the Union Guardians. Messrs. R. Lofthouse & Sons, architects, Middlesbrough—
 Allison Brothers, Middlesbrough £751

MITCHAM.—For erecting stores and boundary walls on land near Chapel-road, Mitcham, for Mr. Wm. Hollis. Mr. A. J. Periam, architect, 43, Cannon-street, E.C.4.
 Bullard & Co. £1,300 10 0
 Lawrence £1,066
 * Accepted.

NORTHFLEET (Kent).—Accepted for the erection of additional cement kilns for Messrs. Robins & Co., Limited. Messrs. Wyton & Long, architects, 14, King William-street, Strand—
 Kirk & Kite, Westminster £5,000

ORPINGTON.—For decorative repairs to the Village Hall, Orpington, Kent, and for repairs to other properties. Mr. St. Pierre Harris, architect, 8, Cannon-street, E.C.4.
 Frank Giles & Co. £1,483 0 0
 W. R. Taylor £1,377 0 0
 J. Smith £1,300 10 0
 W. Dutoit £1,260
 R. A. Lowe £1,191 0 0
 Somerford & Son £1,135 0 0
 Village Hall only. * Accepted.

ORPINGTON.—For the connection of drains of six private houses at "Cotton," Orpington, Kent, with the new sewer. Mr. St. Pierre Harris, architect, 8, Cannon-street, E.C.4.
 W. R. Taylor £277 0 0
 J. Smith £243 0 0
 W. Dutoit £231 0 0
 Somerford & Son £243 0 0

RENWICK (Cumberland).—For the erection of an obelisk bridge across the Raven at Sickerhill, Renwick, for the Penrith Rural District Council—
 W. Dixon £680 18 0
 T. Taylor £79 15 6
 A. Watson £77 0 10
 W. J. Sewell £771 1 6
 Lightburn & Sons £68 0 0
 Isaac Galt, Ambleside £53 2 9
 * Accepted.

RUGBY.—For the erection of store buildings, New Bliton. Mr. J. F. Franklin, architect, 40, Bridge-street, Rugby—
 Foster & Dickson £1,595 0 0
 Harris £1,590 0 0
 Sutcliffe £1,483 0 0
 Hollowell £1,460 12 6
 Sturgess & Son £1,461 18 0
 Hopkins £1,483 0 0
 Young, Rugby £1,460 12 6
 * Accepted.

RYTON.—For sewerage works at Crookhill for the Urban District Council. Mr. J. F. Dutton, Engineer to the Council, Ryton-on-Tyne. Quantities by the Engineer—
 G. T. Manners £1,141 0 0
 J. Robson £1,119 17 2
 J. Thompson £1,114 0 0
 S. Baine £1,114 0 0
 M. D. Young £1,114 0 0
 W. Sprat £1,119 17 2
 J. A. Touch £1,114 0 0
 J. Nevill £1,114 0 0
 W. Cumming £1,114 0 0
 W. Craig, Gateshead £1,114 0 0
 * Accepted.

ST. MARY CRAY.—For repairs to private residence at St. Mary Cray, Kent. Mr. St. Pierre Harris, architect and surveyor—
 Davis & Leaney £275 0 0
 St. A. Lowe £209 0 0
 W. K. Taylor £209 0 0

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
 TEAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
 HATTON GARDEN, and 29, RAY STREET,
 FARRINGTON ROAD, E.C.

HIS LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
 THICKNESS, DRY, and FIT FOR IMMEDIATE USE.
 Telephone, 55, 74 Holborn. Tele. Address: "SNEWIN, London."

SALISBURY.—For the erection of a sorting office near Salisbury Station, for the Commissioners of H.M. Office of Works. Quantities by Messrs. Welch & Atkinson, 10, Lancaster-place, Strand—
 Allowance for old materials £55 0 0
 George & Harding £3 291 0 0
 Webb & Co. £3 123 0 0
 G. H. Tucker £3 918 0 0
 Wort & Way (accepted) £3 294 17 9

SALT BURN.—For erecting a house in Diamond-street. Messrs. Lofthouse & Sons, architects, Middlesbrough—
 B. & S. & Co. & F. W. M. Gladstone £645 0 0
 Carpentry and Joinery—W. Hickie £13 0 0
 Plumbing, Glazing, &c.—E. Spence £13 0 0
 Slatting—W. Robinson £9 12 6
 Raining—Taylor & Sons £9 4 0

SHIPLEY.—For the construction of the Valley-road cutfall severn, for the Urban District Council. Mr. Makom Pateson, M.Inst.C.E., 35, Manor-row, Bradford—
 A. Braithwaite & Co. £6,760 0 0
 F. Eyre £5,609 0 0
 Rhodes Bros. £5,648 0 0
 Wm. Foster £5,456 0 0
 Wm. Briggs £4,541 0 0
 Matthew Hall £4,448 0 0
 Wilks & Ross, Shipley £4,345 0 0
 * Accepted.

SPALDING.—For erecting a block of three small houses, London-road, for Mr. R. W. Walden. Mr. R. H. Holmes Hand, architect, 4, Double-street, Spalding—
 W. Pick £288 0 0
 Farn & Bone £288 0 0
 J. W. Perkins £288 0 0
 S. Allister £288 0 0
 C. Watson, Spalding £288 0 0
 H. Toddall £288 0 0
 * Accepted.

SWANLEY (Kent).—For the erection of a block of six houses, Mr. St. Pierre Harris, architect, 8, Cannon-street, E.C.4.
 J. Loundie £1,114 0 0
 Steel, Kings & Pannett £1,114 0 0
 * Accepted.

List of tenders published in our last issue, page 337, for erecting a headmaster's house, Whitgift Grammar School, Wellesley-road, Croydon, W. A. Reis & Co. should read W. Akers & Co. The mistake was not ours.

TO CORRESPONDENTS.

W. W. F. (Below our mile).
 NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.
 Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.
 Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who reserves the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
 SLATER and TILER.

ESTIMATES GIVEN FOR
 SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
 Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,
 BETHNAL GREEN, LONDON, E.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 1s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., etc. per annum. Remittances payable to DOUGLAS FOURDRINIER should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, (by prepaying at the Publishing Office, 15s. per annum, 4s. 6d. per quarter), can ensure receiving "The Builder" by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH.
 FOR ALL THE PROVED KINDS OF
 BATH STONE.
 FLUATE, for Hardening, Waterproofing,
 and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Douling Stone Co.
 (Incorporating The Ham Hill Stone Co. and C. Trask & Sons,
 The Douling Stone Co.)

Chief Office:—Norton, Stoke-under-Ham,
 Somerset.

London Agent:—Mr. E. A. Williams,
 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.4.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.,

Sole Agents for

THE "E.R.A." PHOTO. BLOCK CO.

4 & 5, East Harding-street, Fetter-lane, E.C.4. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON, 2, PRINCES STREET, ST. GEORGE'S ST. WESTMINSTER.

"QUANTITY SURVEYORS' TABLES," For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

THE French Asphalte COMPANY.

Suffolk House, Cannon-street, E.C.4.

SUPPLY THE BEST MATERIAL AND

WORKMANSHIP FOR BUILDINGS,

DAMP COURSES, AREAS, ROOFS,

WASHHOUSE AND DAIRY FLOORS,

&c., &c.

This Asphalte was chosen to be

laid at Sandringham, on the new

General Post Office, and other

important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

Particulars on application.

CYLINDERS FOR HOT-WATER CIRCULATION.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL: 6 and 8, HATTON GARDEN.

GLASGOW:

BRISTOL:

47 and 49, ST. ENOCH-SQUARE.

ASHTON GATE WORKS, CORONATION-RD.

The Builder.

VOL. LXXIII. NO. 3857.

NOV. 6, 1897.

ILLUSTRATIONS.

Design for a Painted Frieze.—By Mr. E. Ingram Taylor.....	<i>Extra Large Page Ink-Photo.</i>
Design for a Hotel, Cork.—Sir T. N. Deane & Son, Architects.....	<i>Double-Page Photo-Litho.</i>
Extensions, Panmure Arms Hotel, Edzell.—Mr. T. Martin Capper, Architect.....	<i>Single-Page Photo-Litho.</i>
"Meffan Institute," Forfar.—Mr. T. Martin Capper, Architect.....	<i>Single-Page Photo-Litho.</i>
Wilson United Presbyterian Church, Perth.—Mr. J. E. Wilson, A.R.I.B.A., Architect.....	<i>Single-Page Photo-Litho.</i>
St. Leonard's Church, Turner's Hill, Sussex.—Mr. Lucy W. Ridge, F.R.I.B.A., Architect.....	<i>Single-Page Photo-Litho.</i>

Blocks in Text

West Front of St. Caimin's Church, Inisicaltra	Page 363	Method of Raising the Great Obelisk at St. John Lateran	Page 373
Chancel Arch of St. Caimin's, Inisicaltra	" 363	Gold Ceremonial Key	" 376
West Door of St. Flannan's Oratory, Killoke	" 363	Design for Hotel at Cork.—Plans	" 374
Pennon Priory, Anglesea: Section of Arch-mouldings to South Door of Nave	" 364	Pannure Arms Hotel.—Plans	" 375
Sketches of London Street Architecture.—No. XX.	" 370	Design for Proposed Meffan Institute.—Plans	" 376
		Wilson United Presbyterian Church, Pettib.—Plans	" 376

CONTENTS.

Fellowship Question at the Institute	361	Design for Painted Frames	374	Quantities and Quantity Surveying	381
Sketching	362	Design for a Hotel, Cork	374	Municipal and County Engineers' Examinations	378
Notes on the Ancient Architecture of Ireland.—VI.	362	Extension of Panmure Arms Hotel, Edzell	374	Conduct Mead Estate	378
Notes on the Ancient Architecture of Ireland.—VII.	362	Mellan Institute, Forfar	374	Surveyors' Reports	378
The Royal Institution of British Architects	366	United Free Presbyterian Church, Perth	374	General Principles of Surveying	378
Sketches of London Street Architecture.—XX.	370	General Principles of Surveying	378	Sanitary and Engineering Notes	378
Sketches of London Street Architecture.—XXI.	370	Applications under the 1894 London Building Acts	378	Stained Glass and Decoration	378
Architectural Societies	371	London Building Act, 1894	378	Foreign	378
Archaeological Societies	371	Books: C. H. W. Biggs's "First Principles of Electricity and Magnetism"; E. K. Scott's "Local Distribution of Electric Power in Workshops"; F. J. Burgoyne's "Library Construction"	378	Miscellaneous	378
Engineering Societies	371	Allen's "Practical Building Construction"	377	Capital and Labour	378
Old Cerebral Key	372	Trade Catalogues	377	Meetings	378
The London County Council	373			Recent Patents	378
The London County Council	373			Some Recent Sales	378
A Lyric Club	373				

The Fellowship Question at the Institute.



the recently much-debated question as to what should be the true qualification for election as a Fellow of the Institute, and what kind of honour the title of Fellow should really imply. The question is precluded and partly governed by another—why is the number of fellows not on the increase, proportionally with the number of Associates? One reason for this is of course very obvious. In the earlier days of the Institute the Associates had no power of voting at all, and those who felt any interest in the affairs of the Institute and had any wish to influence them naturally were moved to seek election to the higher grade as soon as they were eligible. The extension of the franchise to the Associates (save and except as to the power of voting on any proposed changes in the by-laws, of course altered all this very much). It was a movement which we had always thought would be accompanied by as many disadvantages as advantages, so far as the higher interests of the Institute are concerned; at the same time it was one which, in view of the extent of openly expressed dissatisfaction which led up to it, may be regarded as having been unavoidable; and no doubt had the effect of pacifying the discontented and of increasing the general interest in and the average attendance at the meetings. The co-ordinate result, however, was that many members who would otherwise have sought election as Fellows became quite content to remain as Associates; they had every ordinary privilege of membership except that of influencing changes in the by-laws, and probably many of them considered, and consider now, that by becoming fellows they would be securing little advantage except that of paying a larger subscription.

This argument, however, can only be fully applicable to those who are content to take always a somewhat modest and middle-class

kind of position in regard to the conduct of the affairs of the Institute. For the revised Charter still ordains that the President shall be either a Fellow or an Honorary Fellow, and that the Vice-Presidents can only be elected from the class of Fellows; and though there is nothing in the by-laws to forbid, in so many words, any proportion of Members of Council being Associates, as a matter of fact it is pretty certain that no large proportion of Associates ever will be elected to any one Council.* It appears therefore, that, to those who have any ambition at all to distinguish themselves as members of the Institute the inducement to become a Fellow is still such as ought to be sufficient, and if a large proportion of Associates who are eligible for the Fellowship decline to seek it, one can only conclude that they are persons rather devoid of personal and public spirit. The President suggests that there would be more Fellows if there were any honour attached to being a Fellow; but at all events, if the Fellowship is not an honour in itself in any special manner, it is the necessary road to the best honours the Institute has to bestow, and it seems to us that to any man of spirit this ought to be sufficient inducement, though we should be very willing to see other inducements added if possible.

The question as to the method of admission of Fellows is considered to be complicated by the fact that examination for admission to the Associate class of members has now been rendered compulsory, and it is argued that under these circumstances election as a Fellow, when a candidate has attained the age and length of practice which entitle him to seek for election into this higher grade of membership, is rendered easier than election as an Associate, and that would-be Fellows are exempted from a practical test which is applied to would-be Associates. At first glance this may seem an anomaly; the Institute in its revised Charter has indeed reserved the power of insisting on an examination for Fellowship after a certain date, and the President urges that this power should be put in exercise as soon as possible. But we doubt either the wisdom or the necessity of this course. It is not very likely that architects who have

* The present Council includes twenty-two Fellows and two Associates, besides those Associates who are *ex officio* members, as being Presidents of Allied Societies.

attained a certain age, and a certain position will be willing to submit themselves to an examination; they will think the period for that has passed; and not unreasonably. A man who has been in practice for some time may claim to be judged by his executed works. The younger men who apply for admission as Associates have for the most part carried out no works of their own, and are in an altogether different position. They are preparing themselves to enter the profession, and, according to the President's own suggestion, the object of their examination at that stage is to a certain extent preventive; it is to keep out those who evince no real earnestness or talent for architecture. The proper check in regard to the admission of Fellows should lie in a larger demand for satisfactory examples of executed buildings, and a more rigorous critical examination of these; and this, we believe, the Council are rather disposed to insist upon. To apply the test of examination to men of comparatively mature age who have been in practice for some time would be to adopt a course which we believe has never been taken in any other society at all analogous to the Institute. It may not be generally known among our readers that the Institution of Civil Engineers have recently resolved on an examination test for Associate members (reference was made to it in their President's address on Tuesday last), and that they have been stimulated to this course by the example of the Institute of Architects. But they have said nothing as to any intention of instituting examinations for Fellowship; candidates for that grade are accepted on the merit of their known works. And if we are rightly informed, the Institution of Civil Engineers adopts what some would consider the high-handed, but to our thinking very reasonable, course, of dictating to candidates for membership, after inquiry concerning their status and work, into which class they shall seek entrance. This is a point worth the consideration of the Institute.

It does not appear to us that Fellowship in the Institute of Architects can well be made a kind of special honour for distinguished ability, any more than it is in the Institution of Civil Engineers. The Institute is, in one aspect, a professional body concerned in mutual assistance in professional matters, and in maintaining a high

standard of professional character and conduct; and in that light a competent architect of high character has a right to expect election as a Fellow, even if he be not a man of genius. Some of those who recognise the reasonableness of this view wish that there should be a third or higher class of Fellows distinguished by some addition to the title, for which only men selected by the Council for special gifts should be eligible. The establishment of such a system would, however, infallibly lead to a great deal of jealousy and ill-feeling, and would again be an exception to the usual practice of any Society of similar nature. But there is another way of conferring distinction on Fellows who have manifested special ability, which is employed in the Institution of Civil Engineers, and which might very well afford a hint to the Institute. The latter gives its annual gold medal to one distinguished person, either within or outside of its own body. But the Institution of Civil Engineers has the power to bestow certain medals every year upon various members who are considered to have earned such distinction. At their opening meeting on Tuesday, for instance, "Telford medals" were awarded to and received by several members of high standing in the engineering profession, as the recognition of some special achievement, which was in each case mentioned as the reason for awarding the medal. If it is desired to give some distinguishing mark of honour to Fellows of special genius or ability, this is a course which we suggest that the Institute might very well adopt, as the engineers have paid us the compliment of adopting from us the idea of examination for Associate membership. It would not entail any serious drain upon the funds of the Institute, for though some of the prizes to students are very suitably accompanied by a substantial gift in money, to assist them in pursuing their studies, such an addition would be both unnecessary and unsuitable in the case of awards to distinguished men of standing in the profession. The value of the medal would consist mainly in its character as a testimony *honoris causa*, and such a system would enable the Institute to give a special mark of honour to those who merited such a distinction, without the invidious process of creating a special class of members to be put over the heads of the other Fellows. We hope the suggestion will be thought worth consideration.

PICKETING.

THERE is no doubt that public opinion is every year becoming more adverse to the system of picketing during strikes. This is not surprising. If there is one thing more than another which the Englishman values it is personal liberty, freedom of thought, speech, and action. It is for this reason that he is so law-abiding, for he respects other persons' liberty as well as his own.

The common-sense of the average Englishman is, therefore, justly offended at the practice of picketing, which, under a thin legal guise, is clearly seen to be a means of oppression, a practice which limits the rightful freedom of individual Englishmen. We have not now to go back to old legal decisions, to what is called common law, to understand this subject, for the basis of the law is now contained in the Conspiracy and Pro-

tection of Property Act, 1875—the seventh section. "Every person," it runs, "who with a view to compel any other person to abstain from doing or to do any act which such other person has a legal right to do or abstain from doing wrongfully and without legal violence, . . . 2. Persistently follows such other person about from place to place; or . . . 4. Watches or besets the house or other place where such other person resides, or works, or carries on business, or happens to be, or the approach to such house or place; or, 5. Follows such other person with two or more persons in a disorderly manner in or through any street or road," shall be liable to certain penalties. Then the statute proceeds, "attending at or near the house or place where a person resides, or works, or carries on business, or happens to be, or the approach to such house or place, in order merely to obtain or communicate information, shall not be deemed as watching or besetting within the meaning of this section." There is nothing to be said against the practical character of the enactment contained in the fifth sub-section, which may fairly be said to cover molestation by following through the streets. But it is equally clear that as regards the fourth sub-section, together with the exception, the same cannot be said. In practice, this enactment and its exception are absolutely contradictory, with the result that the exception enables that to be done which it was the object of the main part of the statute to prevent. A crowd of fifty trades-unionists may stand round the gate of a factory, they may threaten those who are passing in; they may, under pretence of giving information, put on a pressure of an illegal kind, and their very presence may prevent *bona-fide* workmen, anxious to obtain something to do, from entering the yard. It is almost impossible with this "exception" in force to prevent undue pressure from being placed on those who are not strikers. Watching or besetting a house, says the statute, is illegal; attending at or near a house to obtain information, says the exception, is lawful. But the general public perfectly well knows that, under this exception, the very evils aimed at by the statute are permitted, and the public equally well knows that non-unionists and employers will not be on equal terms with unionists until collections of strikers at the gates of works where strikes are in progress are made illegal.

It has been said that the object of the exception was to enable the officials of unions to see if men who were receiving strike pay were also obtaining wages from their employers. It is quite conceivable that it may be reasonable also to allow unionists to hand to non-unionists printed information as to wages and so forth, with a view to alter their opinions and to induce them to join the strikers by reasonable persuasion. But the truth is that the time has arrived when the assembling of more than two or three strikers near the entrance to works in regard to which there is a strike should be made illegal. It is suggested in the book, the title of which is attached to this article,* that the exception should be altered by allowing persons to assemble in order to give or to obtain information, if this does

* "The Case Against Picketing." By W. J. Saxby. London: The Liberty Review Publishing Company, Limited, 1897.

not cause an obstruction on the highway. This amendment would, we think, be futile. It would not be difficult so to arrange that openings were made in the groups round the entrances, or that a certain amount of movement was kept up. Absolute prohibition of assemblies is necessary. *Their only object is to intimidate workmen who are not strike*; they are not necessary for strikes conducted in a purely legal manner. Their abolition would not injure trades-unions, or affect strikes which were conducted on the principles which have been regarded by the public as fair and reasonable. It is true that the recent Labour Commission considered that the existing law, if impartially and firmly administered, was sufficient to prevent picketing from going beyond the bounds of obtaining and giving information. But it is the very difficulty of administering the law as it now stands which condemns the exception upon which we have commented. Nor is there any sound and just reason why the assembling of strikers near entrances to works where a strike is in progress should be permitted.

THE ANCIENT ARCHITECTURE OF IRELAND.

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

BY PROFESSOR BALDWIN BROWN.

VI. (CONCLUSION).*

IN concluding this brief series of papers a word may be said on some questions of chronology. Such questions are not easily settled, yet the discussion of them cannot be avoided. It is acknowledged now by all who have made a study of the subject, that George Petrie and the earlier archaeologists who followed in his footsteps were disposed to antedate Irish buildings, and would often speak of the sixth and seventh centuries when we should rather say the tenth and eleventh. There would be no need to remind readers of this fact, were it not that a false impression may easily be spread abroad by a book that will be in the hands of most visitors to Ireland—the 1896 edition of Murray's Handbook. The editor of that guide, the special excellence of which does not reside in its antiquarian information, deals in his Introduction with the general chronology of Irish architecture in the manner prescribed by the present condition of knowledge on the subject, but in the text he sometimes belies his principles by adopting an old-fashioned and discredited scheme of dating. Thus the reader who has been taught in the Introduction the accepted view that the round towers do not date earlier than the end of the ninth

* In the last paper (*ante*, p. 322) "late Norman altar" should read "late Roman altar," and "Greville" "Greville," while the expression "Norman Duchy" gives rather too definite a limit for the use of the chevron, which in that region of France strays beyond the strict Norman border line. In the previous paper (p. 290) an incidental statement about the use of stone roofs was put too absolutely. The contrast in the writer's mind was that between the double roofs of the Nauls of France and the single stone coverings of the south. Examples of the latter occur also in Scotland, as in the well-known example of Roslin Chapel. The ordinary mediæval spire is really one example of a stone roof. It may be repeated here that many of the peculiarities of Irish structures may be found illustrated in old Scottish or Welsh buildings, though the Irish examples lend themselves best to the purposes of the student. [The foregoing is Professor Baldwin Brown's note, but we should add that the misprints referred to in the first sentence arose from the author's proof being returned too late for press.—En.]



Fig. 33.—West Front of St. Caimin's Church, Inniscaltra.



Fig. 34.—Chancel Arch of St. Caimin's, Inniscaltra.



Fig. 35.—West Door of St. Flannan's Oratory, Killaloe.

ture, is asked on p. 482 of the "Guide" believe that the examples at Kilmacduagh, Trim, and Glendalough, belong to the commencement of the seventh. Such statements as that on p. 284, to the effect that the "cathedral" at Glendalough "is considered have been erected about the commencement of the seventh century, probably by Phelan Saer, the great architect of that day," the remark (p. 467) that St. Flannan's oratory at Killaloe "is said to have been built by St. Molua or St. Flannan" (that is, the sixth or seventh century), are hardly to the standard of instruction we have been used to look for in the modern guide-book. Hence it may be well to refer in this place to the landmarks in the chronology of Irish buildings, for the fixing of which substantial evidence is available.

As was suggested in a previous paper, some of the more primitive ecclesiastical pictures may go back to an early age of Christianity, but since the new religion was imported into the land on its eastern side, it probably took some time to penetrate the remote parts of the western coasts and islands, so that the buildings there will, as a whole, belong to the very earliest period. From the first, St. Patrick and his companions and successors were in touch with Gaul, and from this Romanised region the form of the arch may have been introduced at the comparatively remote period indicated by the oratory of Gallerus. Buildings which show a great technical advance, in which details are still primitive, may be early, because, as we have seen, the arch were from old-time practised and ingenious constructors in stone; while, on the other hand, primitive features may have been retained to a comparatively late epoch, so that their appearance in a fabric is not itself sufficient to place it early in the series. The Irish builders, for example, were evidently proud of their flat-headed Cyclopean doorways, and retained them even when they were perfect masters of the construction of the arch. To take one illustration, if we look at it by itself, St. Columba's House at Iona might well be of the date assigned to it of about 800 A.D. When we note, however, the close resemblance to St. Flannan's, Killaloe, and St. Kevin's, Glendalough, and discern in these last features that are certainly of much later date, the ascription seems more doubtful. The age of many of the smaller structures referred to in the foregoing notes will probably always remain uncertain, but on the other hand it

seems possible to fix an approximate era for a large class of single-celled or nave-and-chancel churches represented by buildings like Killiney (fig. 12) St. Caimin's, Inniscaltra, and the majority of the structures on such sites as Monasterboice, Clonmacnois, and Glendalough. Dr. Petrie thought Killiney and Trinity, Glendalough, were seventh-century productions. We should be nearer the mark in placing them in the tenth or eleventh. This is pointed to by a piece of literary evidence that seems to give a satisfactory result. We are told that a church was erected at Tomgraney, co. Clare, by a bishop who died in the year 964 A.D. Now, the chancel of Tomgraney, which lies among the hills above the southern end of Lough Derg, on the Shannon, is clearly of twelfth century date, but the west front shows us a structure of carefully wrought polygonal masonry with a fine flat-headed doorway of the usual Cyclopean style. There need be no hesitation in placing this part of the building at the date indicated, viz., the middle of the tenth century, and this will give us a fixed point round which other examples may be grouped. Killiney and Trinity have similar doors, but the former is plastered internally, and the latter, as shown in fig. 14, has a wide chancel arch of particularly good construction. It is probably an eleventh century building, while Killiney may be earlier, as its chancel arch is comparatively rude. The church of "Our Lady," Glendalough, in spite of its door (fig. 17) is probably not an early example.

Another indication of date is connected with the name of the famous Irish king, Brian Boruma, who lived at the end of the tenth and beginning of the eleventh century, and seems to have played much the same part in the architectural history of his country that Canute sustained a little later in England. In an interval of respite from the Danish invasions he set on foot a work of restoration, and, as we are told, "made up the churches and religious houses."

It is recorded that King Brian built a church at Killaloe, and also one on Inniscaltra. In both places there exist buildings that might, in part at any rate, belong to his time. At Inniscaltra—the "holy island" on Lough Derg—the principal church, known as St. Caimin's (fig. 33) consists of a fairly spacious nave, constructed of irregular masonry, and lighted by primitive-looking, but not necessarily very early, windows in the south wall, and of a chancel built of

well-squared and fitted ashlar entered through a recessed arch, the piers of which have carved capitals and bases (fig. 34). The west door of the nave is evidently an insertion, and when the drawing of it given in Petrie's book was made it had chevrons carved on the archivolt. The old opinion used to be that the nave is of very early date, while the chancel and west door were added by King Brian, the enriched capitals and bases of the chancel arch being hailed as among the first manifestations of Irish Romanesque. It is more probable, however, that what Brian built was the nave, while the more ornamental parts date about a century after his time. It is true that the chancel arch has no chevrons (though this feature appeared on the west door) and it presents on the whole an early appearance. This is, however, discounted by the fact that enrichment of exactly the same kind occurs at Clonkeen in the adjoining county of Limerick, and there the chevron appears both in the arch and on the angle shafts. Lord Dunraven, who noted the resemblance to St. Caimin's, has given a photograph of this on Plate cxix. of his second volume. This association, together with the excellence of the cutting and fitting of the stones in the chancel walling is quite sufficient to bring the work at Inniscaltra down to the twelfth century. For the year 1007 both masonry and carving would be highly improbable, while the general fabric of the nave, though it might conceivably have been built before Brian's time, would be quite in character with his date. It is constructed, indeed, in much the same manner as the twelfth century church at Kilmalkedar.

Turning to St. Flannan's, Killaloe, we find a building (one with a double stone roof, C¹ in fig. 22) that might date at the beginning of the eleventh century, or even earlier, were it not for its western doorway, shown in fig. 35. There is no sign that this doorway is an insertion later than the fabric, though the present luxuriance of the ivy makes investigation of the point somewhat difficult. Petrie, who saw the surrounding masonry clearly, states that "there is no reason to believe it to be of later date than the other parts of the building,"* and if we accept it as original it must determine for us the epoch of the structure. It is a simple-looking enriched doorway, with jambs slightly inclined and recessed on the exterior for angle-shafts. The cap of one shaft has rudely-cut "Ionic" volutes, the other grotesque animal

* "Ecclesiastical Architecture of Ireland," p. 275.

forms, and they carry a chamfered impost from which start archivolt mouldings consisting of quirked rounds and hollows in alternation. There is no association here with the chevron, but the features of the doorway point to a date not much before the year 1100. Before the chevron was introduced we find these mouldings constantly used for the enrichment of openings both in Normandy and England. Fig. 36 gives the

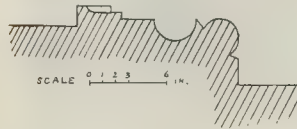


Fig. 36.—Penmon Priory, Anglesea: Section of Arch-mouldings to south door of Nave.

form of them round a door of the Norman church of Penmon Priory, Anglesea, that is in some respects curiously like the door at Killaloe. It is highly improbable that an architectural feature characteristic of the latter part of the eleventh century over the Norman architectural province, should have been invented independently half a century earlier in Ireland. The restoring work of Brian Boruma may have called into being not a few of the fabrics of the numerous churches which we now find in ruins on religious sites such as those mentioned above, but the enriched doorways and chancel arches of the Irish Romanesque style date, at the least, about a century after his time. We must remember that in Normandy itself the few buildings which, like Bernay and Jumièges, belong to the first half of the eleventh century, are exceedingly plain, while the various enrichments of the style come into use gradually at a subsequent date. Their earlier appearance, fully formed, in a distant part of what was to be the Norman architectural province, would be one of those miracles which, as Robert Elsmere remarked, "do not happen." It is no real answer to this argument to suggest that the originators of Irish Romanesque were influenced not from Normandy but from some other part of the Continent that was further forward in the development of enriched architecture, for the abundant use in Ireland of the specially Norman feature of the chevron proves it to belong really to the Norman province. Possible non-Norman influences have been hinted at at the end of the last paper, but these were not really formative of the style.

A final word may be said on the special question stated at the opening of these papers. What assistance do Irish examples afford towards the solution of problems connected with pre-Conquest architecture in England? It may be taken as certain that the Teutonic invaders of this country did not bring with them any traditions of their own of stone building. In some of the churches of masonry that they erected after their conversion they were obviously copying Roman models; but in others we fail to see anything Roman, either in plan or in elevation. Such a church as Escomb is only Roman in certain details; in general character it is entirely unclassical. In dealing in previous papers with the plans of early Irish oratories it was pointed out that they seem to have been evolved naturally in accordance with ecclesiastical needs, and not copied from any

external models. The Saxons and Angles, if they had been left entirely to themselves, might have arrived independently at forms of much the same kind. The newly converted Teutons were not, however, left alone, for they had Irish wanderers going in and out among them in almost every part of the country, and these Irish had at their back a tradition of stone church building more than a century old. Since the early non-Roman churches of Saxon England do, as a fact, possess a general resemblance to those of Ireland, it is reasonable to suppose that this tradition exercised a certain influence in the planning of churches like Escomb. We have seen already, on the other hand, that the imitation of Celtic patterns did not proceed very far. Some characteristic Irish features were not adopted at all, while for some of the more pronounced elements of the Saxon style no Irish prototypes exist. Hence the general result of this comparison is to increase our respect for the individuality of our native Saxon designers and masons. Their work is not, of course, equal to that of the Irish. In construction and in ornament the Irish craftsman showed a genius, both scientific and artistic, far in advance of anything with which we can credit our own forefathers.

Still, Saxon buildings are not Roman buildings spoiled nor Irish spoiled, nor again a mere feeble mixture of both. The problems of pre-Conquest architecture remain as English problems, for, as far as we can at present see, Irish and Continental parallels do not contribute much to their elucidation. There is a peculiarity about some Saxon plans, to say nothing of Saxon details, that is in the highest degree interesting. Saxon architecture has its own individuality and its own elements of force. It is a production the very existence of which used a few years ago to be denied, but which we now see to be one of which we have no reason at all to be ashamed.

NOTES.

A LETTER of much interest and importance was published in the *Times* a few days ago by Mr. Arthur B. Markham, of the Broadoaks Ironworks, Chesterfield. This letter has a bearing upon the entire attitude of Trades Unions to employers at the present moment. The charges which Mr. Markham brings against the Trades Unions of the present day are that they level down good men to the standard of bad, that they cause senseless strikes which produce dislocation of trade and consequently foster foreign competition, that they restrict the production of machines and that they prevent a man from earning his living as an engineer unless he has served his time in the shops as a boy. Many facts are brought to substantiate these charges. We have over and over again pointed out that the trades union of the present day had ceased to be a means for the protection of the true interests of the working man, and had become aggressive in its action to employers and subversive of individuality in the workman. This letter emphasises these allegations, and it shows, as has been often stated, that the greatest danger to English trade exists, not from the actual competition of the foreigner, but from the weakening of English trade in a competitive sense through the demands of the English workman.

The Manchester Sewage Culvert.

By an overwhelming majority the ratepayers of Manchester, on Saturday last, rejected the City Council's Sewage Culvert scheme. Out of about 90,000 ratepayers, only 20,528 voted in favour of the scheme, while 49,069 voted against it, and this after the City Council had issued a strongly-worded circular on the subject. It will be remembered that the Council adopted the scheme some months ago by an insufficient majority, but at a subsequent meeting it was passed by 71 votes against 3. As a result of the adverse decision of the ratepayers, the members of the Rivers Committee, who brought forward the scheme, have resigned in a body, and the Council is placed in an awkward position. Meanwhile a still larger culvert is being advocated for conveying the crude sewage from all places within the watershed of the Mersey and the Awell, and part perhaps of the Dee watershed, to the open sea at Hilbre Island, off the mouth of the estuary of the Dee. This proposed culvert would approximately follow the route of that just rejected by the citizens of Manchester, as far as Warrington, but would then turn in a south-westerly direction by Frodsham to a point a little below Chester, and would then continue along the westerly side of the estuary of the Dee to its outlet at Hilbre Island. The length of the culvert would be about fifty miles, and the estimated cost is 1,600,000*l.*, while branch culverts and other expenses are estimated to bring the total cost up to 2,350,000*l.* This would at all events be a less objectionable scheme than that of turning the sewage of Manchester into the Mersey above Liverpool, a scheme which would never have received Parliamentary sanction, and the ratepayers showed their sense in voting against it.

Electric Lighting in the Strand District.

THE dwellers in the Strand District are getting the benefit of the competition between the Metropolitan Electric Supply Company and the Charing Cross and Strand Electricity Supply Corporation. It will be remembered that when the former company, a year or two ago, opposed the granting of power to the latter to serve the district, they said that they did so for the benefit of the community, and that if competition were allowed, one or other of them would become bankrupt. It looks now as if the Charing Cross Company were proving a very formidable rival to the older and larger company. Their new works in Lambeth are equipped in the most modern manner, and have a plant capacity of 80,000 eight candle-power lamps. They have laid over forty miles of mains in the Strand District alone, and are charging in some cases the very moderate fixed price of 5*d.* per unit for lighting, and 4*d.* per unit for motive power. At this price the cost of electricity is very little dearer—light for light—than gas at 3*s.* per thousand cubic feet, burned in ordinary burners, and as wiring contractors are keeping possible consumers well informed as to the advantages of the electric light, this reduction of price ought to bring a great access of business to the company. As the supply is at 100 volts on the three-wire system there is no danger to the consumer from shocks, and as it is direct current it is excellent for power purposes. We wish, however, that the company would abolish the charge for meter

nts. This charge always annoys the con-
ner, and as the revenue of the company
t year was 12s. 8d. per lamp installed—
hich is the largest in the country, their
nts are surely deserving of every con-
eration.

THE directors of this railway
company (late the Manchester,
Sheffield, and Lincolnshire) seek
an appropriate name for their terminus
the Marylebone-road—described in our
ue of June 26 last. It has been proposed
call it "Boscobel," which seems unkind
view of the fact that the company have
ared the Boscobel-gardens district out of
istence, and of their interference with the
onities of the once pleasant St. John's
od beyond. A better name suggests
elf, "Lylleston," for the terminus and
nts and coal stations are situated in that
ient manor, cited in Domesday Survey as
ng amongst the lands of Ossulston
ndred. The manor, which it appears
luded the now Portman estate, with most
the Eyre estate, continued for long
religious hands, and ultimately belonged
the Hospital of St. John of
usalem, whose priors retained it
il their suppression in 1540. It gave its
ne to Lisson-green and Lisson-grove;
manor-house has been identified with
premises at the corner of Marylebone-
d and Harcourt-street, taken in 1810 for
Queen Charlotte's Lying-in Hospital.
e manor, granted in 1548 to Lord
oughby and Thomas Heneage and
veyed by them in that year to the
ector, Duke of Somerset, finally passed
Captain Lloyd, who sold it in several lots
792—the largest lot, including the manor-
e, being bought by John Harcourt, M.P.
e land, about 270 acres, described as parcel
the manor of Lilestone, which Prior Docwra
sed to John and Johan Blennerhasset—
lease itself affords a very interesting
dy of London place-names too numerous
recital here—was bought in reversion
m their executors in 1532 by Lord Chief
stice Sir William Portman, Bart., whose
use is now represented by Lord Portman.

In our last issue (p. 356, ante)
we adverted to the proposed
demolition—by the Bridge
House Estates Committee of
e Corporation—of some premises in Fins-
ry-circus, Finsbury-pavement, and London-
all. The houses, nearly ninety in number,
and upon about 2½ acres of ground, and
ld a rent of 3,400l. per annum, the leases
piring in 1899. The Committee propose
let the site in five blocks, for which a much
gher rental would be obtained. Finsbury-
rcus was laid out, circa 1820, upon the site
(old) Bethlehem Hospital, which abutted
ainst the north (and outer) side of the
d London Wall: the fields beyond its
orth front, shown in views of the hospital,*
e Moorfields. The building, designed by
obert Hooke, the mathematician, was
ected in 1675-6; it measured 540 ft. by
b ft.; the cells were ranged along two
alleries, extended by the addition of two
wings in 1733. The interior, with some
of the cells, is depicted by Hogarth in
The Rake's Progress," now in the
oane Museum. On the north side stood

the main gates carrying Cibber's two figures
—of stone coated with a preparation of
lead—the "brazen brainless brothers" of
Pope's "Dunciad," which, together with
some instruments of restraint, may now
be seen in the Guildhall Museum: they
were restored by John Bacon in 1820.
At the Foundling Hospital is Hayley's
painting (1746) of the gates. It was
vulgarly believed that Hooke borrowed
his design from that of the Tuileries,
as begun by Delorme, in 1564, and that
Louis XIV. took his revenge. We may
refer to Hooke's somewhat similar style as
shown in the house he designed in Great
Russell-street for Ralph, Duke of Montague,
which Evelyn describes as "built after the
French pavilion way," and in his Aske's
Hospital (1691) at Hoxton, of which a por-
tion, distinguished by its high-pitched roof,
remained until a few years ago*. Montague
House, burnt on January 19, 1685-6, was re-
built by P. Puget (or Poughet), of Marseilles.
The present Bethlehem Hospital, designed
by James Lewis, with Upton as his assistant,
was erected in 1812-5; some additions were
made by P. Hardwick, R.A.; Sydney Smirke,
appointed architect to the Governors in 1838,
added the central dome, with the projecting
portions of the east and west wings, most of
the south wing, the airing-grounds, work-
shops, &c. Old Bethlehem was pulled down
in 1815. It was named after the hospital,
dedicated to St. Mary of Bethlehem, founded
in 1246-7, by Simon Fitz-Mary, Sheriff, on a
site now covered by Liverpool-street Station,
who endowed it with his lands in St.
Botolph's parish, for a priory of canons, with
brethren and sisters. Henry VIII. gave it to
the City, when it was taken as a lunatic
hospital in lieu of one that stood where was
afterwards the south end of St. Martin's-lane,
Charing Cross.

THERE are an extraordinary
number of minor exhibitions
in London this week, among
which the collection of works by Israels, at
the Goupil Gallery, naturally takes the first
place, as an illustration of the work of one of
the greatest and most original artists of the
day. The collection at the Goupil Gallery
includes fifty-four pictures, none of them
large, but all showing the qualities of a master
in art. Perhaps the most remarkable quality in
Israels' works is the manner in which he
seems to evade the mere materialism of lay-
ing on pigments. In such a work as "The
Sheepfold, Evening" (6), for instance, we
seem to lose all sense of paint, we look
right into a landscape lighted with a gentle
gleam. The various pictures in which single
figures, or groups of two or three figures,
pass or stand in front of a landscape, though
as simple as possible in motive, each have
that indefinable unity of sentiment and
colour and composition which renders a pic-
ture in the highest sense a work of art.
Every work in the room is worth looking at,
but one may mention especially "Grief" (27),
a smaller edition of a well-known picture;
"Waiting" (34), with a figure more *spirituel*
in type of face than Israels generally gives
us; "Wading" (43), and the exquisite little
interior entitled "The Evening of Life" (23).

THE water-colour drawings of
"Interiors and Markets in
Normandy and Brittany," by

* Rebuilt by D. R. Roper, 1853-9. A model of Hooke's
building is preserved at Haberdashers' Hall.

Mr. H. S. Hopwood (among which we
observe a few English east-coast scenes are
thrown in), are interesting more in a topo-
graphical and social than an artistic sense.
Mr. Hopwood's style is mannered—it is a
good manner in a water-colour sense, but he
repeats his effects very much. As studies of
the character of the peasantry of a district
and their dwellings, however, the drawings
are interesting and give the idea of being
truthful representations as far as they go
(there is not much detail in any of them).
The best in an artistic [sense are the small
open-air scenes with a good many figures,
such as Nos. 21, 26, 34, and 55. We must
observe that in the few church interiors the
architecture is very badly and vaguely
drawn, and might be anything. Archi-
tectural subjects ought to be properly drawn,
with a knowledge of the meaning of the
lines, or let alone.

Autographs
of Artists.

THE other new attraction at the
Society's Gallery is a very
valuable collection of auto-
graphs. These, as we have already observed,
are not art, and we may pass them over
except a word or two for those of eminent
artists, which have a kind of artistic interest.
These are not very numerous. There is a
characteristic one from Reynolds to T.
Warton, the poet and critic, about some
poem which the latter had dedicated to
Reynolds, who, while expressing himself
much gratified, wishes his name "had been
hitched in the bulk of the poem," as the
title-page might be lost. A letter of Wilkie's
agrees, in its neat and formal but rather
weak writing, with David's canny character.
Among other autographs are letters by
Lawrence, Constable, Salvator Rosa, Barto-
lozzi, Poussin, Coppel, Gustave Doré (whose
letter is decorated with a pen-sketch of him-
self in the part of Othello), and a too
characteristic one of George Morland's, ill-
spelt and in a stiff schoolboy hand, in which
he informs his correspondent that he "was
d—d drunk last night," but had got up
with difficulty at four a.m. to write this
letter, after which "i shall go to Canterbury
to have a look at the races."

The Grafton
Gallery.

THE Grafton Gallery contains
two exhibitions, that of the
"Society of Miniaturists" and
that of the "Society of Portrait Painters."
As to the former there is nothing special to
be said; the Society seems to be doing a
good deal of good work in miniature portrait
painting, nor does there seem much to choose
between one and another example, except
that there are some few which seem to
realise more fully than the rest the delicacy
of colour and execution which should be the
special quality of a miniature. Among
these we noted for mention "Nora" (11) by
Miss E. M. Reeves; a portrait of a lady (100)
by Mrs. Llewellyn; "Baby" (101) by Miss
Pattie Taylor, and "Harold" (103) by Miss
Rosenberg. The Exhibition of the Society
of Portrait Painters contains some atrocious
things, and a good many which can
earn only the doubtful praise of being
clever but eccentric or ugly. Among
works which are out of the ordinary
commonplace of portrait painting, however,
there are some that are very interesting,
notably Mr. Robert Brough's "Portrait" (34)
of a woman half reclining and holding up a
green glazed jar to the light—both in

* See Maurer's view of 1747, and those by J. Nutting
(689), R. White (1690), &c.

regard to line and colour this is a thoroughly original thing. Below it is a fine little full-length by Mr. Lavery of Dr. Lennox Browne (35), and in the same room Mr. Walton's small full-length of Captain Wisely (13) in full uniform shows success in treating a military uniform with brilliancy without hardness. Mr. Greiffenhagen's "Miss Mamie Bowles" (67), a slightly painted three-quarter length, is noticeable for a certain *spirituel* grace of expression and pose, and Mr. Guthrie's half-length portrait of an elderly lady (61) is admirable both in expression and in the colour harmony of the whole. Mr. Jacob-Hood's "Miss Noel" (17) is excellent both in the full and effective painting of the head and the decorative treatment of the background. Among works more within the beaten track of portraiture Mr. Seymour Lucas achieves both dignity of attitude and rich colour in his "Mrs. J. Walker" (114). Mr. Collier has an odd fancy in "Joyce and her Grandfather" (113), a full-length of a young girl with the bronze bust of an old man seen over her shoulder—a pretty fancy a little spoiled by rather hard execution. M. Besnard's big sketch portrait of a lady (126) is a piece of bravura, clever but coarse. Mr. Blanche executes a very pretty imitation of Gainsborough in his portrait of a young lady seated out of doors (130). Among works before known are Millais' "Shelling Pease" (92), in which (as is too often the case with Millais' *genre* portraits), the expression of the face seems to have no connexion with the action of the hands, which was probably determined afterwards; Professor Herkomer's "Madonna" (62), Frank Holl's "Earl Spencer" (59), and some others. It is rather a confession of weakness to make up the exhibition with works of deceased painters or works before exhibited.

At Mr. Maclean's gallery in the Haymarket are to be seen two very fine and interesting pictures by M. Gerôme, painted some time since, representing two of the personages in a Roman amphitheatrical show—the *Retiarius*, after missing his fling at his antagonist with the net, rushing at him with shouts and brandished trident; the antagonist, the *Myrmillon*, in the barbarous-looking costume with the abnormally big helmet, so familiar to us from the Pompeian paintings, awaiting the attack. In each picture a portion of the circle of the auditorium is seen, with the rows of spectators; but this is slightly treated, and forms merely a background to the principal figure, which in each case is painted in M. Gerôme's most finished and powerful manner. The figure of the *Myrmillon* especially seems like an actual figure out of ancient Rome revived, it makes the combats of the Colosseum real to us for the moment. At the top of the room is a great powerful painting by Rosa Bonheur of "Wild Boars in Fontainebleau Forest." There are other works of more or less interest, but the three we have mentioned are quite apart from the rest, and are alone worth a visit.

In the smaller room on entering Messrs. Tooth's exhibition one is surprised by what appears at first sight to be a painting by M. Bouguereau, but to which the name of Elizabeth Gardner is affixed in the cata-

logue. Miss Gardner, an American lady, is now we believe, Madame Bouguereau, and has evidently been the French artist's pupil before she was his wife, and certainly she has reproduced his manner with great success. The collection in the larger room is of considerable interest, especially in regard to landscape. Among the works of this class is a beautiful clear "Spring Morning in Picardy" by Mr. H. W. B. Davis; a fine Dartmoor landscape in a very different style, by Mr. Wimperis, one or two small landscapes by Mr. Leader, which are far better and less mannered than his large one; some by Mr. Orrock of which the same may be said; some good bits of architectural painting by Mr. Logsdail, and a very clever little interior, "Family Cares," by F. Ejsmond, a painter whose name is new to us.

In the solitudes of the galleries in Suffolk-street is to be seen a coloured version of Sir E. Burne-Jones's design for the mosaic in the church of St. Paul in Rome, the cartoon of which was exhibited some time ago in the New Gallery, and subsequently illustrated in our pages. On the whole, this very beautiful design seems in some sense more impressive in the monochrome edition than in colour; the principal figure in the coloured version seems to detach itself too much from the decorative tree which forms the background, and which is beautifully treated. The Gallery of the Society of British Artists is a good place to study it, for there is at all events nothing to distract the attention in the works around it. Why this exhibition is kept up we cannot understand, unless as a refuge for those who cannot get their pictures accepted in any good exhibition. The works that are not mediocre are worse, some of them ridiculous even; and an occasional good landscape, like Mr. Robert Hume's "Haymaking" (353) in the water-colour room, seems quite out of place there. The President exhibits a large and elaborately finished interior of St. Peter's, a respectable work, but devoid of either aerial effect or artistic feeling in the higher sense.

We should have supposed Mr. Chardon, by his surname, to be a French artist, but his Christian name of "Francis" on the back of the catalogue seems to contradict this. His pastels, which are on view at Messrs. Dowdeswell's, consist of views in Italy, Switzerland, and Germany, and show a fine feeling for landscape effect and also for the most part a fine perception of the limits of pastel, in regard to landscape effect, which some who handle the material are apt to lose sight of. Among the best are one with the odd title "Buttercups, with distant view of Naples" (17); "Banks of the Elbe" (28); "On the Tiber near S Paolo fuori le Mura" (51), quite the best in the room to our thinking; "Regrets" (52), a melancholy landscape with a figure at a wayside cross; "Waste land and mountains from Zermatt" (57), and "Corner of a garden, Capri" (71), a straggling mass of flowers beneath a white plastered wall, which has a very real reminiscence of Italy about it.

The Birmingham Architectural Association are evidently prepared to make a firm stand, within their sphere of influence, against the

practice of tempting architects into ordering goods by offers of special discounts. A Birmingham firm dealing in chimney-pieces has been offending in this manner, and the following letter has been addressed to them by the Council of the Association:—

"GENTLEMEN,—We have received copies of your illustrated catalogues, with slip attached, offering 5 per cent. special discount to architects.

We beg to point out that this amounts to the offer of an illicit commission, and that its acceptance is against the rules of the Royal Institute of British Architects and this Association, besides being contrary to the practice of respectable architects, and a most reprehensible and immoral proceeding.

We beg to say we are laying the matter before the Councils of the Association and the Institute, and that we are sending copies of this letter to the professional papers.

CHARLES E. BATEMAN, A.R.I.B.A., President.
HERBERT R. LLOYD, A.R.I.B.A., Vice-President.
Birmingham Architectural Association.

November 1.

We quote this *pour encourager les autres*, i.e., as an example to other local architectural societies.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

PRESIDENT'S ADDRESS.

THE opening meeting of session 1897-98 of the Royal Institute of British Architects was held on Monday evening at No. 9, Conduit-street, Regent-street, the President, Professor Aitchison, A.R.A., occupying the chair.

The President said that since the last meeting one of their members, Sir John Taylor had had the honour of being made a K.C.B., and the least they could do was to thank him for bringing to the Institute one of the very few honours that were accorded to the profession.

The proposal was agreed to heartily. The President then delivered the following address:—

Brother Architects, Ladies and Gentlemen,—When I had the honour of addressing you last year, I chose a subject with which I felt sure you would all agree, as it was the recounting of some of the architectural triumphs of the past, and the pointing out of some of the services architecture has done for those nations where it flourished. These services include the usefulness of the monuments at the time they were built, the adorning of the country, and the keeping of a record of that nation's greatness, of its peculiar characteristics, and of its position in civilisation. I thought that the first utterances of a new President should be as free as possible from controversial matter; but after a year of office the President becomes conversant with the wants and possibilities of the Society. I now propose that we should consider how the Institute can, with a reasonable hope of success, improve the art it was specially created to cherish and advance.

The unravelling of the great problems of humanity and the extraction of the lessons they teach are beset with difficulties, and some of these difficulties are apparently insuperable on account of our ignorance of the factors. Sometimes the glimmerings of light that the most perspicacious can see turn out to be not those of the dawn, but of mere will-o'-the-wisps, as in the case of Machiavelli's works. Machiavelli saw exactly what men did, and was not led astray by what they ought to do, and in the problems he set, he saw the solution wanted, but, misled by the ruthlessness of Nature, he overlooked the supreme importance of how the end was attained; so that the old adage "Let justice be done though everything perish" is a more useful maxim for mankind to follow than to attain its object by wickedness.

We cannot suppose that, among the two Parties who alternately govern us, and help to mould our minds, to direct our aims, and to modify our desires, there are not on both sides upright and devoted men, whose views are as the poles asunder; and it is only by long experience that the value of the measures carried can be judged of.

At the time of the discussion of such measures the partisans of the scheme are as sure of its excellent results as their opponents are of its

icious effects, and as the clashing of the opposing views causes heated, angry, and stormy debates, so I fear that suggestions of improvement may have the same effect on us.

In considering architecture, as in considering any other transcendental pursuit, we must see the existence of two things into account—namely, the set of the public mind and the concurrence of genius, and though we most justly want genius in every branch of skill and knowledge, we have not the faintest notion of the causes of its production. The utmost we can do is to offer it ample opportunities of arising what it wants to learn, and to bestow thanks and admiration upon its possessor when it works.

The other cause of excellence is the set of the public mind in a certain direction; but why sets in that direction is at present unaccountable, though we may roughly indicate that its set is always towards those pursuits which promise power, wealth, and delight. We say, however, say with certainty that in this it does not set in the direction of architecture. If the genius of all the great architects that ever lived were combined in one, that one had the chance of showing it, the architecture that he would produce would have no effect on the public, for the public gets more, in that direction, than it either deserves or deserves almost for nothing, and is perfectly ungrateful. The set of the public mind is so important a factor that we can only overestimate its importance. Men's turn of mind is in the line of that of the public generally, and all attempts at systematic teaching, and proclaim that all schools and universities are mere shoddy-making factories that turn out a colourable imitation from waste.

When in the past there has been a sudden demand by a city or a nation for some kind of knowledge or skill of which there was a scanty supply, the head of that nation or city had no better remedy to offer than the creation of schools, academies, and universities, where the requisite knowledge and skill should be taught or tested, and where it was hoped they might be learned. This was the method adopted by Constantine the Great when he chose Byzantium for the capital of the Roman Empire, and caused to be built there copies of the Senators' houses in Rome, and of their schools in other parts of Italy. We know that in the time of the art of sculpture had so declined that the statues and bas-reliefs had to be taken from Trajan's Forum to form the adornments of his own triumphal arch, and that the sense of propriety had so decayed that there was no cry against such folly; and though there was then a large influx of architects and skilled workmen into Byzantium, the work was so haphazard and so unskillfully done that thirty domes are said to have fallen during his time, and many buildings had to be pulled down in the time of his successors. So apparent was the want of competent architects and skilled workmen, that he offered a premium to those who would have their sons brought up as architects, and to skilled workmen who would up their sons to their own trades. With this object he started schools in Italy and North Africa. May we not say that Santa Sophia, one of the masterpieces of the world, is the outcome of this teaching?

After the irruption of the barbarians in the West there was a great want of both architects and skilled workmen, and the ecclesiastical authorities endeavoured to supply that want by founding schools in their abbeys and monasteries. Again, at the time of the Saracenic irruption there was a dearth of architects and skilled workmen, for these energetic savages came at once from poverty into fabulous wealth, and wanted mosques for their new religion and palaces for their Kalifs, Sultans, and great men; and this want was tried to be met by schools and universities connected with the mosques: and there was again the same want in the days of Charlemagne, and to meet these wants the same methods were adopted. Fancy that all the systems but one offered teaching to all who came, and, I presume, who showed some aptitude; but Constantine, who was certainly an able man, only offered his premiums for learning architecture to young men of eighteen years of age who had received liberal education—whatever that meant then may mean now.

Looking at the enormous extent of the knowledge required by an architect, and the almost antagonistic powers of mind required, would it

not be better to confine architectural teaching to architecture?

As architecture is pre-eminently a constructive art, construction should certainly be its foundation, the very last thing that would be thought of now, for the æsthetic architect would leave that to the builder and the engineer. It seems ludicrous not to insist on an architect who is to build, having such knowledge of statics as to know the proper method of resisting the force of wind, of water, and of earth, and the thrusts of arches, vaults, and domes. Statics would give us, too, important lessons in æsthetics, for it gives us the proper proportions of each part of a building when we know the height, the weight to be carried, and the strength of the material to be used. When these particulars are known and provided for, we may roughly say that we have only to accentuate the important part by mouldings, or have them adorned by the sculptor, to make it into architecture.

The architectural student wants also to know how to plan conveniently and beautifully, to make his building wholesome, and finally to give it the shapes and ornaments that proclaim its destination, and are appropriate to that destination, and "all the rest is leather and prunello." The literary, goldsmithing, painting, and modelling architects of the Renaissance left us one pernicious legacy, for their aim was to imitate Roman architecture, and from their teaching the Gothic revivalists have wanted to imitate Gothic, and the Greek revivalists have wanted to imitate Greek, though the Italian Renaissance architects gave grace and artistic perfection to their Roman models.

This procedure of imitating the construction and æsthetic expression of a Pagan people who flourished 1,200 years before the Renaissance, seems to me to be a mistaken one, for architecture is a progressive art, not only in the scientific part of construction, in the increase of material wants and the introduction of new materials, but also in the æsthetic part; for no two successive generations like exactly the same forms, nor are the emotions that should be raised exactly alike. You certainly should not ignore the advances made in the architecture of the immediate past. Between the Pagans of ancient Rome and the Renaissance there had been Christian Roman architecture, the Byzantine, when the dome took so prominent a part; there had been Romanesque and Saracen architecture; there had been Gothic, which abandoned the opposing of inert mass to thrusts and used counterpoise, and showed a constructive skill never equalled till this age of iron; Gothic, too, had tried to express in its churches its ideals of knightliness and of Roman Catholic Christianity. It was certainly not wise to ignore former advances in construction, and it was hardly possible to go back to pure Roman Paganism, however hard the Renaissance men tried. If we want to advance we must follow the example of the mediaevals; we must study deeply, observe accurately, reason logically, and be never deterred by failure, and endeavour to express the leading character of our time, which, I fancy, is the getting an insight into nature's laws and applying them to our own wants. We must, too, endeavour to discover what in the heavens above, the earth beneath, or the waters under the earth, we and our employers love to see embodied in our works, and how that embodiment should be expressed.

In England we have artificially divided the constant increase of skill and knowledge, and the fluctuation in taste of the Gothic architects, into styles which we call "Early English," "Geometric," "Decorated," and "Perpendicular." I want you to observe that these so-called styles were gradual developments. The first Gothic architects developed the mouldings of the Romanesque; the grouping of two or more lancet windows under an arch suggested a hole in the spandrel afterwards cusped with a new Saracen feature, and so on; and as skill increased and taste decayed the tracery of the enormous perpendicular window grew mechanical and ugly. It is only by increase of æsthetic and constructive knowledge and the development of necessary features that any characteristic features of our own can be stamped on our architecture.

When a race has had enough wit to invent mouldings on which the sunshine of its own country played the harmonies that it loved, how can these mouldings be transplanted into another country, with a different atmosphere and a different sunshine, and produce the same

effect? And if they could, are these the precise effects we want to produce now?

Any one who can appreciate the beauty of mouldings, and has seen Greek architecture at Athens, cannot fail to observe how absolutely ineffective these mouldings are in the misty atmosphere of London, particularly when there is no sunshine. The only other architects who understood the art of moulding were those of the Middle Ages, after what we call Gothic was developed; their mouldings are perfectly effective in misty weather, but are too coarse and hard when there is full sunshine, while they are at all times wanting in grace. Yet I may say that the art of moulding is as much neglected now as the science of statics.

No one can give genius, nor does it seem in one man's power to turn the desires of mankind in the direction he desires. You can, however, try to drive away from the professor, by a thorough examination, all those who do not love architecture better than anything else, and though this love does not always ensure the possession of genius, it mostly does. Having got the proper sort of men, you can see that they have that necessary knowledge and skill that would enable them to use the divine spark properly if they have it.

Ben Jonson repeats Horace's adage that "the poet is born and not made"; but he adds, for all that, a poet wants a good deal of making, and it is the same in all the fine arts. In painting and in sculpture the student with a passion for either does not come fully armed, like Athené from Zeus' brain; anatomy has to be laboriously acquired, as well as the power of drawing or modelling the perfect human form; the art of composition has to be learned, as well as what sculpture and painting can properly represent. Architects are not born with a knowledge of statics, nor of the strength of materials, nor of the art of planning, nor of how to express the emotions that each particular structure should evoke; though we now see ornaments from the palaces of the Cæsars, or from the boudoirs of Renaissance beauties, lavished on tailors' or oyster shops and on banks and insurance offices. I have seen the ghastly ornaments of Roman temples, bullocks' skulls, on a bank, but I looked on these as the symbol of the architect.

The Institute is a university—i.e., it does not teach but it examines, and informs students what they should know and where some of this information can be got. Amongst some of the ideas of teaching is almost a mania, and I admit that some things must be taught; the pronunciation of foreign tongues, the use of a foil or an oar; but as far as I know, the art of teaching is mainly non-existent. My experience of school teaching is this: I was put under a man who had mastered the subject I had to learn, and who was armed with a stick. He told me to learn a piece out of a book, and he allowed me what he thought was enough time to learn it in. If I did not know it, I was soundly beaten, and without doubt this is a great stimulus to exertion. Lucian, of the Dialogues, was supposed to have a taste for sculpture, but his master thought he had not striven enough, and as he had broken a piece of marble too, gave him so severe a beating that he abandoned the art.

Unfortunately, no real text-book has been written on architecture, though all but how to produce the emotions proper to any structure may be picked up from various books. Those architects who can produce the proper emotions have something else to do than to explain the means they employ, even if they could explain them. And the knowledge, too, of the means used to produce emotions will not give the power to produce them, or else all the real critics of æsthetics would be poets, painters, sculptors, architects, or musical composers as well. You cannot suppose that those artists who have excited emotions have not tried to learn all they could from their predecessors. In the case of the poets at least we know that they have studied the works of their predecessors, and translated them when in foreign tongues, and paraphrased them when in their own; and though Horace's maxim is excellent, that "if you want to make your hearers cry, you must cry yourself," yet even when he did cry, he had to learn the precise mechanism for causing his hearers to weep. Architects must study and paraphrase those buildings and those members of buildings that have produced the proper emotions in them. An architect must also recollect that those who are to be moved by his building are not Greeks, Romans, Mediaevals, nor Italians of bygone ages, but

the people of his own time. Still, if you can touch the master chords of humanity, they are not so very differently attuned now from what they were in the earliest times, or else we should not laugh at the wit of Aristophanes, of Rabelais, of Swift, or of Molière; nor cry over the pathos of Homer, Æschylus, Sophocles, Dante, or Shakespeare.

We can at least see that an architectural student has the knowledge that he cannot properly do without, and we shall find this alone will have a very good effect on the profession; but it is almost impossible to divest men's minds of cant. The student is asked to know all sorts of things, some of which are interesting, some pleasant, and some dull, that have no bearing on architecture. It is interesting enough to know that hazel nuts were shipped at Barcelona and currants at Patras, but we use neither dry nuts nor currants in architecture; it is pleasant enough to understand Greek, Latin, Hebrew, and Sanscrit; French, Italian, German, Spanish, Portuguese, Russian, and Arabic; but they are no more architectural arts than the broad-sword exercise or being able to shoot flying. It is interesting enough to know who built the Parthenon, or the Pantheon, or King's Cross, but it is no more architecture than playing on the fiddle or dancing the polka.

We believe that Nature perfectly adapts all her living works to the actions they have to perform without waste of material; and while some are exquisitely beautiful, some majestic and some comic, others are commonplace, and some are repulsive, hideous, or frightful; but they all have character. It is only by studying Nature's works and former buildings, and deducing laws from them, that we can hope to cultivate that sense which makes us like one form and detest another, so I think that such a study is necessary for those who wish to become architects; for though a knowledge of statics will make our buildings safe and prevent a want of due ratio between the parts, we must trust to a cultivated eye, till the laws are discovered, to make them beautiful, majestic, or sublime. We should, I think, make our students first design in old-world materials, wood, brick, stone, and marble, so that their designs can be compared with the existing successful monuments; but we have new materials which have to be brought within the pale of architecture.

In my opinion we cannot do better than make students design in cast-iron when they have succeeded in designing in the old-world materials. It is too expensive a material to disregard its static conditions. It is difficult to arrange a column or a stanchion so that its capital may securely carry a heavy superstructure with a large base. It is difficult to make the base of this column or stanchion wide enough to transmit safely the weight it bears on to a foundation of much softer material; there are difficulties in the design of mouldings and floral ornament that can be cast; and there are absolutely no examples to imitate, so that the knowledge, care, skill and invention of the student are called into play. We cannot believe that the ingenious mediæval architects would have foregone the use of such valuable and powerful materials as wrought iron, cast iron and steel, on account of Mr. Ruskin's objection that they were not mentioned as building materials in the Bible.

It may be truly said that nothing can be effected in a structural art like architecture by talking; but when a man is lost in a wood, and you can direct him to the road out of it, you have done him most effectual service. Architecture has been in a wood since the fifteenth century, and it can never progress until it gets out of this wood. The intelligent architectural student wants to know the mark he is to aim at, and how he may hit it; and I am afraid the general opinion would be that he is to learn to sketch in perspective, and when he asks what he should sketch, he would be told everything that appears to him interesting, striking, or beautiful, because when he gets into practice he will find that the public may ask him to build in any style the world has known. A good instance of the ignorant instructing the wise! He should be told that he has first to learn how to construct, and that the aim of architecture is to make of each building an organism like Nature's, fitted to fulfil its duties as perfectly as possible without waste of material, and to make it properly tell the tale of its purpose or purposes, and that if sculpture and painting can be afforded, he is to use them to tell its tale more completely.

When the Associate's curriculum is amended I would reduce the examinations to two—a matriculation examination and a final one, for two reasons: first, because time would be saved; and, secondly, so that each student might keep up the knowledge and skill he had acquired. Professor De Morgan used to say that when an examination was passed, the students thought all the knowledge required for passing it might be forgotten, and looked on his asking again for subjects they had once passed as a fraud, as if they were asked to pay a second time when they had the receipt for the first payment. The final examination should include a certificate that the candidate has acted as clerk of the works on some building for at least six months, to familiarise him with real work, and to impress on his mind that it is building and not drawing that is wanted. These amendments would greatly improve the condition of architecture; but architecture would be more improved if there were an examination for Fellows as well. The complaint is that there is a dearth of Fellows, and a proposition is made like that adopted by the giver of the Scripture feast, that we should send into the highways and by-ways and compel them to come in. There would surely be no need of compulsion if it were felt to be an advantage and an honour to be a Fellow. It has been said that eventually every Fellow must have been an Associate, but the present conditions of the Fellowship offer a way to escape examination. No one, I imagine, objects to see really distinguished architects being admitted by acclamation; but at present there are only three real qualifications for the Fellowship—that the candidate is thirty years of age, is honest, and has been seven years in practice; though it is true that the Council look at the drawings turned out of his office. Some one said of a Prime Minister in Cobbe's day that he was honest; to which Cobbe replied that no one would take a footman if honesty were his only qualification, and put this question: "Shall that be the only qualification for a Prime Minister?" No one can say that physicians or surgeons do not desire and do not strive to be Fellows of their respective colleges, or that both are not better for having learned the necessary elements of their profession. The only objection to a proper examination of Fellows is that it is absurd to expect it from men of thirty years of age who have been seven years in practice. The physicians and surgeons saw the force of this, and though the examination may take place at twenty-one years of age, the title cannot be assumed until they are twenty-five. The Fellow's examination should only be more complete than that of the Associate's; and the candidate should have a certificate of having acted as a clerk of the works for a year, and made out the necessary full-sized diagrams for the work on the floor.

I have only one remark to make before I give my peroration. I am rather surprised that architects do not see that degrees of excellence are possible in architecture; or, if they do see it, that they do not act on their convictions. The greatest living architects are contented with the same remuneration for their work as the apprentice just out of his time, and merely seek to get into a wholesale business. This greatly helps to degrade the profession in the eyes of the public, and gives a very wrong impression of the facts, as every architect well knows. Thousands of public monuments have been erected in Europe since the Golden Age of Greece, not to speak of important private buildings; yet the Parthenon and the Caryatid Temple on the Erechtheion have never been equalled since, nor the interior of the Pantheon, nor the west front of Notre Dame at Paris, nor the Cornaro-Spinelli Palace, nor the Scuola di San Marco, nor the town hall of Brescia.

In all the other fine arts the first successful effort brings its author next to nothing, but those produced in the height of his skill and knowledge mostly bring him wealth, if that be his desire. The great Diogenes was a beggar, and Jean François Millet, the one artist in Europe according to the Japanese, was in poverty; and so was Alfred Stevens. Every architect knows that in the case of architectural works of moderate size it is a question if he is to gain or lose a five-pound note; and the more care he takes the more certainly is the balance on the wrong side. The fashionable architect with a hundred buildings has a difficulty in persuading the profession or the public that he bestows the same loving care on each of his hundred buildings that he would do if he had only two,

and is apt to provoke the retort of the lioness to the beasts in Æsop's Fables. "There was a great stir made among all the beasts, which could boast of the largest family. So they came to the lioness: 'And how many,' said they, 'do you have at a birth?' 'One,' said she grimly; 'but that one is a lion.'"

I cannot help desiring to see the pursuit of architecture followed on sound principles, nor can I forget the absence of any system in the youth; for then, after you had drawn out examples of the Greek and Roman orders, genius was supposed to do the rest. I am delighted at the admiration of our smaller domestic architecture by our great morning newspaper, *The Times*, and by M. Paul Sédille in his *L'Architecture Moderne en Angleterre*; but I wish to see that admiration extended to our great public buildings as well.

One sees to what lengths a proper architectural education may lead from mere savagery in the architectural triumphs of the Middle Ages. If the true architectural high road could be again found all might hasten to the goal, and not be like the dragon's teeth which the stones were thrown into the middle of them. Who knows that in the case of the right road being found the public might not again take a passionate interest in the excellence of our art as it must have done at the great epochs? Modesty is a charming virtue in all, and especially in those of great intellectual endowments, but if this modesty is only to make us idle and worthless, let us throw it off. Let us no longer say we are so inferior to the ancient Greek, Roman, Byzantine, Saracen, Mediæval, and Renaissance architects that it is no use trying to equal them. Have we relinquished our courage, daring, and self-reliance that once distinguished our race? If we have, we must be contented to lag behind the rest of the world. If we are not equal to former races, and particularly to the Romans we so much resemble, I believe it is because we have got into a wrong road, and I would rather see architects take up the position of an Ambassador at the Court of the father of Frederick the Great, than be ready to confess that the English are hopelessly inferior to the great architectural races. Frederick William, as you know, had a regiment of giants and paraded them in front of our Ambassador and asked him if he thought an equal number of Englishmen could beat them? The Ambassador said he could not say that, but he would undertake that half the number would try. "Lords and Commons of England! consider what nation it is whereof ye are, and whereof ye are the governors: a nation not slow and dull, but of a quick, ingenious, and piercing spirit; acute to invent, subtle and sinewy to discourse, not beneath the reach of any point, the highest that human capacity can soar to. Therefore the studies of learning in her deepest sciences have been so ancient, and so eminent among us, that writers of good antiquity and able judgment have been persuaded, that even the school of Pythagoras, and the Persian wisdom, took beginning from the old philosophy of this island. And that wise and civil Roman, Julius Agricola, who governed once here for Cæsar, preferred the natural wits of Britain before the laboured studies of the French."

I firmly believe that the race has not degraded, and that if we will only again take up the right way of learning we shall astonish ourselves and the world. May I not say—

"Men, my brothers, men the workers, ever reaping something new;
That which they have done but earnest of the things
that they shall do?"

To those who are not architects I may say that if you will devote yourselves solely to money-making and feasting, architecture which mirrors the condition of nations at the time it is executed will certainly languish; for the admiration it should excite and the gratitude it should call forth is the very breath of its nostrils. It cannot, however, be said of the nation now that it is without aspirations, for there never was a time when so many were striving to penetrate the secrets of Nature, and the past acts and thoughts of man, and trying to yoke the power of Nature for man's use, and to teach and elevate their fellow-man and his helpmeet. To women more liberty has been granted than Mary Wollstonecraft asked for, and they have achieved even more than she hoped for. But all these studies and pursuits rather throw our contemporaries off those primary delights that Nature gave to raise, to

place, and to purify mankind—I mean the beauties of form and colour and the impressiveness of light and shade. But if these lessons be neglected, we shall leave behind us but a poor account of ourselves in those arts which strike the eye and impress the imagination. We have, too, unfortunately abandoned the symbolic, the emblematic, and the allegorical, so that we can tell no story to the eye by which the multitude may be impressed. It is foolishly believed that a paragraph in a newspaper or in an Act of Parliament will tell the same story and make the same impression on the multitude that can be made by a fine building adorned with storied and allegorical sculpture, and painting such as we see in the Arch of Titus or Severus. The humble procession, poor as it was as compared with Mantegna's "Triumph of Julius Caesar," told more of our power and extent of empire than all the history that has been written in this century. Recollect what an obtrusive art architecture is, and how strongly it forces itself on the attention; how long it lasts, and how it forces people to come to see it in its own country. If you would only think that it is the story of the present power and cultivation of the people you would at least learn enough about architecture to be able to judge of its excellence as you do about the other fine arts you love, and be as proud of its excellence and as delighted with it as you are with the pictures, statues, poetry, romances, and musical compositions of the day, and when you do like the same interest in it you will certainly have your reward.

Mr. H. H. Statham said that in rising to propose a vote of thanks to the President for his address he might, perhaps, suitably address himself rather to the meeting than to the Chair, and he was sure he should carry the meeting with him in saying that it was very seldom that they had listened to a Presidential address from that chair which contained so much weighty and important thought upon the art and profession of architecture comprised within such comparatively short limits. The address might be considered as divided into two main subjects, viz., what the Institute could do, and, in the broader sense, what could be expected from, and what could be done by, modern architecture. As regards to what the Institute could do, the President had put before them very forcibly the true object of the examinations in architecture, but which there had been a good deal of controversy; he considered them as having a preventive value. They did not want people as architects who had no real love of architecture or wish to do the best with it; they were sentinels to keep them off, and to keep with them those who really loved the art and meant to put their hearts into it. Then he had referred to what a student of architecture is advised to do—viz., to sketch in perspective, and sketch everything that was beautiful. He (the speaker) had often felt that the practice of sketching, as carried on by architectural students, was not without its danger; the sketching of details of ancient work led to the desire to introduce them somewhere, especially since, as the President said, the public might want details of every known style. He would suggest that the measuring and drawing out of construction of old buildings was really a far more important training to young architects than the sketching of their exterior appearance, and was more likely to lead them in the right way. With regard to the architectural education question, the President had rather cast a slur upon the literary part of the examinations when he said it was very well to know a number of languages, but they were not architecture. No, they were not; but it was just as well an architect should not write to one that his building was designed "in the style of fourteenth century." He had had that twice from architects in large practice. Architects should be a well-educated body if they were to be regarded with respect by the public. He came now to the larger subject of the address, what architecture is, and how we can improve it. There were one or two points upon which he did not quite feel with the President, who, he was sure, was not one to wish for the empty compliment of a blind agreement. With regard to the remark that statues would fix for us the height of a building, the weight to be carried, the kind of material to be used, and that we had only to accentuate the important parts by mouldings to produce architecture, he would ask, was not the plan of a building the central artistic idea, after all?

We had a very fine example of that in what he had always considered to be our greatest modern building, namely, the Houses of Parliament. It was easy to say that the detail of the Houses of Parliament was only a repetition of Tudor detail. So it was; that was what was thought right at the time. But did not the real excellence of the building consist in that grand conception of the plan, and the grouping of the two towers and the central spire? The central idea was the plan, and that was really a form of art just as much as the detail of the building. Then the President had always, as they were aware, had a very strong opinion as to the importance of giving our minds to the treatment of new materials, especially iron. Now it seemed a very neat way of putting it to say that the Egyptians had a granite architecture, the Greeks had a marble architecture, the medieval architects had a stone architecture, and we had got iron; but, after all, did not all those ancient materials—granite, marble, stone—belong to the same family? They were all natural materials. You could not quite put iron on the same footing with them. It was to some extent an artificial material, artificially prepared; moreover, it had to be painted in order to preserve it from the weather. You could not obtain with it anything like the broad expression of what he called the "stone" materials. Supposing that a client wanted a mansion in the middle of his ancestral park, amid his old oak trees, and the architect offered to build it for him in the most advanced construction of iron and concrete, would he not get from his client what the people in the little comedy, "The Two Roses," got from their patron, "a little—check" (spelt the wrong way)? Then, again, was iron a monumental material? We did not know that yet. The engineer of one of the greatest iron constructions in this country had said to him—"With proper care, I do not see why it should not last five centuries." But what was five centuries to architecture? Look at the Pantheon, look at Santa Sophia, and, if they put aside the destructive work of man, he might say, look at the Parthenon, for it was only owing to the zeal of the Byzantine Christian and the bombshells of the unspeakable Turk that the Parthenon was not at this moment what they would call on the stage "a practicable temple." They could not be content with a monumental material that was only to last five centuries; therefore he thought that the parallel between iron as a new material, and the old stone materials, was open to serious question. Then when people said that these great engineering works like the Forth Bridge were the great modern works, that they were to this age what the cathedrals were to the fourteenth century—well, these engineering works were striking and grand in their way, but they were not built with the object of being beautiful; the cathedrals were, and that was a most important difference. We must hold strongly to the idea that architecture, although based, as the President reminded them, on construction, had for its real object the producing of beauty appealing to the imagination, and could not be compared in that way with works built for purely utilitarian objects. Speaking of the present day and the chances we had of producing anything great, he thought that the so-called nineteenth century (as somebody spoke of it), was too much abused. There was a story of a Roman Catholic bishop on a visitation, who, in one of the churches he visited, thought the people looked depressed and melancholy, and in the privacy of the vestry he said, "Father —, do you know I think you curse these people too much." In like manner he thought we cursed the nineteenth century too much. When it came to be looked back upon from a future point of view, it would be seen to have been, not a mean or small, but a very remarkable epoch, which had led to a great many new forms of thought, to an enormous advance in science and in a knowledge of the laws of nature, and to have been a great literary era; but it certainly was not, as the President said, a great architectural age. Perhaps one could not have everything at once, but he had no sympathy with those people who, like the late William Morris (he did not mean to speak with any disrespect of him, but he was a pessimist with regard to architecture), kept saying, "Architecture is dead! Architecture is dead!" What was the good of standing with their hands in their pockets and saying, "Architecture is dead"? Why not try to make it live? If people would only try to give

their minds to each problem that came before them; if, instead of laying hold of the details of some past style, they would think, "What have I got to express in this—how can I make it a symbolism of something?" they would find themselves really accomplishing something, and more perhaps than they expected. In the words of the French sculptor, Rude, "La grande chose pour un artiste, c'est de faire"—to be producing something; and if they kept that before them, looking upon architecture as a symbolism of what they desired the building to express, instead of going to the past for symbols, they would be able to do something—perhaps not so elaborate as the Renaissance of Classic or Gothic, but something which would illustrate the exhortation given by the poet:—

"Oh, thou sculptor, painter, poet!
Take this lesson to thy heart—
That is best which lieth nearest:
Shape from that thy work of art."

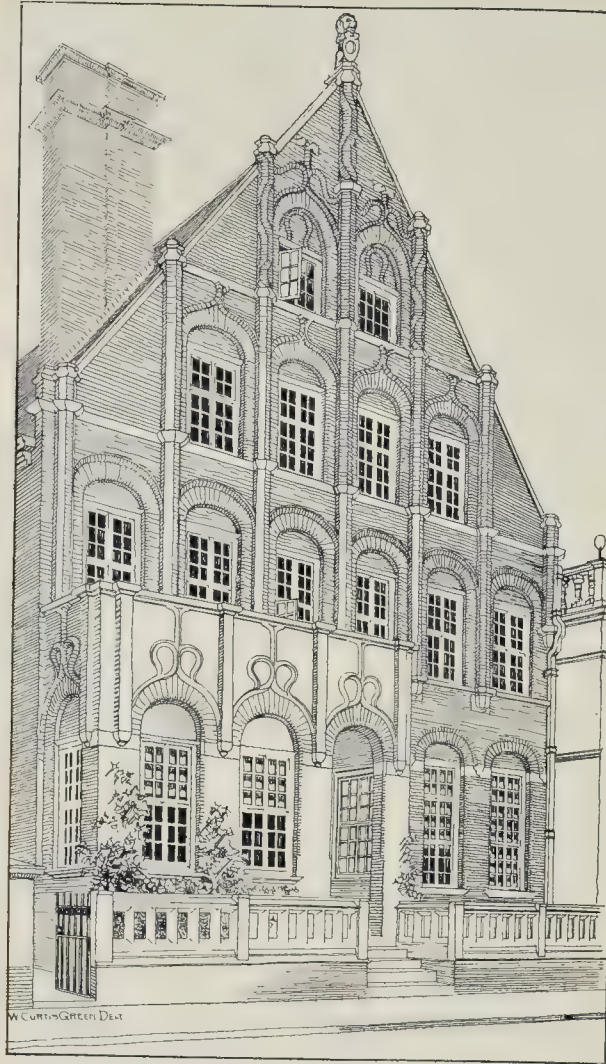
Dr. Murray, in seconding the vote of thanks to the President, said that, upon the question which the President had chosen for his address, viz., "The Education of Architects," no one was better qualified or better entitled to be listened to than he. As to the Final examinations, his (the speaker's) experience was that most examinations had a tendency to be final; but the President had accompanied his views on the subject of education with a running commentary, sometimes entertaining and meant to be so, but mostly leading up to some general remark, sententiously expressed and deserving to be treasured. Dr. Murray then quoted some of the President's remarks. How much, he said, was expressed by the words "without waste of material," most of them, whether architects or not, knew well, and knew to their cost. But he thought the danger of wasting material was perhaps more imminent to architects than any other professions, because of the endless variety of the taste or want of taste they had to consult. Or take another instance.—He found it difficult to recall to mind a more impressive statement of fact than that which occurred in the sentence at the close of the address. "Recall," said the President, "what an obtrusive art architecture is and how strongly it forces itself on the attention; how long it lasts, and how it forces people to come and see it in its own country." It had always been true, and never more so than now, that great architecture forced people to come and see it in its own country. A long, tedious, and expensive journey was nothing if a sight of the Parthenon were the goal. But this readiness to admire the charms of other and older countries must bring with it the aspiration to erect in our own works which shall, in their turn, keep alive the memory of the men of our own day. It was in urging this that the address seemed to be most eloquent. They all knew the fascination which Greek mouldings exercised on the mind of the President when they were seen in the sunshine of Greece. He did not suppose the President would, because mouldings lost so much in our atmosphere, banish them entirely from our shores; many of them would be sorry if that should happen, because, ineffective as Greek mouldings might be in our climate, they still retained and displayed much of their unique beauty. He remembered one day in the Acropolis of Athens when a fragment of egg moulding, high up on one of the corners of the Erechtheum, struck him as if the small row of eggs had become resolved into drops of dew, the sun glancing on them with indescribable beauty. We could not have startling effects of that kind in this country, but we could live in hope that some architect might yet find an equivalent inspired by what he had seen in Greece.

The vote of thanks was agreed to unanimously, the President briefly replied, and the meeting terminated.

The next meeting will be held on the 15th inst., when Mr. A. S. Flower, M.A., F.S.A., will read a paper on "Renaissance Architecture in Malta, with special reference to the Buildings of the Order of St. John."

STUDENT'S COLUMN ARTICLE.—This week our Student's Column article ("Quantities and Quantity Taking," Chapter XVI.) is unavoidably held over until next week.

SCHOOL, ADIEWELL, EDINBURGH.—A new Senior School has just been erected at Adiewell, for the West Calder School Board. Mr. James G. Fairley, Edinburgh, is the architect.



Sketches of London Street Architecture.—XX. No. 43, Harrington-gardens.
Messrs. Ernest George and Peto, Architects.

LONDON STREET ARCHITECTURE.— XX.

NO. 43, HARRINGTON-GARDENS, S.W., is a house with an interesting but simple frontage, built entirely of brick. It was carried out from the designs of Messrs. Ernest George and Peto in 1883.

THE BIRMINGHAM ARCHITECTURAL ASSOCIATION.

THE first meeting for the present session of the Birmingham Architectural Association was held on Friday last week. Mr. C. E. Bateman, the President, delivered the opening address, in the course of which he said—

"If we are to search for the true spirit of architecture we must look deeper than at the mere arrangement of the materials, grouping, and details of a building to obtain from it as a work of art the full degree of pleasure and interest it can afford; we must look upon it as the outcome of the characters of those who created it, influenced, as it is certain to be, by the characteristics of the owners, constructors, and designers, and by the spirit of the times in which they lived.

The character of the architect stands out, perhaps, as the most evident, because, in the nature of things, he is more in touch with its conception, having to see it in his mind's eye from the earliest stage throughout to the completion. An architect's own house with its furnishings perhaps gives us the clearest insight into his own character, although, from an artistic point of view, it is frequently one of the least satisfactory of his works, owing to the want of some dominating idea such as a client often expresses by his instructions, and really requires, by the force of his special circumstances. What human characteristics are displayed in many of our modern buildings? They have all the commercial spirit of the times in which we live; business needs are held to demand that every foot of ground area shall be utilised by careful planning, while supports are minimised by the use of iron and steel work to the utmost degree possible; even upon the surface this characteristic is visible, advertisement is written all over and permeates the costly pretentiousness of its architectural treatment. Would so much money be expended upon the façades if there was no such business justification as to call public attention, backed by the desire to go one better than the

tradesman opposite? We should not indulge in futile lamentations over this spirit of the age; on the contrary, it remains for us as artists to turn it to account. There is no reason why the spirit of trade competition should not prove a gain to us instead of a disgrace. Look at Belgium and see what was accomplished in its towns and cities through the agency of commerce three hundred years ago. To the modern architect Belgium may prove a most valuable class-room where we may study the architectural results of similar conditions to those which we are subjected at home to-day. The country is of the same temperate as our own; the people were also of a trading and sea-faring disposition, the towns were early developed on lines which have been followed since; thus, they were the first to solve the shop window and narrow frontage problem in crowded streets.

How much do the buildings in the square at Brussels appeal to us, not to mention those at Bruges, Ghent, and other cities of commercial enterprise. If the Great Fire has given us an unequalled treatment of churches in the Renaissance through the genius of Wren, what have we not lost in suggestion for our smaller commercial buildings?

Literature has been defined as "thought expressed in words," and so may architecture be defined as "thought expressed in material." Take whatever building we will erected for some definite purpose, and we find that purpose expressed, either consciously or unconsciously.

Thus a church, a Roman Catholic building, or a chapel, cannot be mistaken for more than a moment, however much disguised; even a High or Low Church ritual finds expression, as it has been said that churches such as our own St. Albans, Hoar Cross, St. Augustine's, Kilburn, and St. Augustine's, Pendlebury, will be a monument to the ecclesiastical revival.

What a contrast there is between, say, Northampton Court, which we went over on the excursion this year, and some other country houses, the former the home of the squire, the latter the show place of the parvenu.

The factory, the shop, the theatre, the office block, all bear upon the surface the purpose which caused their erection, and which is independent of the style adopted for the elevations, and arises from the individual requirements that have governed the plan, influenced the arrangement of door and window openings, and often dictated the materials and style of treatment employed.

The architect's skill is proved by the way in which he handles these elementary conditions of the problem which it is for him to convert into means of artistic effect.

What a chance there is to be grasped in the much neglected factory. In these the ordinary materials might be disposed in large masses and surfaces, so as to produce the effect that strength and industry produce upon us, such an impression as we receive in the contemplation of the outcome of the concentrated efforts of many human beings directed towards one end.

When we detach our minds from what daily experience has made familiar, we realise the power and skill that a great factory represents.

It has been said that architecture is the art of pleasing, and if this is so the question then arises, who are we "to please"—the general public, or the more limited number of educated persons of cultivated and refined taste?

Let us include "to satisfy" as well as "to please, and then I think we might be able to serve both masters. In the arrangement of the building we ought to satisfy the requirements of the building owner representing the public, while by its graceful expression of construction by the proportion and detail we must please the higher authority.

I think it is not a bad plan to take some great architect as our master, and, without copying too exactly his work, which we should study on paper and in reality, ask ourselves the question if he would meet the problem in this or that way, and if he would be pleased with our solution and rendering, and in course of time our own capacity and individuality will make itself manifest.

We must never be down-hearted when we hear our efforts run down by the uninitiated, or ever elated by their praise, because so often neither their praise or blame is worth considering; but it is a great help to obtain and accept, without irritation, a true criticism from a higher authority than ourselves.

Hero worship, being a national characteristic, goes very far to make our buildings

ary in the way they do not where—as in France, say—the student is meshed in the traditions of the Ecole des Beaux-Arts, an Academy run by the State. Excellent in many ways as is the national system of the French, it is, however, far too cramping and narrow in its sympathies, and there is little or none of the independence of thought characteristic of English work.

With us each man is doing what he likes, which has at least the charm of variety and personality, even if the result cannot be understood by the French visitor.

Those who grumble and allege that there is to be prevailing style in England at the present time forget the one great influence which was at work during the Gothic period, and which affected all building. This was the power of authority of the Church. All the money that was not wanted for fighting was invested in the Church as a premium for insurance against purgatory, and also mainly for the maintenance and glorification of the priesthood. So soon as this was broken up at the Dissolution, how rapid and complete was the change. Property becoming vested in private ownership, individual character and enterprise became manifest, and commercial relationships with other countries developed step by step until it became the one pervading object which exists at the present time, and we now see that the considerations of trade govern our home and foreign policy, not only in the declaration of war, but even in negotiations for avoiding it.

One of the great factors of our life, and which we cannot withstand if we would, is the part which is played by mechanical contrivance. The engineer has become part of our everyday existence. In almost every department he supplies the wants and comforts of national progress. Who can realise the outcome of the application of steam and electricity? These discoveries in themselves create new wants, and these wants dictate fresh methods of construction—that element which has been, and ever will be, the fundamental principle of real beauty in architecture.

The first thing we were told in our Latin grammars, and which we all remember, was "Balbus is building a wall," but, in future it will be "Balbus is fitting a wall." Consider, for instance, the real facts of the employment of iron and terra-cotta—what is it but fitting? and so it will and must go on while present conditions last, until eventually building will be for the most part nothing but fitting.

I have no doubt that if only peace and wealth continue to be accorded to this country, and some method introduced for the avoidance of strikes, which are practically civil war, with the artistic capacity of all students fostered and drawn out, some beautiful style of building will be produced, based upon this constructive element. We are, however, now in a transitional stage and do not know quite where we are; thus the most extraordinary results are produced by the compelling force of new problems, while at the same time we continue to employ forms and details from buildings erected in other ages and climates and under entirely different conditions, and are disappointed that we do not realise the unattainable atmosphere of ancient work.

Our work must of necessity be English, fulfilling the requirements of Englishmen and an English climate, constructed by English workmen and criticised by educated English people; we should therefore hold, in the first place, to English prototypes, and, I think, in this lies the great value of the summer excursion of our own and the London Association, together with the visits to old and new buildings.

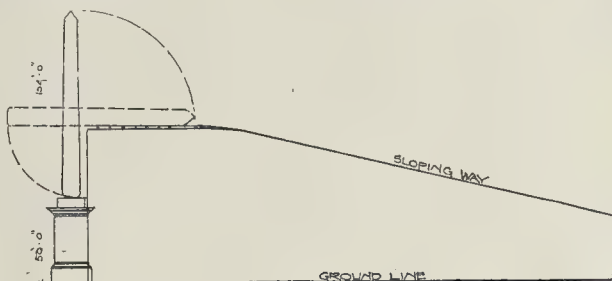
It is of the utmost importance to study present day architecture, and which is facilitated to so great a degree, because who ever heard of a member of the Association refusing to grant permission for us to go over his buildings and learn how his mind was brought to bear upon the site, materials, and instructions of his clients. It is in this way more than in any other that we shall be able to build up a national style or method."

BUSINESS PREMISES, IPSWICH.—An addition has just been made by Messrs. Frederic Corder & Son to their drapery establishment in Tavern-street, Ipswich. From plans prepared by Mr. J. S. Corder a new building has been erected in the rear of the shop, and in direct communication with it. The principal apartment is on the first floor; the dimensions are 40 ft. by 26 ft. The basement forms a stock-room and kitchen; on the second floor a work-room is placed, and above this are several bedrooms. The structure has been built by Messrs. T. Parkington & Son, Ipswich.

ARCHITECTURAL SOCIETIES.

THE LIVERPOOL ARCHITECTURAL SOCIETY. —At a meeting on Monday of this Society, Mr. Willink, President, in the chair, Mr. Huon A. Matear read a paper on "The Birth and Development of Architecture." The lecturer began with the cave dwellings, and described how architecture and design first began to dawn upon mankind. His idea is that the first columns or supports were made in wood. The roofs or entrances to the caves giving way would naturally be supported by what was nearest to hand, namely, trees. One or more would be placed across the opening, and others placed to support these, which became columns. These eventually became ornamented by the artistically inclined. Eventually stone beams and columns took the place of trees. He then described the various "styles" or orders, which were illustrated by limelight views, about twenty-

doors, but when those windows and doors became enriched, architecture began," his theory being that, no matter how plain, if the building were well proportioned and perfect in outline, that was architecture. Mr. Matear invited a discussion as to the mode in which the great Obelisk at St. John Lateran was raised on end, it being 104 ft. high, standing on a base 50 ft. high, and weighing 600 tons. Mr. Thicknesse suggested that a hole was dug, and the Obelisk dropped in, Mr. Matear's idea being that a sloping way was made up to the base, and extending in height above same to the central weight of the Obelisk. Then, by means of ropes and innumerable labourers, the Obelisk was drawn up to the top, then canted over and dropped on to the pedestal, after which the sloping way was removed. (We are indebted to Mr. Matear for the diagram showing this method.) A vote of thanks was proposed by the President, and seconded by Professor Simpson, and carried.



five in number, and touched upon the most important buildings in Egypt, Rome, Naples, Assyria, Athens, &c., and terminated with a brief introduction to the Early Christian architecture. Time prevented him from entering upon a description of many of the other buildings of interest, such as the basilica or hall of justice, public places, &c., but he could not pass without alluding to those majestic buildings called the thermae or baths. They were used for bathing, lounging, athletics, and also for lecture halls, and for general intercourse—practically a club. Some of them accommodated 1,600 bathers, and measured 730 ft. by 380 ft. Alluding to St. George's Hall, Liverpool, he said: "This building is almost an exact reproduction, both in scale and design, of the great hall of Caracalla's Bath, but with five bays instead of three. Such a glorious building as St. George's Hall is never likely to be repeated, on account of the hard and fast commercial requirements of the present day. I should like to digress here for a moment or two. You have all, no doubt, spent hours and days in this magnificent building, of which not only Liverpool but Great Britain, and I might even go so far as to include the world, cannot produce the equal from an architectural point of view. The architect who built it was and is looked upon as a master, but when you come down to the hard facts, it makes us in the nineteenth century look small; for after all these hundreds of years of civilisation and learning, there is in this building, which is held up as a model, not a single moulding or detail of any description, nor even the actual design itself (modified only to suit the altered requirements), that appeals to me as being original. But Elmes was a great artist, inasmuch that he was able to copy. To be a great architect one must first learn by heart the classics (a child cannot play the piano until it has mastered the scales), and so on he must study the various styles down to the late Gothic, before he is able to twist and turn these various styles to suit the requirements of the site and the various objects for which his building is intended, and it is positively dangerous for him to attempt any originality in any style of architecture until he has spent years and years in the hard and earnest study of the architecture of past ages." After the lecture there was a very good discussion, some half-dozen members taking part. Professor Simpson did not agree with the lecturer in his saying that the first columns or supports were in wood, or that stone was made to imitate wood. He also differed on the point that architecture was not "the mere compiling of bricks and mortar with holes for windows and

ARCHÆOLOGICAL SOCIETIES.

NEWCASTLE SOCIETY OF ANTIQUARIES.—The monthly meeting of the Newcastle Society of Antiquaries was held on the 27th ult., at the old Castle, under the presidency of Mr. Richard Welford. A considerable amount of correspondence re the old Peel Tower of Doddington was read, amongst which was a letter from Lord Tankerville, to the effect that he thought the tower was not worth preserving, as it possessed very little interest, antiquarian or otherwise. Surprise was expressed at the decision of Lord Tankerville. Mr. W. H. Knowles said it was a very picturesque ruin. It had a very good parapet, and there was also a very fine staircase. Altogether it was one of the very few perfect examples of a Peel tower in Northumberland. In answer to the Chairman, Mr. Knowles said 50l. would completely preserve the remaining portion of the tower. It was agreed to write to his lordship, pointing out the fact, and asking him not to pull down the remaining portion, and calling attention to the comparative small cost of preserving it. Mr. Knowles then read a paper "On the Ogle Monument, Bothal Church," which formed the tomb of Ralph, the third Ogle, and Lady Margaret his wife.

ENGINEERING SOCIETIES.

INSTITUTION OF CIVIL ENGINEERS.—At the first ordinary meeting of the seventy-ninth session of this Institution, held on the 2nd inst., the President, Sir John Wolfe Barry, K.C.B., delivered a short address to the members, dealing with various matters concerning the present and future welfare of the Institution. After expressing his appreciation of the honour conferred by his election a second time to the Presidency, and having addressed the Institution at length last year on engineering, past and present, he preferred this year to confine his remarks to matters of a domestic nature affecting the home of the profession and the welfare of the members. He referred to the increasing duties devolving upon the Council in proportion to the growth and importance of the Institution, now numbering on its roll 7,075 persons. In expressing his thanks to the members of the Council for the cordial support accorded to him as President, he desired that the numerous advisory and other services rendered to the body corporate by its members in all parts of the world should be recognised at large, as it was appreciated by the Council and Executive, who fully realised its value in the conduct of affairs. The President proceeded to refer to the engineering

Conference, held by the Institution in May, the estimated attendance at which was 850. He thought it would be acknowledged that the interest exhibited in the numerous subjects brought forward for discussion, in which upwards of 300 speakers took part, and the fact that 2,000 tickets of admission were applied for in respect of the visits arranged in connexion with the gathering, justified the Council in believing that it had given general satisfaction to the members. The division of the Conference into seven sections, representing more or less distinct lines of engineering thought and practice, afforded a useful means of meeting the overlapping of ideas and treatment in the various departments of engineering activity embraced by the Institution. Reviewing the subject of the examinations recently instituted, the President pointed out how they were intended to show that candidates for election into the class of Associate Members were acquainted with those general principles which had always been and must be recognised as the basis of the engineering profession, and also to make clear that each candidate possessed a somewhat fuller scientific knowledge of the elements of the particular branch in which his special training had lain. Although an advocate of examinations for the purpose of ensuring the possession among those who entered the Institution of proper qualification in respect of theoretical knowledge, the President desired to avoid being understood to claim for such knowledge one whit more than its real worth in the equipment of an engineer. Practical knowledge was no less necessary now than formerly, and in the engineer's office, in the workshop, and on works of construction, and there only, could a young engineer learn by experience to modify and correct theoretical conclusions by practical considerations. The examinations had not been instituted in lieu of other qualifications set out in the by-laws, but in addition to and supplementary of them. In the case of persons whose experience and attainments were such as to entitle them to the grade of full member, no question of examination arose under the provisions of the by-laws, and the Council had power to deal with exceptional cases of candidature for Associate Membership also without examination. The President had every confidence in the future advantage to accrue to the Institution from the step now taken, and whilst at the outset no doubt there might be some special cases in which the Council might wisely exercise the discretionary power vested in them, he believed such cases would gradually diminish in number, and disappear altogether. After referring to the accommodation for the ordinary work of the Institution afforded by the new premises, the President alluded to the advantage that might be enjoyed in the possession of a great hall for gatherings of a special character, with the adjunct of a museum of engineering materials and models. Whilst having regard to the expenditure already incurred in rebuilding, the Institution itself might not be justified in entertaining such an idea, he hoped that the Institution might some day possess a hall not inferior to those which had in late years been erected by the munificence of the donors of the Bute, the McEwen, and the Usher Halls at Glasgow and Edinburgh.—After presenting the medals and prizes awarded by the Council for the last session, the members and others attending the meeting were received in the library.

INSTITUTION OF MECHANICAL ENGINEERS.—A general meeting of the Institution of Mechanical Engineers was held on Wednesday at the Institution of Civil Engineers, Great George-street, Westminster, when the chair was occupied by Mr. E. Windsor Richards, President. A paper on "Propeller Ventilating Fans Driven by Electricity," intended as a supplement to one read in the spring before the Institution, was delivered by Mr. William George Walker. The author has since his first paper given further attention to the subject, and carried out additional experiments on the subject of propeller or helical form of fan, and the results were placed before the meeting. One of the directions in which Mr. Walker pursued his experiment was as to the number of blades most suitable. The six-bladed fan was tried first, and then the alternate blades were removed. Each fan was 24 in. diameter and the blades were all flat, and set at an angle of 30 deg. to the plane of rotation, and all exactly alike in shape and area

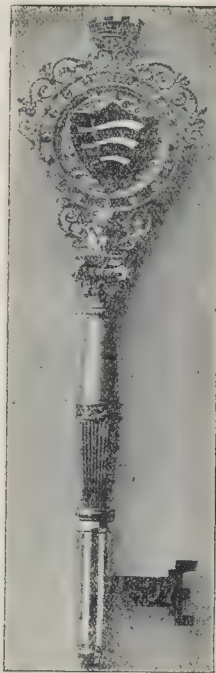
for each fan, the fans being driven at 600 revolutions per minute by belt from a shunt-wound motor. The six-bladed fan discharged 2,350 cubic feet of air per minute, while the three- and two-bladed fans discharged 2,535 and 2,140 respectively, their volumetric efficiencies being 62 and 67, and 57 per cent. These experiments resulted in the decision that very little or no advantage could be gained by increasing the number of blades, and that the mechanical efficiency of the three-bladed fan was the highest. The conclusion was also arrived at that the velocity of the air passing through a fan should be as low as possible, the diameter being as large as practicable, while the pressure of the air passing through the fan should be as small as practicable. The feature of propeller ventilating fans was that they could be made to comply as nearly as possible with these conditions. Further, while a 2-ft. centrifugal fan with free discharge delivered 1,995 cubic feet at 1,324 revolutions per minute, giving a mechanical efficiency of 52 per cent, and requiring 1.92 horse-power, therefore discharging 1,039 cubic feet per minute per horse-power, an air propeller of the same diameter had been shown to give 5,400 cubic feet per minute per horse-power. In the course of his demonstrations with apparatus at the close of his paper, Mr. Walker showed that the power of the fan was increased by round backs, and that for purposes of ventilating a room, and for only that purpose, induced draught was better than forced draught. The position of the motor to drive the fan depended whether the fan was working with a contracted or free orifice, the best position being generally found to be at a little distance in front of the fan. A vote of thanks was afterwards accorded the lecturer.

SOCIETY OF ENGINEERS.—At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on Monday evening, Mr. G. Maxwell Lawford, President, in the chair, a paper was read by Mr. Richard F. Grantham, entitled "Sea Defences." The author first referred to the rapid development of watering places on the coast, and the large sums of money spent in their protection against the inroads of the sea; and to the loss of land in other parts by erosion. He observed that the sand and shingle freed by this erosion became the most important elements in the defence of the coast line. The removal of the drift for trading purposes therefore should not be allowed, and in many places has been prohibited. The forms of defence against the encroachment or overflow of the sea were divided by the author into three classes:—1, embankments of reclamation areas; 2, upright stone or concrete walls; and 3, groynes of timber, stone, or concrete. The walls of Canvey Island, which are sixteen miles long, were described as typical of the first class. The wall fronting the Thames is four miles long, and its outer slope, the inclination of which is 32 and 44 to 1, is pitched with stone, which at the most exposed portion is 40 ft. broad. The top of the wall is 18 ft. above Ordnance Datum, and the high water of spring tides rises from 11 ft. to 12 ft. above the Datum. The author stated that upright walls ranging in profile were usually built at seaside watering places. An upright wall caused a lowering of the shore in front owing to the scour induced by the impact of the sea against the wall, which thus gets undermined. Several examples were quoted. The function of a groyne is to deflect the waves, so that the drift may be deposited and retained in the vicinity of the groyne. The object of the deposition and retention is to gradually raise the level of the shore, which thus becomes a defence against the scouring action of the waves. Groynes erected on the Ligurian coast of Italy, and on the Yorkshire and Sussex coasts, have stopped the encroachment of the sea without the aid of longitudinal walls. A system of low light groynes recently adopted at Dymchurch and New Romney has been beneficial in raising the level of the foreshore. The points to which especial attention was drawn are (1) the importance of the littoral drift for defence, (2) the necessity of groynes in certain situations, (3) groynes as the sole means of defence.

PROPOSED TOWN HALL, EASTLEIGH, HANTS.—It is proposed to erect a Town Hall and Council Offices at Eastleigh, at a cost of about 4,500l. The plans for the building have been chosen by the District Council out of a series of three prepared by their Surveyor (Mr. J. Evans).

GOLD CEREMONIAL KEY.

The key here illustrated was made by Messrs. Charles & Frank Smith from the design of Mr. Rowland Plumbe. The handle is of gold with an enamel shield bearing the Middlesex crest; the working portion of the key is of steel. The key was, of course, made for an opening ceremonial, in connexion with



Gold Ceremonial Key: designed by Mr. Rowland Plumbe.

the new buildings of the Middlesex County Asylum.

We cannot but regret the introduction of the architectural capital, so constantly misapplied in this way on key designs, but at all events the shaft is not made in imitation of a column, which is a point gained.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loan.—On the recommendation of the Finance Committee, it was agreed to lend the Metropolitan Asylums Board 131,273l. for hospital buildings.

The Metropolitan Water Act.—A long discussion arose on the report submitted by the General Purposes Committee in reference to the Metropolitan Water Act, 1807, which provides *inter alia* that complaint as to the quantity or quality of the water supplied by a Company for domestic use may be made by any consumer or Local Authority to the Railway and Canal Commission which, if it is satisfied that the complaint is well founded, may order the Company to remove the ground of such complaint, and also award damages to the complainant. It was decided by fifty-seven votes to forty-two that all questions arising under the Act should be dealt with by the Water Committee.

The Cost of Ludgate Hill Widening.—On the report of the Improvements Committee, which recommended "that 16,020l. should be contributed by the Council for the widening of Ludgate Hill, between St. Martin's-court and Pigram-street."

Mr. C. Harrison, M.P., proposed an amendment to refer the matter back to the Committee; but, after discussion,

The amendment was rejected by 57 votes to 50, and the recommendation was agreed to,

with the addition of words to the effect that the contribution should only be paid on an admission in writing from the City that it should be taken as a final settlement of all outstanding claims on the Council for improvements in the City.

Proposed Leicester-square Improvement.—The improvements Committee recommended a vote of £1,500. towards an improvement on the north side of Leicester-square, to which the Grand Board of Works proposed to contribute £500.

The Rev. F. Williams moved to refer the recommendation back, on the ground that the proposed improvement was merely local in its character.

Colonel Ford seconded the amendment, which was opposed by Mr. Emden and Major Robyn (who remarked that it was proposed to construct a circus a little to the east of the improvement, and that consequently there would be an increase in the traffic to be expected), and supported by Mr. Dickinson.

Upon a division the Council adopted the amendment by 47 to 37 votes.

Russell-court Playground, Strand.—The Parks Committee reported with regard to the Russell-court playground, popularly supposed to have been the churchyard described in "Bleak House." The Duke of Bedford contemplates carrying out some improvements in the district, including the formation of a new street across the playground, and his agents had been in communication with them, with a view of ascertaining whether the Council would consent to the removal of the playground to another site, and give their assent to an application being made for a faculty to enable the land, which was the dissolved burial ground of St. Mary's, to be used as part of the new street. They had now received a communication from Mr. Stutfield, of the Bedford estate office, to the effect that a faculty had been granted enabling the burial ground to be converted into a road, and that he was prepared to carry out the improvement; and also asking the Council to give up possession of the land. They had also received further letter from Mr. Stutfield, stating that when the negotiations for the improvement were commenced he was informed that the playground was the property of the Council, and on that assumption Messrs. Beadell & Co. were instructed to offer the Council another site for a playground by way of exchange; but subsequently transpired that the owner of the fee was the Rector of St. Mary-le-Strand, and that the Council had only a short tenancy of the land, and accordingly Messrs. Beadell & Co. opened negotiations with the Rector and churchwardens, and terms of purchase were arranged with them, which terms had been embodied in the faculty; and that as the Council had nothing to convey the question of substituting another playground had dropped, the committee regretted the loss of this children's playground, which was much used and of great service; but in the circumstances there was nothing left for the Council to do but to return the ground to the charge of the owner, the Rector of St. Mary-le-Strand. They recommended, "That the caretaker in charge of Russell-court playground be withdrawn, and that the keys of the ground be returned to the Rector of St. Mary-le-Strand."

The Vice-Chairman (Mr. Alderman Beachcroft) said he hoped that the matter would not pass without further information about the circumstances of the case, which seemed extraordinary. He understood that the Duke of Bedford had paid the Rector, who was a freeholder, £5,000, and the Metropolitan Gardens Association £500, but, at any rate, he thought they should have more information before the recommendation was adopted.

Mr. Wetenhall, the Chairman of the Committee, withdrew the recommendation.

Plans and Notices of Drainage Works.—The Public Health Committee recommended and it was agreed—

"That the Parliamentary Committee be instructed to insert clauses in one of the Council's bills of next session—(a) Authorising the Council to make by-laws requiring persons about to construct, re-construct or alter drains in connexion with buildings to posit with the sanitary authority such plans and particulars as may be necessary for the purpose of certifying whether such construction, re-construction or alteration is in accordance with statutory provisions and with any by-laws made under section 12 of the Metropolitan Management Act, 1855; the proposed by-laws to be subject, for the sake of uniformity, to the provisions of the same Act. (b) Authorising the Local Government Board the powers of the Secretary of State under sections 202

and 138 of the Metropolitan Management Act, 1855, and section 83 of the Metropolitan Management Amendment Act, 1862; and providing that by-laws under those sections shall require confirmation by the Local Government Board, and not by a Secretary of State."

District Surveyor for North Battersea.—The report of the Building Act Committee contained the following paragraph, the recommendation being agreed to—

"The Council, on November 10, 1896, consented to the appointment by Mr. H. J. Hanson, District Surveyor of North Battersea, of Mr. J. A. J. Woodward to act for one year as Deputy District Surveyor for the district, the state of Mr. Hanson's health being such as prevented his carrying out his duties efficiently. Mr. Hanson has asked that this arrangement may be allowed to lapse at the expiration of the period named; but we are of opinion that, in the public interest, it is advisable that the arrangement should be continued for another year. The section (142) of the London Building Act, 1894, which permits of the arrangement, provides that 'if any district surveyor is prevented by illness, infirmity, or any other unavoidable circumstance from attending to the duties of his office, he may, with the consent of the Council, appoint some other person as his deputy to perform all his duties for such time as he may be prevented from executing them.' This appears to us to be a case which the section was intended to meet; and we recommend that the consent of the Council be given to Mr. H. J. Hanson, the district surveyor under the London Building Act, 1894, for the district of North Battersea, appointing as his deputy, Mr. J. A. J. Woodward, of No. 69, Kennington-oval, to perform all the duties of such district surveyor for the period of one year from November 10, 1897; such consent being subject to the condition that Mr. Hanson shall not during the said period, without the previous consent of the Council, be signified in writing under the hand of the Clerk of the Council, act as district surveyor, or revoke the appointment of Mr. Woodward as such deputy, or in any way interfere with the performance by Mr. Woodward of his said duties."

The Council adjourned shortly after seven o'clock.

NEW MEAT MARKET, BIRMINGHAM.

On the 25th ult., the new Corporation meat market and slaughter-houses, Birmingham, were opened by the Lord Mayor. A central site, sufficiently extensive in area, was at the outset difficult to fix upon; but the one ultimately selected extends, roughly, from Cheapside to Bradford-street, and from Sherlock-street East to a narrow passage called the Gullet. The architects, Messrs. Essex, Nichol & Goodman, whose plans were selected in competition, have produced a design of picturesque and original character, and the elevations to the thoroughfares and the water tower are in buff terra-cotta, with picked red facings. On the Bradford-street side the water tower rises 100 ft. from the ground level. It contains three tanks, and the supply from the Corporation mains will be carried up here before being distributed. The buildings consist of: market hall, for the sale of meat; official block and slaughter-houses for the wholesale trade, adjoining Sherlock-street East; basement; tripery, and slaughter-halls.

The administrative block faces Sherlock-street East, the market superintendent and the inspectors occupying offices within the tower at the Bradford-street corner, while in the adjoining range there will be rooms for caretakers, a slaughtermen's mess-room, stabling, and van yard, and stores. Official houses and triperies are arranged as an essential adjunct to the slaughter-houses on the one hand, and slaughter-halls on the other, and a quarantine department is replete with sheds for housing and slaughtering suspected animals and the impounding and condemned meat. The central hall, which is to be utilised as the wholesale meat market, has a length—on Bradford-street to Cheapside—of 365 ft., and a width of 90 ft.; and the floor, which is divided into seventy-three market spaces, has three longitudinal and three cross avenues. Hanging room is provided in the market alone for 3,000 sides of beef. The offices of the wholesale butchers are arranged over the central group of stalls in the form of wood and glass cubicles, approached by spiral staircases. The roof is one span, and the ridge is 64 ft. from the level of the pavement. The upward slope of the four sides is broken by four continuous dormers, with intervening asphaltic flats, and over each of the dormers is a projection which ensures an adequate admission of light. For the transaction of business in the early morning the electric light will be supplied here as elsewhere in the incandescent form for the illumination of stalls. Each stall or stand is surrounded by iron rails, with roller-hooks for suspending carcasses, and above these is another set of which forms the system running throughout the market, and out across the roadways on either side to the slaughter-halls. In the centre of the building are two hydraulic lifts, which communicate with the basement, and these will have similar rails rising to the level of this system, and connecting with it. On each side of the market, but divided by a wide

cartway, are the slaughter-houses, with lairs and other auxiliary accommodation. The main cattle entrance is in Sherlock-street East, the section on this side having been specially adapted for the use of the wholesale slaughtermen. Two inclined roadways from the ground level lead to the lairs for cattle and sheep on the upper floor, while lamed or unmanageable animals can be moved by means of a hydraulic lift. The total lairage is for about 400 beasts, about 1,000 sheep and calves, and over 200 pigs. The electric light will be employed for illuminating purposes, arc lights being provided for the yards, while 119 lamps of 32 candle power and ninety-seven of 50 candle power will afford lighting for the slaughter-houses. The floors of the lairs are laid with concrete, and to ensure effective drainage the liquid will flow into open iron troughs running along the outside wall, and from these it will descend by iron shoots into shallow open channels in the pavement of the yard. In the slaughter-houses the flooring is so constructed that the swillings flow directly into open gutters, and so into the channels outside. A catch-pit is provided at the boundary wall, and all solid matter is removed before the drainage reaches the sewer. Nowhere in the place is there any pipe connected with the public sewer. On what may be termed the Gullet side of the central block, two large slaughtering-halls have been arranged, the one for cattle and sheep, and the other for pigs, the idea of the authorities being to convenience smaller traders, who may find it more economical to rent a set of apparatus for killing, as their limited requirements may demand, than to furnish a private slaughter-house on their own premises. In the slaughter-hall for beast and sheep there will be room for twenty-six sets of men to work on each side, while the pig slaughtering-hall is fitted with scalding tubs and gear for twelve sets of men. The pens for animals awaiting slaughter adjoin the slaughter-houses, and covered lairs are provided for pigs on the ground floor, and over the large slaughter-hall for cattle and sheep. The Linde Ice Company are the tenants of the Corporation, and about two-thirds of the available space in the market hall basement will be occupied by them. The storage accommodation consists of fifteen rooms. The cold stores and chillrooms will hold 25,000 sheep and 300 sides of beef. The engine and dynamo rooms are at the Bradford-street end, the installation involving the use of three Crossley's gas engines of 85 h.p. each.

Including the amounts paid as compensation to leaseholders, the site has cost £40,120; the buildings have involved an expenditure of £8,000; the general fittings, 10,531; lifts, boilers, tanks, butchers' offices, &c., 2,611; electric light installation, 10,144. The Linde Company provide their own power, machinery, and electric lighting, and, roughly, the amount they are responsible for increases the items already enumerated by 10,000. Mr. J. Bowen, Birmingham, was the contractor.

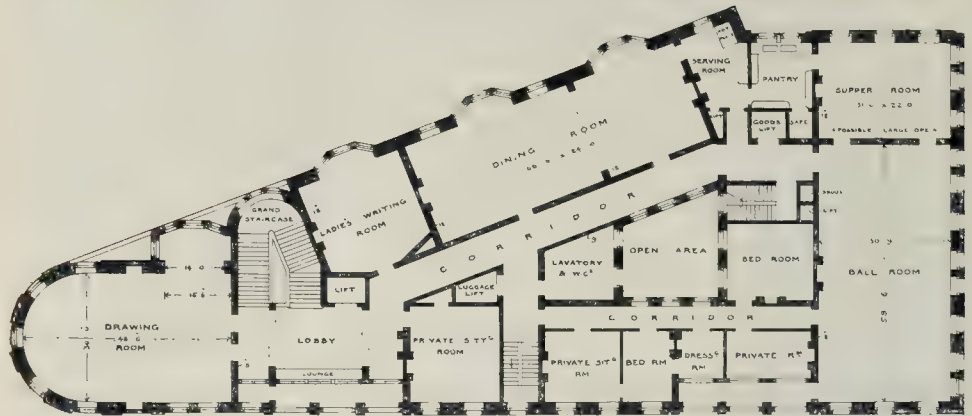
A.A. LYRIC CLUB.

THIS season's opening concert of the A.A. Lyric Club (President, Mr. John Murray) was held on the 20th ult., at the Swallow Assembly Rooms, Piccadilly, when the President of the Architectural Association, Mr. Hampden W. Pratt, took the chair.

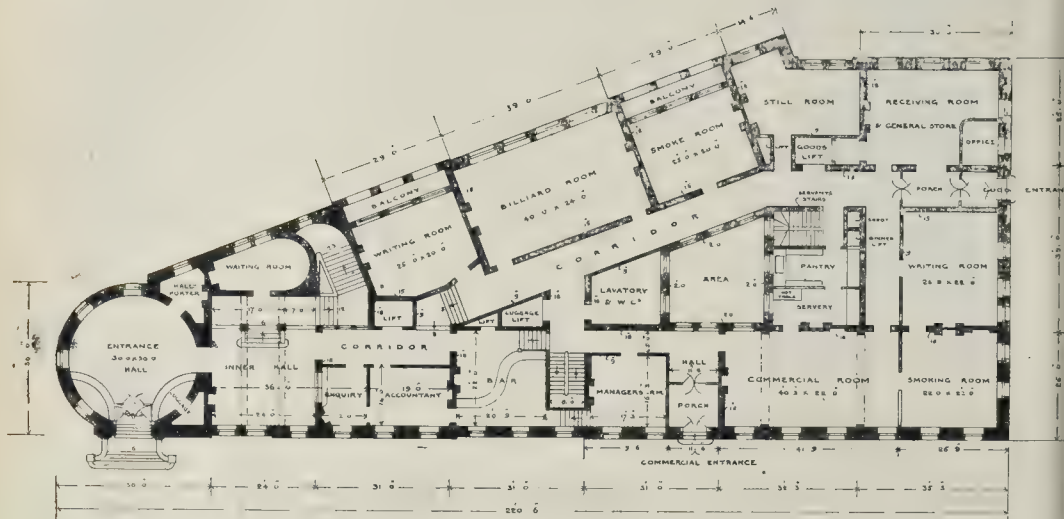
There was an exceptionally large attendance of over two hundred members and friends, among whom were several prominent members of the Architectural Association. During the evening a presidential hammer was handed by Mr. Hampden W. Pratt, on behalf of the club, to Mr. John Murray, and several nominations were read.

An excellent programme was carried out, and the evening seemed likely to inaugurate the most successful season that the club has yet attained.

ADDITIONS TO THE ROYAL INFIRMARY, SHEFFIELD.—Lady Mary Howard visited the Royal Infirmary on the 20th ult., and opened the new buildings which have been added to the infirmary. The additions consist of a new nurses' home, new ophthalmic wards, and a laundry. The eye wards have been attached to the 1873 building. The structure has two stories, and consists of two main wards holding sixteen beds each. On the upper floor there is an operating theatre, a small ward for two beds, a ward kitchen, and other accommodation. In addition to the large ward on the ground floor there is a smaller ward capable of accommodating three or four beds, and a nurses' kitchen. A corridor connects the old building with the new, and the staircase window has been fitted with stained glass. The nurses' house is situated on the south-west angle of the grounds, towards Upperthorpe-road. Over the main entrance of the frontage, and carved in the stone, are the words "Centenary House, 1897." The building has three stories, exclusive of the basement, where there are kitchens, store-rooms, servants' sitting-rooms, &c. There is accommodation for sixty nurses, each of whom will have a separate bedroom. There are cloak-rooms and bath-rooms. Near the laundry there is a mortuary, a post-mortem room, a clinical laboratory, and a stoving apparatus for disinfecting. All the new buildings are of stone, and are fitted with the electric light. Mr. J. D. Webster is the architect, and the contract was entrusted to Messrs. Longden & Son.



Plan of First Floor.



Plan of Ground Floor.

Design for Hotel at Cork. Plans.

Illustrations.

DESIGN FOR PAINTED FRIEZE.

THIS design, in six colours and an outline, is by Mr. E. Ingram Taylor, and was exhibited in the last Royal Academy.

The design was intended to be used over a perfectly plain wall, and to be executed either entirely by hand, or by stencils with a block printed outline. For the latter case a special corner piece was designed to prevent the possibility of a figure being bent in a corner.

In the original drawing the background is a dark blue, with oval panels, yellow, in which figures of water-fairies are seated. The outlines are everywhere the same yellow as the panels. The plant-forms (founded on those of water plants) are in two pale greens and one blue with white veins. The figures have pale yellow draperies and blue wings with white veins.

DESIGN FOR A HOTEL, CORK.

This is a design for a large hotel, by Sir T. N. Deane & Son, which was not carried out, for reasons which we need not go into here. The plans of the ground and first floors are appended; there is a mezzanine between them. The plan provided for more than 100

bedrooms, a suite of reception-rooms, billiard-room, and private sitting-rooms. The kitchen and offices were to be placed on the upper floor below the attics, with a service lift communicating with all the floors below.

The design was intended to be carried out in red brick, with limestone dressings. The estimated cost was 45,000l.

The drawing was exhibited at the last Royal Academy.

EXTENSION OF "PANMURE ARMS HOTEL," EDZELL.

THIS work, which we illustrate from the drawing exhibited in the Royal Academy, has just been completed, from the plans of Mr. T. Martin Cappon, architect, Dundee. Before the extension the hotel consisted of a plain two-story building, with six public rooms and twelve bedrooms. Its accommodation is now as follows:—Large dining-room, two drawing-rooms, five parlours, smoking and writing rooms, billiard-room, tap-room, bar, restaurant, spacious hall, forty bedrooms, four bath-rooms, with suitable quarters for servants, and stabling for thirty horses.

The building occupies a fine site in the centre of a picturesque district bordering on Glen Esk, and has been designed to meet the requirements of summer visitors, as well as a large number of sportsmen. The walls are treated in a warm buff colour, and the roof is

covered with red tiles. The building is provided throughout with the electric light.

The elevations are designed to suggest the old-fashioned English hostelry, while the interior is fitted up with all the comforts and conveniences of a modern hotel.

MEFFAN INSTITUTE, FORFAR.

THIS drawing, which is also from an Academy exhibit of Mr. T. Martin Cappon, shows the competitive design for a small Institute, comprising lending and reference library, reading-room, small lecture hall, museum-room, with caretaker's house and suitable offices. As the plans show, the difficulty of insufficient lighting space had to be contended with, and the arrangements of library, reading-room, &c., are such that they may be supervised from the librarian's or attendant's room.

The main elevation indicates an effort to break away from the monotony of street-fronts so common in the small towns of Scotland.

WILSON UNITED PRESBYTERIAN CHURCH, PERTH.

THIS church, recently opened, is erected in place of the original church, built in 1740, the site of which was acquired by the city for street improvements. The new building seats over 900 persons, and has in addition a large hall,



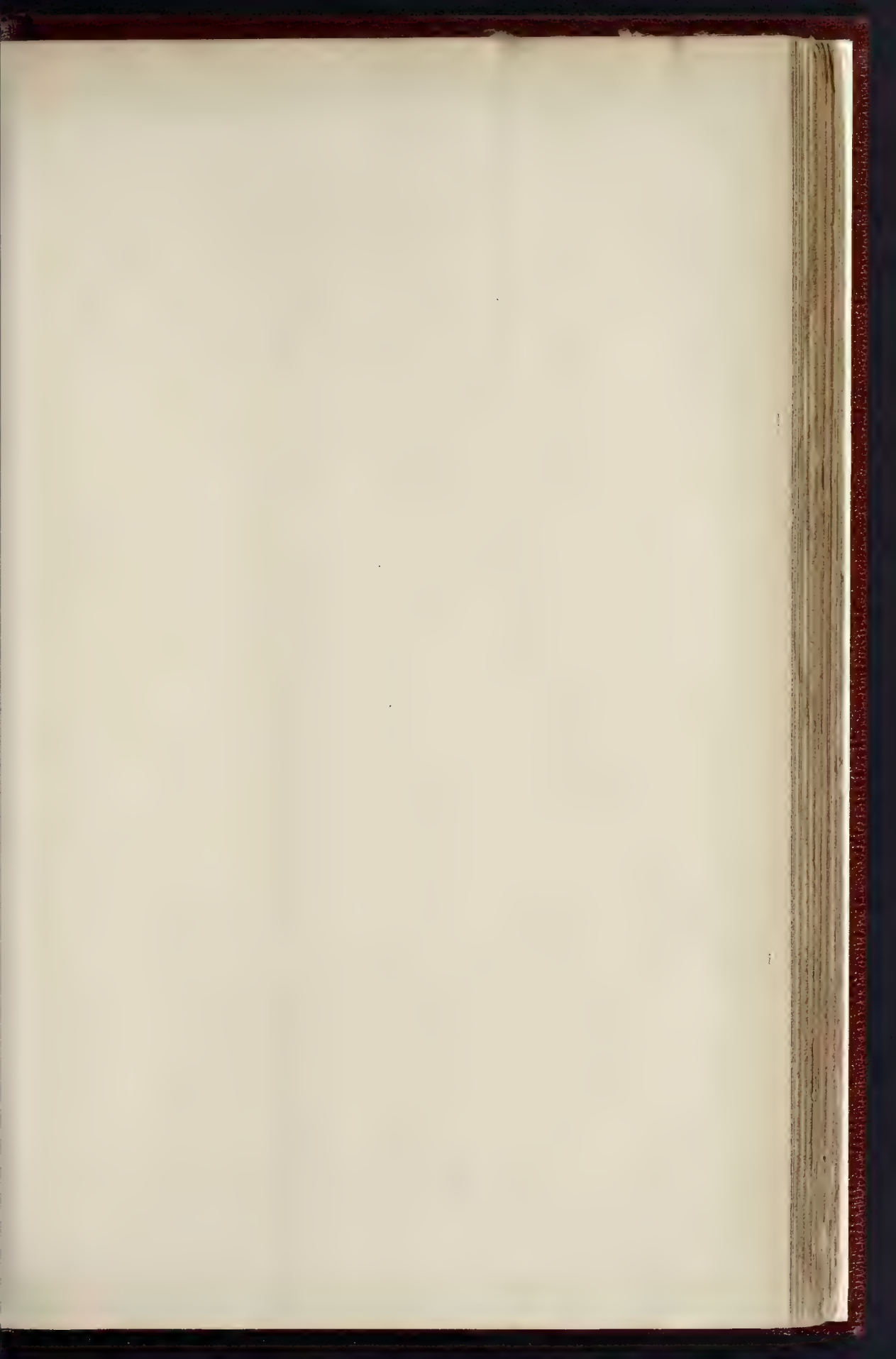
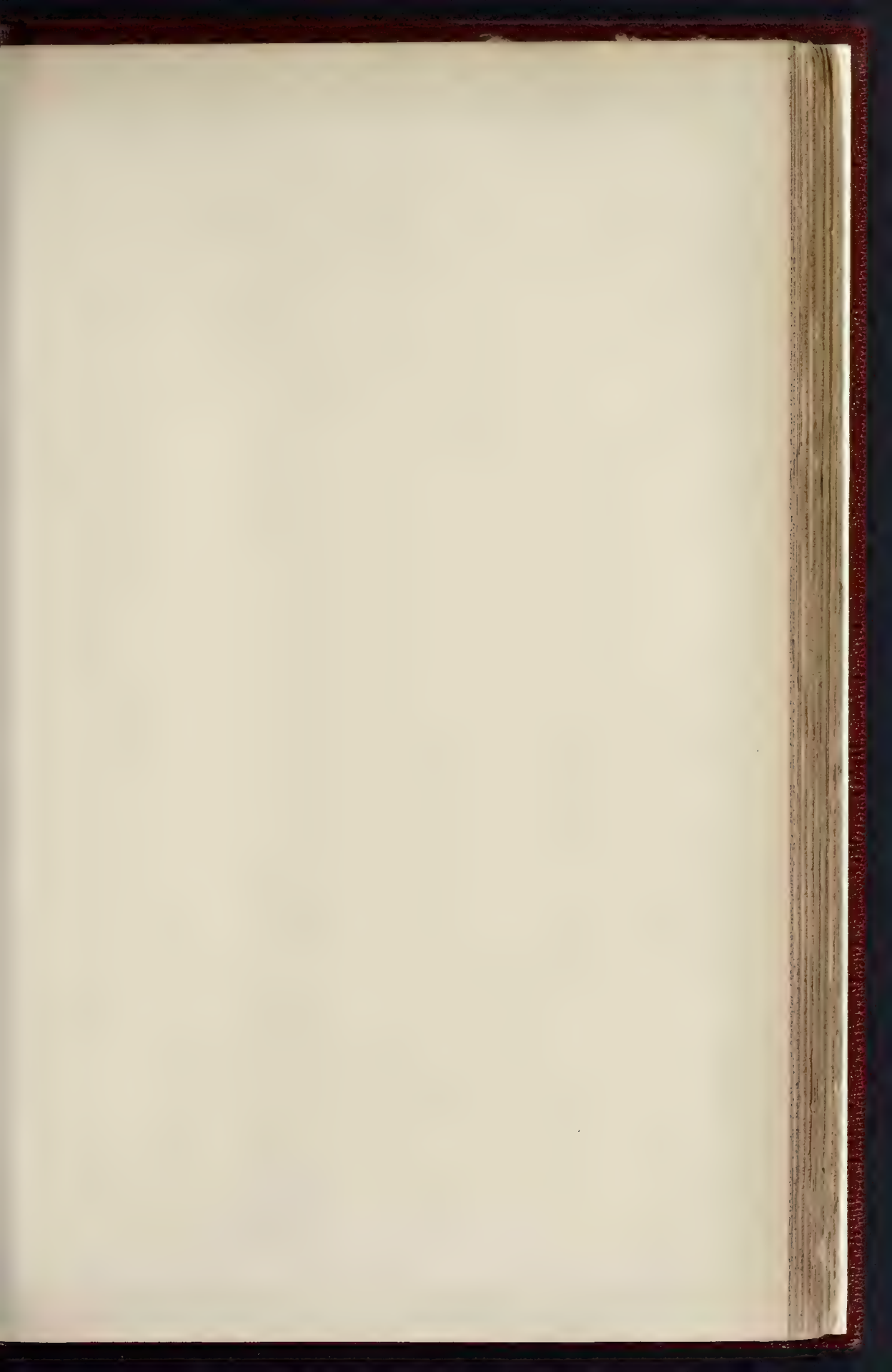






PHOTO LITHO SPRAGUE & CO. 485 EAST HARDING STREET FETTER LANE E.C.



THE BUILDER, NOVEMBER 6, 1897.

EXTENSIONS: RAINVRE
ARMS HOTEL, EDZELL,
T. MARTIN, CIPRIANI ARCHT.



C. H. R. H. H. H.

The Architect



THE BUILDER, NOVEMBER 6 1897.

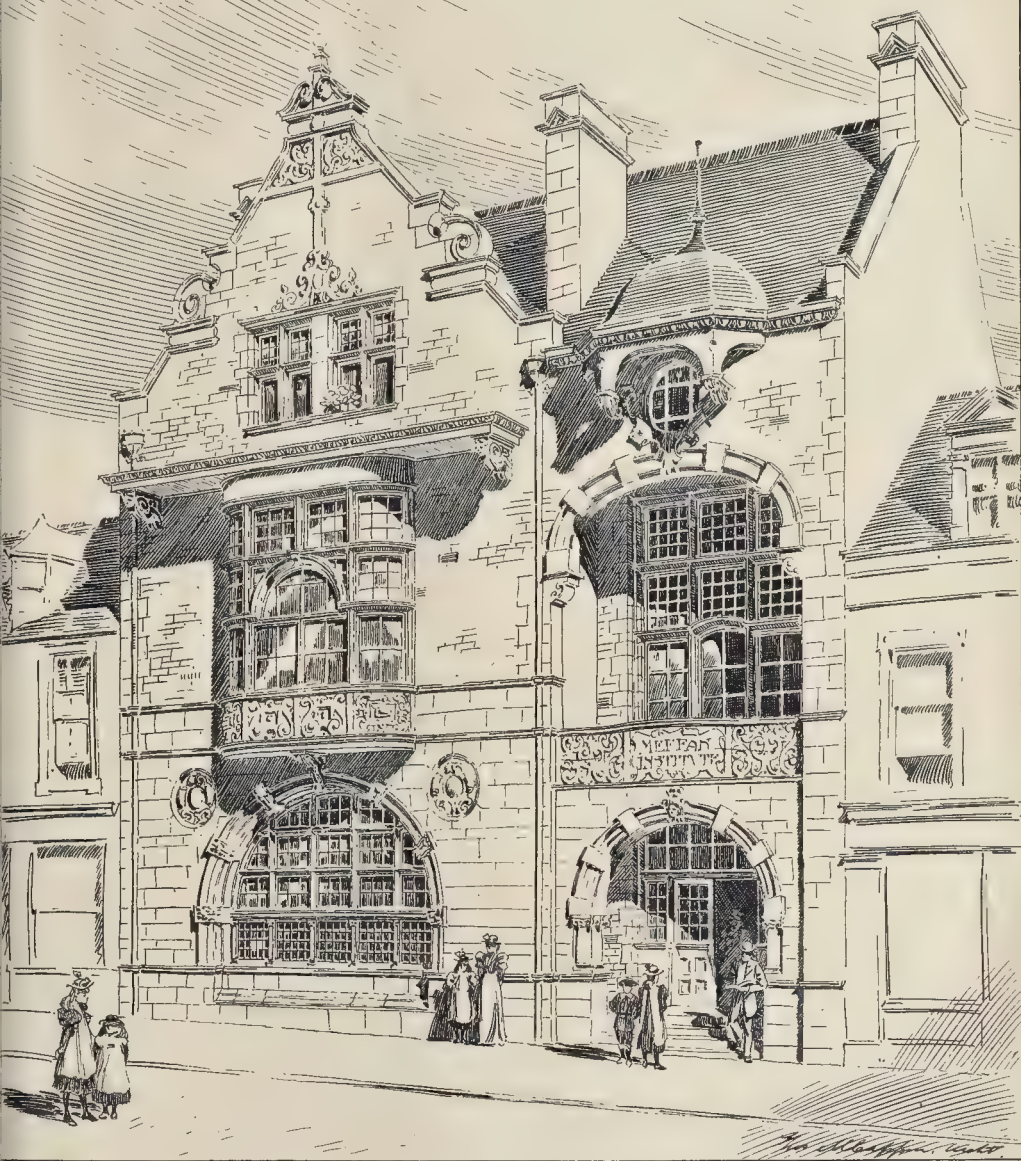
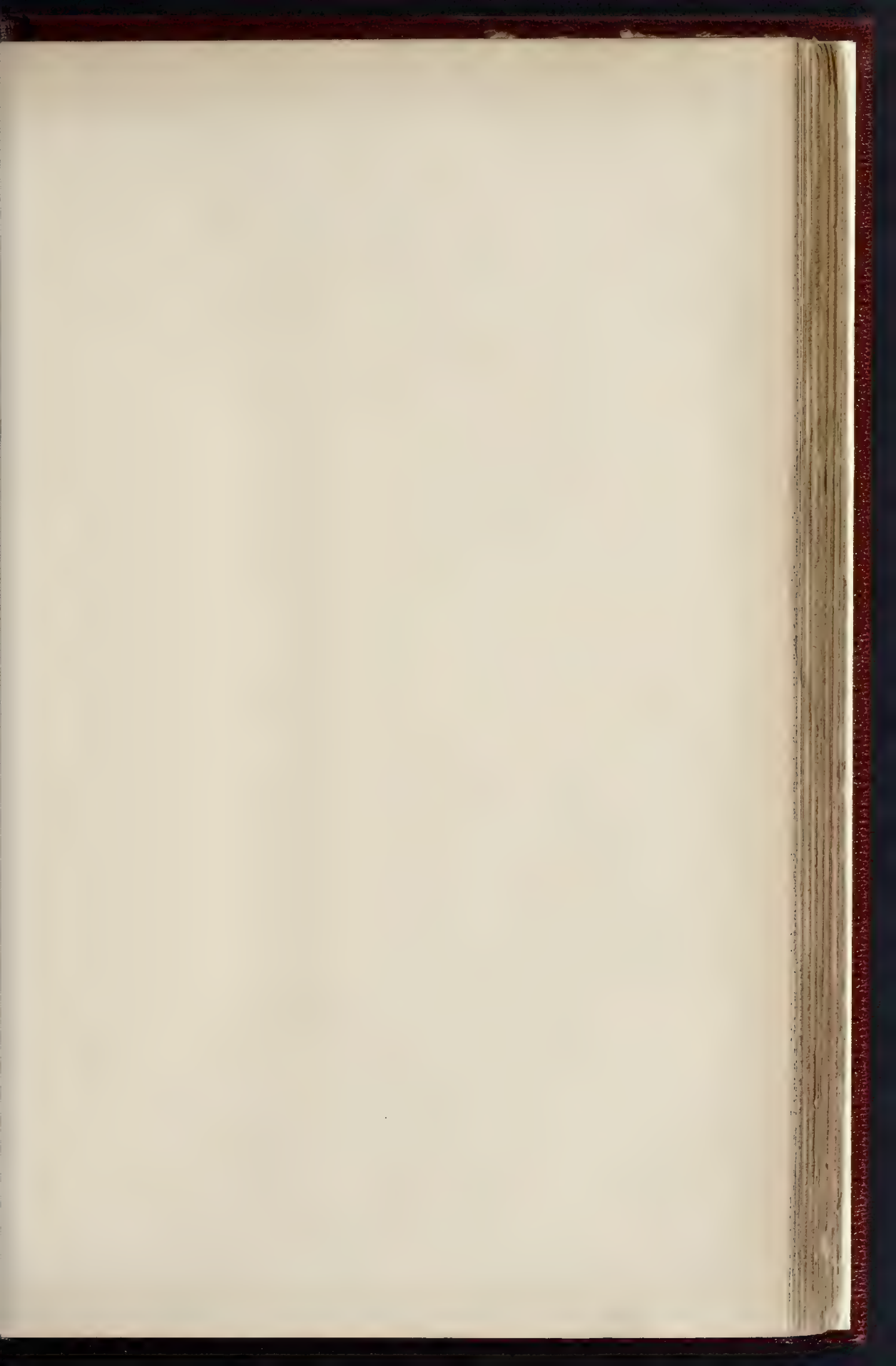


PHOTO LITHO SPRAGUE & CO. 485 EAST HARDING STREET FETTER LANE E.





WILSON UNITED PRESBYTERIAN CHURCH, PERTH. MR. JOHN B. WILSON, A.R.B.A., ARCHT.

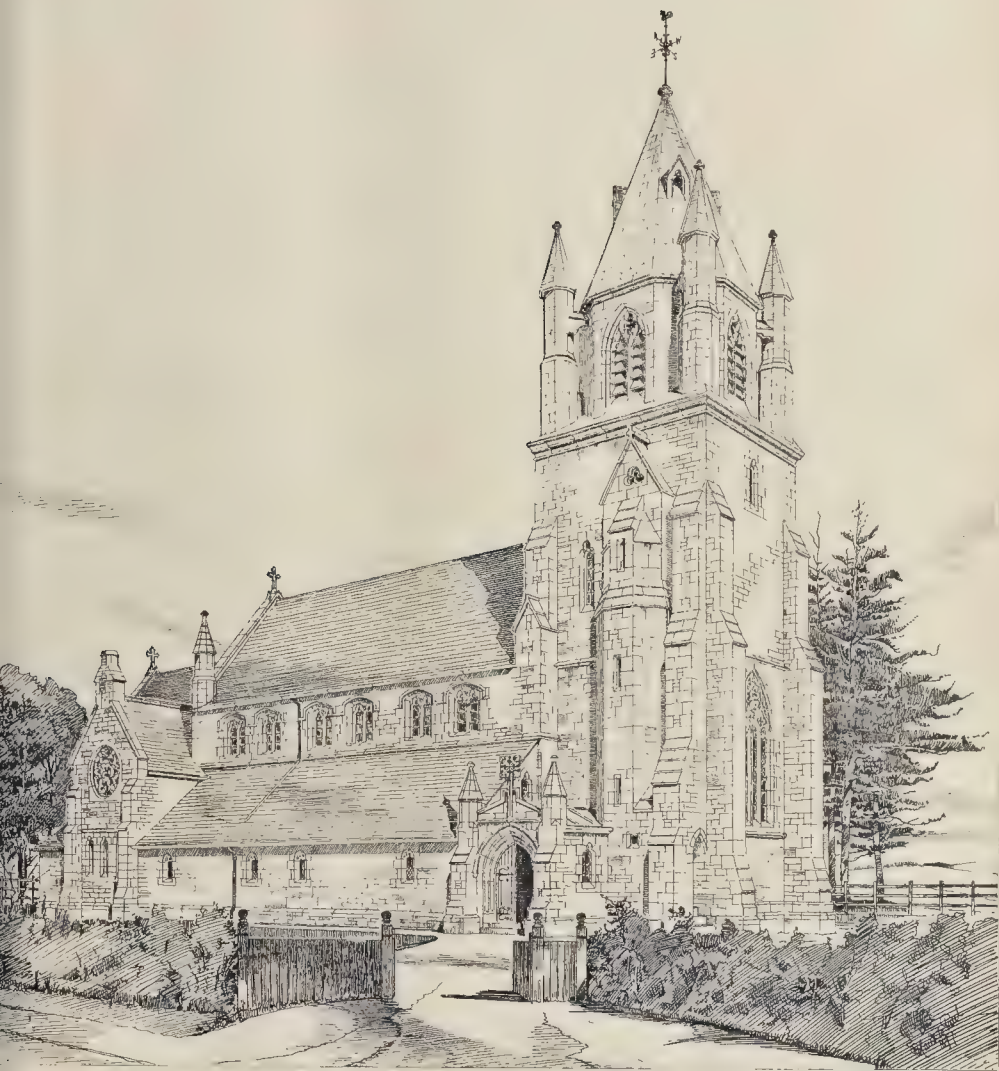
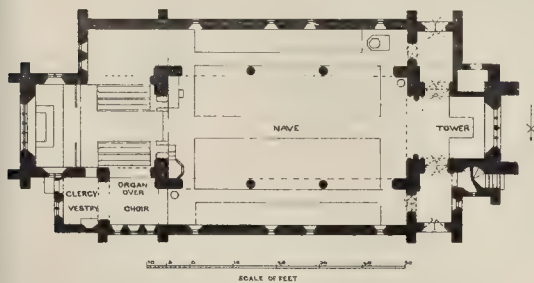


PHOTO LITTO SPRADLEY. A.B.S. EAST HARDING STREET LONDON E.C.

ST. LEONARD'S CHURCH, TURNER'S HILL, SUSSEX. MR LACY W. RIDGE, F.R.I.B.A. ARCHITECT.



FIRST FLOOR PLAN.



GROUND FLOOR.

PAINSVILLE HOTEL. EDDIE
ALTERATIONS AND ADDITIONS



ss-rooms, caretaker's house, &c. The interior
w shown is taken from the end gallery, and
s sketched from the building. The number
sittings required within a space somewhat
ited by surrounding buildings necessitated
allered church, and the treatment of stone
rs and wide arches was designed to give an
hitectural effect without undue interference
h the view of the pulpit. A fine organ has
en erected, played from the console in the
tre of the choir is front of the pulpit. The
orm fittings, communion table, font, chairs,
, are in oak, and are the gifts of various
nds. The style is Italian Renaissance; the
ne work is in red sandstone from Gatelaw
dge Quarry, Dumfries, and the exterior is
iched with some good sculpture. The total
t is about 10,000l., and the works were
ncipally executed by local contractors, from

the designs of the architect, Mr. John B.
Wilson, Glasgow.

CHURCH OF ST. LEONARD, TURNER'S HILL.

THIS church stands on a magnificent site
600 ft. above the level of the sea, commanding
extensive views over Sussex and Surrey. It is
built of the richly coloured local stone from
Selsfield Quarry, with some Bath stone
dressings. The nave and chancel constituted
the last church consecrated by the late Bishop
of Chichester, at that time in his ninety-third
year. Messrs. James Longley & Co. (the head
of which firm is a native of Turner's Hill), were
the builders, and Mr. Lacy W. Ridge, the
Diocesan Surveyor, is the architect. The tower
and double porches, intended for alternative use
in extreme weather, yet remain to be built.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County
Council on Tuesday, the Building Act Com-
mittee brought up the following list of ap-
plications under the 1894 London Building Act.
Those applications to which consent was
given were granted on certain conditions * :-

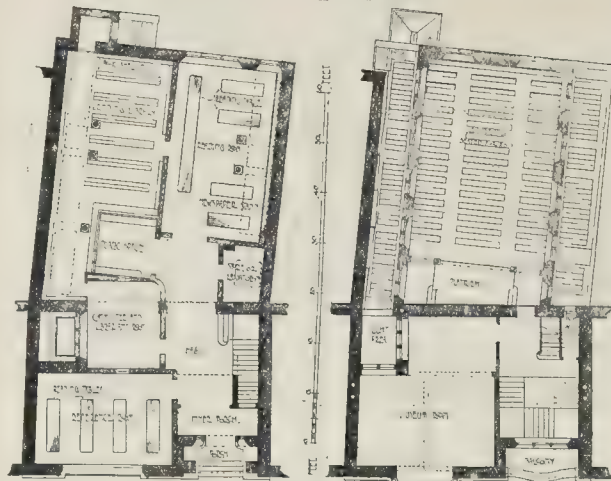
Lines of Frontage.

Hammersmith.—Rebuilding the "Red Cow"
public-house, No. 157, Hammersmith-road, at the
corner of Colet-gardens (Mr. C. G. Baker, for
Messrs. Fuller, Smith, & Turner).—Granted.

Hackney, South.—A one-story addition erected at
the rear of the "George" public-house, Glyn-road,

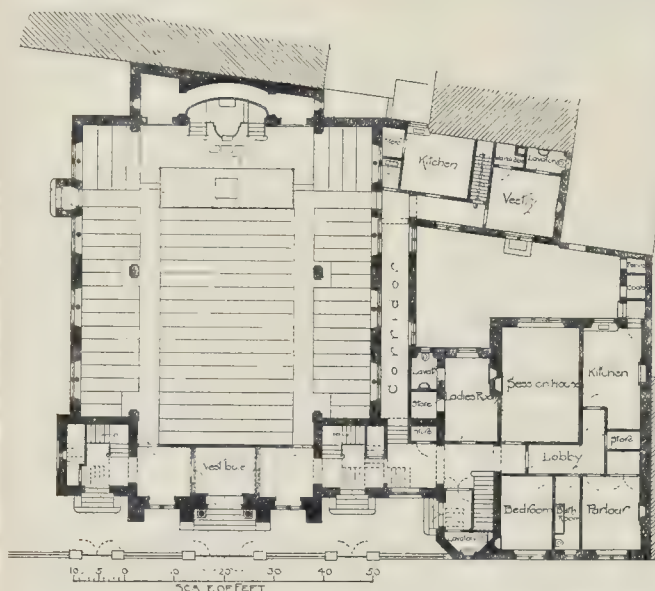
* Names of applicants are given in brackets. Buildings
are new erections unless otherwise stated.

WILSON & CO. PROPOSED
NEWTON INSTITUTE, PERTH



GROUND FLOOR PLAN.

FIRST FLOOR PLAN.



Wilson United Presbyterian Church, Perth. (Plan.)

See p. 374.

Clapton, abutting upon Glenarm-road (Mr. A. J. England, for Mr. J. H. Turner).—Granted.

Width of Way.

Westminster.—Stone kerb to the area railing in front of Nos. 9 and 10, Dartmouth-street, at less than the prescribed distance from the centre of the street (Mr. G. C. Horsley, for the Universities' Mission to Central Africa).—Granted.

Bermondsey.—Playshed at the East-lane schools, to abut upon Flockton-street (Mr. T. J. Bailey, for the School Board for London).—Granted.

Newington, West.—That the Vestry of Newington be informed that the Council leaves it to the Vestry to take such course as it may deem necessary with reference to the proposed erection of buildings on the east side of Newington Butts, between Headway and Short-street, to the altered line of frontage shown upon the plan.

Line of Fronts and Width of Way.

Paddington, North.—Theatre on the site of Nos. 212, 214, 216, 218, and 220, Harrow-road, to abut also upon Ranelagh-road and Westbury-road (Mr. F. Matcham, for Mr. R. Arthur).—Refused.

Formation of Streets.

Leisham.—The formation or laying out of a new street for carriage traffic, to lead out of Tredown-road, Sydenham, and the widening to 40 ft. of part of Newlands Park (Messrs. Baxter, Payne, & Lepper, for Mrs. Smith). That the name Homecroft-road be approved for the new street.—Granted.

Buildings for the Supply of Electricity.

Southwark, West.—An addition to the generating station and works on the south side of Bankside (Mr. T. Bailey, for the City of London Electric Lighting Company, Limited).—Granted.

Open Spaces about Buildings.

Westminster (detached).—A building between High-road, Knightsbridge, and Brompton-road, to abut also upon Knightsbridge-green, with an open space at the rear (Mr. G. D. Martin, for Mr. A. Kellett).—Refused.

Finsbury, Central.—Rebuilding of the "Sutton Arms" public-house, No. 16, Great Sutton-street, at the corner of Berry-street, Clerkenwell, with a portion, not exceeding 35 ft. in height, of the new building upon the present open space at the rear of the premises (Mr. R. W. Hobden, for Mr. S. Farris).—Granted.

LONDON BUILDING ACT, 1894:

TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal sat at the Arbitration-room, Savoy Hill, on Friday last week to hear an appeal made by Mr. Henry F. Kite (solicitor), on behalf of Mr. T. H. Martin, against the decision of the London County Council, by a letter from the Superintending Architect, dated September 13, not to grant their consent to the erection of a block of residential flats on the north side of Ronald's-road, Highbury, on part of the garden at the rear of No. 1, Highbury-terrace, to the line shown upon the deposited plan, dated July 1, 1897.

The members of the Tribunal sitting were Messrs. Arthur Cates (Chairman), J. W. Penfold, and A. A. Hudson. The appellant was represented by Mr. J. F. P. Rawlinson, barrister (instructed by Mr. H. F. Kite), and the respondents (the London County Council), by Mr. Seager Berry, barrister.

When the case opened Mr. Seager Berry offered a preliminary objection, which, he contended, ousted the jurisdiction of the Tribunal in regard to this appeal. The application concerning which the present appeal was lodged was headed "Part 3, Sections 21 and 22" of the Act of 1894. He submitted that no appeal lies under those sections, or indeed, under Part 3 at all.

Mr. Rawlinson said the objection was of a purely technical character, and he could dispose of it by informing the Tribunal that the appearance of Section 21 at the head of the application was a mistake that had crept in somehow or other. He had evidence that would show that in the original "Section 41" appeared. Apart from that, however, he submitted that the appellants clearly, by Section 25, had a right of appeal in regard to the defining of the line of frontage; and that notwithstanding that there was no formal certificate from the Superintending Architect.

The Chairman: Do you contend that the letter of September 13 takes the place of a certificate?

Mr. Rawlinson: Practically so; it is a refusal to accede to the application. The necessity for the certificate is waived by the correspondence as well as verbally. Proceeding, he remarked that it was exceedingly hard upon them that they should have this objection taken to the appeal. They were strictly within the building line; then the District Surveyor told them that they had better submit plans to the Council before they began to build. There was some conversation with the Superintending Architect, and then this application for an approved frontage was sent in. Everyone concerned in the matter was present that day to try the case on its merits.

The Chairman said he could not observe the decision of the Superintending Architect expressed anywhere. Obviously, he was merely the conduit through which the decision of the Council was conveyed.

Mr. Rawlinson remarked that permission to build was refused; but surely, if the Superintending Architect believed that they had been within the building line, he would have said, "You are within your right in building there so far as the frontage line is concerned."

Mr. Hudson pointed out that, under Section 22 of the Act, there were two alternatives laid down either to go to the County Council for their consent—in which case the Council could do anything it pleased—or to apply to the Superintending Architect to define the line, in which case he went in an independent capacity. The appellants seemed to have taken the first course, and now to have come to the Tribunal to upset the decision of that body. Unfortunately the Tribunal had no power to do it, though they could revise the decision of the Superintending Architect.

Mr. Rawlinson admitted frankly that their original application should have been worded differently. There were two things mixed up—first, the buildings in the rear, and, secondly, what the building line should be. Technically, instead of applying as they did, they should have asked the Superintending Architect to define the line of frontage before they took other steps.

Mr. Hudson observed that, moreover, the power invested in the Tribunal by Section 25, of revising the decision of the Superintending Architect could only be undertaken when the latter issued his certificate. Could Mr. Rawlinson suggest how the Tribunal could legally consider the appeal without such certificate before them when the section was so very definite upon the point?

Mr. Rawlinson replied by reading the correspondence that passed between the appellants and Mr.

skill. This, he contended, justified them in con- sidering the appeal as laid down by Section 25. The Chairman said that if the case had been pro- posed with under Section 22 his first duty would be to ask for the certificate of the Super- ending Architect. Now that it was clear that was not forthcoming they must overrule Mr. Wilson's application to bring the appeal forward by Section 25.

Mr. Rawlinson next argued that there was a right of appeal under Section 41, inasmuch as the Council's decision was given in respect to the height he proposed building.

Mr. Seager Berry objected to the appeal being laid under this section on the ground that the Council never appreciated that the application was made under it. The decision of the Council, more- over, contained no reference to Section 41, and eventually transpired that the application con- sidered by the Council was headed "Section 21" by clerical error.

Mr. Rawlinson said it was clear they were misled in this error, and if his clients consented to with- draw the appeal he thought they ought not to be allowed to press for costs.

The Chairman said the Tribunal was convinced no application was made for the Council's consent to the erection of a building exceeding 100 ft. in height—that was under Section 41. He was, however, not a Tribunal of appeal.

Mr. Rawlinson consulted with his clients, and announced that they had decided to withdraw the appeal.

The appeal was accordingly withdrawn, no order being made as to costs.

Books.

Principles of Electricity and Magnetism. By C. H. W. BIGGS, Editor of *The Electrical Engineer*. London: Biggs & Co., Salisbury-court, Fleet-street, E.C.

FROM the preface we learn that this book is intended for beginners in practical work, and the author claims that it contains a good deal of useful information usually to be found in similar books. This, however, the book is too trustworthy to be read by beginners, we strongly disapprove of many of the methods of giving definitions and of deducing results from insufficient experimental data. Many theorems given, if reproduced by a student in an examination, would seriously anger his chance of passing. Some of the elements are so vague that they are quite intelligible, and free use has been made throughout of electrical terms which have not been defined, and which are used in a sense different from that which is attributed to them in standard text books.

The preliminary chapter is on dynamical systems. The student will have difficulty in reconciling various statements in this chapter. For example—"At the same spot on the earth's surface mass and weight are equivalent" and "mass is invariable, but weight varies according to position upon the earth's surface." To the velocity as "rate of motion" is not very clear unless you have previously defined motion rate, but to say that velocity is "motion through a space of time" would hopelessly mislead any one.

In describing the Kelvin galvanometer the author says "if the astatic system be imperfect controlling magnet can be so placed that it is the spot of light at zero." The student would naturally think that this could not be the case if the astatic system were perfect. Again, it is said about turning the controlling magnet round when we want to strengthen or weaken the directive action of the earth's field by magnets on the back of the mirror. We simply told to move the controlling magnet round down.

It is customary to assume that the magnetic force of a magnet is unlimited in extent, and the more sensitive our instruments are the more we can detect it. Mr. Biggs thinks otherwise; he says that it is absolutely limited, that, roughly speaking, it is very much the same as a Rugby football. We fail to follow his reasoning, and we think that he ought to support such a heretical opinion by some arguments from first principles.

The student, after reading a description of a formula which gives the volts generated in the armature of a dynamo, will be rather upset that follows:—"The formula is similar to that given by all writers, but the reasoning by which the formula is not universally applied." In the chapter on motors we were

astounded to learn that a motor will do its maximum work when its speed is high, and that a higher efficiency is obtained when the speed is slower. As this is the direct contrary of what the equations given show, it must be put down to hasty writing. Evidences of haste are apparent all through the book. Foot-notes sometimes contradict the text, and sometimes are written without due consideration of what the text says. The tables given of the magnetism produced in soft grey cast-iron are carelessly copied out, as at least four of the numbers are wrong.

We worked out a few of the examples, which are all very easy, and found out that the answers were wrong in some cases. The diagrams are very carelessly drawn, and would lead beginners to think that any labour spent on making clear drawings was quite unnecessary in electrical work. We have said enough to show that the book is not suitable for students, but before concluding we must protest against the careless writing of history. In describing the history of the dynamo the author says, "Two men almost at the same time—I think that the papers were read at the Royal Society on the same evening—designed a method to avoid the use of a second machine or battery. These men were the late Sir W. Siemens, and the late Sir Charles Wheatstone." The paper read by Sir William Siemens at the meeting of the Royal Society referred to was by his brother, Dr. Werner von Siemens, and described the theory and action of the self-exciting dynamo. Dr. Werner von Siemens had, however, not only previously read a paper at Berlin describing the theory, but had also shown at his factory to many members of the Berlin Academy of Science a dynamo in action. It seems that Werner von Siemens, Sir Charles Wheatstone, and the brothers Varley invented the dynamo independently, but the priority of publication rests with Werner von Siemens.

The Local Distribution of Electric Power in Workshops, &c. By ERNEST KILBURN SCOTT, A.I.E.E. London: Biggs & Co., Salisbury-court, Fleet-street, E.C.

This excellent little book treats of a subject of no little importance at the present time. The application of electricity for power purposes in factories has been advancing very rapidly during the last few years, and has proved in many cases a complete success commercially. Mr. Scott gives a list of thirty-two large factories which use electricity to transmit the power from the engines to the tools, and we could easily extend this list.

Where shafting is used for the transmission of power, very strongly constructed walls and heavy pillars are necessary. As Mr. Scott points out, there is a total dead weight of about ten tons in a length of 200 ft. of 5-in. shafting, and if this is making a hundred revolutions per minute, there will be a good deal of vibration unless the walls are very solidly constructed, as the pulleys, &c., used in millwright work are very seldom in exact balance. The introduction of electric cables to convey the power to the tools is altering very much the design of the buildings. A much lighter construction of walls, pillars, roofing, &c., will suffice, and this enables them to be built much more cheaply.

Mr. Scott gives some very useful practical formulae, by means of which the power required to drive planing machines, lathes, drilling machines, &c., can be calculated. Very useful tables are also given, in which the relative advantages of alternating and continuous current systems are compared, and the author's descriptions of two-phase and three-phase systems are instructive and accurate. The author makes use of the word auto-transformer when describing an apparatus for raising or reducing the pressure on an alternating current circuit. It seems to us that this hybrid word serves to perpetuate an altogether erroneous view of the action of the apparatus. It would have been better to call it a "booster" or a "compensator," whichever it happened to be, as these words are very expressive and are in everyday use amongst electricians.

In the last of the three chapters into which the book is divided, several interesting diagrams of starting switches and resistances for motors are given. Diagrams are also given showing the relative prices, the relative weights, and the relative speeds of continuous and alternating motors respectively. It is rather a pity, however, that they are not more

clearly printed. Nearly all the illustrations are very badly done; worn-out blocks in some cases have evidently been used.

Library Construction, Architecture, Fittings, and Furniture. By F. J. BURGOGNE. London: George Allen. 1897.

THE recent rapid extension of the free public library movement has naturally tended to create a literature of its own, and this work claims to be the first treatise written upon the subject. The pages of the *Builder* have, as our readers are aware, contained reports of lectures and papers upon the subject which, if not sufficiently extensive to fill a book, have nevertheless explained many vital points. This work, as emanating from a librarian in charge of one of the newest of our public libraries, has been prepared with the amount of enthusiasm which might be expected. The treatment of the subject, however, is historical rather than critical, and, whilst containing many useful hints to architects, librarians, and members of library committees who have in hand the planning of new libraries, its value would be increased if the candid and carefully-matured opinion of an expert in library management had been applied to the instances that are given. The author has brought together a very complete collection of plans of many public libraries which have been erected in Great Britain and Ireland as well as collateral examples in many of the most prominent instances of American and Continental libraries. The details of furniture and fittings, shelving, indicators, and other working gear of a public library are very completely described and well illustrated. The points which should be borne in mind in the selection of sites are clearly defined and should be thoroughly studied by all library committees, who too often, from ignorance of the subject, provide almost impossible tasks for the architects, who have to make the best of cramped and unsuitable sites. The weakest chapter in the book is that on lighting and ventilation, which is hardly to be wondered at when one remembers that free public libraries in this country are not usually erected under very adequate financial resources, and in nearly all existing examples leave a great deal to be desired. A feature in the book particularly useful to architects is the appendix containing a list of illustrations of libraries that have appeared in various professional journals, English and American.

Practical Building Construction; a handbook for Students preparing for the Science and Art Examinations, &c. By JOHN PARNELL ALLEN, Surveyor. Second edition, revised. London: Crosby Lockwood & Son. 1897.

WE are glad to see that this book, which we noticed on its first appearance two or three years ago, has reached a second edition, as it is a very useful and complete publication for its size and cost, and will be welcome to those who cannot afford more costly publications; but it is absurd for the publisher to claim for it, in his note to the second edition, that it is "the best and most complete book on building construction," as every one knows that it is not, and probably the author would not have advised him to make such an assertion.

We observe that the unscientific curved chimney-bar (supposed to be a tie), in common use, is still given as the received method of construction, without any hint as to its absurdity.

TRADE CATALOGUES.

MESSRS. BEANLAND, PERKIN, & Co., of Leeds, are the agents for a new enclosed globe ear lamp, which has many novel points in its design. Instead of the usual clutch-feed, a modified form of rack-feed has been adopted, which not only gives a positive control to the carbons, but also makes it possible to insulate the feed mechanism entirely from the circuit. By making the rods telescope downwards into the side tubes which carry the inner globe, the lamp is kept under 30 in. long. With each lamp is supplied a "holophane" inner or outer globe. For street lighting it is best to use an inner "holophane" globe, and to have a clear outer globe, but for interior lighting—at least when the lamp is in an easily accessible position—it is better to have the holophane globe outside. In the catalogue it is stated that all customers will be fully-protected from claims made by other manufacturers.

Correspondence.

To the Editor of THE BUILDER.

QUANTITIES AND QUANTITY SURVEYING.

SIR,—I have been much interested in these articles and have derived therefrom a great deal of useful information; but there is one matter, I think, that is not quite clear, viz., the method of "taking off." For instance, would the "writer of the article" in "taking off" a sash, take all trades at the same time, such as sash-linings, window board, architrave, glass, painting, &c.?

At the commencement of the articles, the author mentions two or three methods only to condemn them, and does not give any alternative method. I have tried one or two of the methods named but do not find them exactly to my wishes. It seems to me the way of "taking off" is a very important point and the author's opinion on this matter would no doubt be of great value.

Will he kindly give his readers the benefit of his experience?

BUILDER'S CLERK.

SIR,—In answer to your correspondent, "Builder's Clerk," as to the way of "taking off," it is practically impossible to give any hard-and-fast rule, so much depending upon circumstances and the personal taste of the surveyor. "Builder's Clerk," is not quite correct in saying that I gave no alternative method, as he will see, if he again refers to Chapter I., that the system there generally advised was the one he mentions, and which, when circumstances permit, I usually adopt in my own practice; but as the surveyor sometimes has the drawings placed in his hands in a somewhat incomplete state to enable him to commence "taking off" at as early a date as possible, leaving various points to be settled during the preparation of details, while his work is progressing he has to break away from any settled rule and adapt himself to the requirements of the case.

Generally I personally think it is a good plan to take the work practically in the order of building, but taking with the joinery the incidental trades and also the deductions for openings. With regard to painting, I think it advisable to take this after all the other work is finished. This gives one another look through the dimensions, which is sometimes useful.

THE WRITER OF THE ARTICLES.

MUNICIPAL AND COUNTY ENGINEERS' EXAMINATION.

SIR,—Having passed this examination, I can quite understand M. H. Wilkinson asking through your columns for the names of the books necessary for this purpose.

The examination is constantly being enlarged, and is very varied, especially the reading portion, but a careful study of the following books should pull any ordinary candidate through:—

- Boulton's "Municipal Engineering."
- Fanning's "Water Engineering."
- Robinson's "Sewage Disposal."
- Parry's "Water Collection and Distribution."
- Hellyer's "Plumbing."
- Walmisley's "Iron Roofs."
- Powell & Bauman's "Foundations."
- Rivington's "Building Construction," vols. 2, 3, and 4.
- Blagrove's "Shoring."
- Baker's "Surveying and Levelling."

For Public Health and Rivers Pollution Acts the following should be consulted, together with their Amendment Acts:—

- Public Health Act, 1875.
- Public Health (London Act), 1891.
- By-laws (New Streets and Buildings).
- Local Government Act, 1894.
- Tramways Acts.
- Housing of the Working Classes Acts.
- Artisans' Dwellings Acts.
- Arbitration Acts.
- Pollution of Rivers Acts.
- Waterworks Acts.
- Open Spaces Acts.
- Sewage in Great Britain and Ireland Acts.
- Gasworks Acts.
- Baths and Wash-houses Acts.
- Factory and Workshop Acts.

It will be observed this list goes beyond Public Health and Rivers Pollution Acts, but so do the examiners in their questions.

In addition to the above books the candidate should have impressed upon his memory formulae for calculating the following:—

- Sewage and sewage sludge.
- Steel and iron girders and roofs.
- Cast-iron columns.
- Wood beams and joists.

The knowledge required for designing and constructing the several drawings can only be acquired by practice and experience.

The above books may not be the best for their respective subjects, but they are in many instances more condensed than other publications of the same nature.

HAROLD GRIFFITHS.

CONDUIT MEAD ESTATE.

SIR,—The old conduit, formerly in South Molton-street, is now in the Guildhall Museum. It bears the City Arms.

ANDREW OLIVER.

SURVEYORSHIPS.

SURVEYORSHIP APPOINTMENT.—At the meeting of the Tottenham Council, held on the 2nd inst., Mr. Joshua Lambert, A.M.Inst.C.E., who has held the position of Second Assistant under Col. P. E. Murphy, the Water Engineer and Chief Surveyor to the Council, was appointed Deputy Water Engineer and Surveyor.

SURVEYORSHIP APPOINTMENT.—Mr. Frank Kelly, C.E., Assoc.San.Inst., has been appointed Surveyor to the Corporation of Dunstable. Mr. Kelly was for some years assistant in the Engineer's and Surveyor's and the Sanitary Departments of the Vestry of Bermondsey, S.E.

GENERAL BUILDING NEWS.

EPISCOPAL CHURCH, AIRDRIE, LANARKSHIRE.—The foundation stone has just been laid of the new St. Paul's Episcopal Church in Springwell-avenue, Airdrie. The church, which is being built of red stone from Bothwell Park Quarries, is from designs by Mr. H. D. Walton, of Glasgow. It will have seating accommodation for 200 worshippers, and will cost 1,300l.

RESTORATION OF PARISH CHURCH, WOODVILLE, NEAR LEICESTER.—The Bishop of Peterborough recently opened the parish church of Woodville, which has been restored at a cost of 1,500l. The architects were Messrs. Draper & Walters, of Leicester. The works consisted of building north and south aisles along the greater portion of the nave, lengthening the chancel to fit, widening and rebuilding the chancel, building organ chamber, and additional vestry, with new exit by the east door. The aisles are separated from the nave by a stone arcade in three bays of circular columns, with carved caps and Norman semi-circular arches. The floors in the aisles and chancel are of yellow pine wood blocks.

RESTORATION OF WRAGBY CHURCH, LINCOLNSHIRE.—The work of altering the interior of All Saints' Church at Wragby has just been completed. New seats have been provided, the aisles rearranged, and new windows with cathedral glass have been inserted. The old stone pavement has been removed and replaced by a block floor. The work has been carried out by Messrs. Halkes Bros., of Lincoln, under the superintendence of Mr. W. Scorer, architect, also of Lincoln.

PORCH, ABBEY CHURCH, SEMPRINGHAM, LINCOLNSHIRE.—The Lords of Her Majesty's Treasury have sanctioned a grant by the Commissioners for the Crown Lands of roof towards the estimated cost (189l.) of re-building the south door porch of the Abbey Church, Sempringham. The south door, with its carved Norman arch, is held to date from 1100 to 1150. It is desired to protect the door and arch from the further ravages of the weather by re-building the porch, which was taken down about 200 years ago; and it is intended to incorporate with it a carved priest's door arch, from the ancient chancel, taken down about the same time. The architect is Mr. Herbert Kirk, of Sleaford.

CHURCH, CHAPEL, ALLERTON, LEEDS.—Messrs. Stephens & Bastow, of Bristol, are building the new church in Chapel Allerton, Leeds. The architect is Mr. G. F. Bodley, A.R.A. The estimated cost is 10,000l., and the church is to seat about 800 people.

RESTORATION OF STRATFORD-ON-AVON CHURCH.—The restoration of Stratford-on-Avon Church was commenced eight years ago. The sum of 6,000l. was then raised by subscription, and expended principally in the repair of the outside of the fabric and the interior of the chancel. Very little was done to the interior of the nave and transepts, and it is now desired to complete the original design by restoring them. The work is being done under the advice of Mr. G. F. Bodley, A.R.A., under whose supervision the previous part of the restoration was carried out. Three things are aimed at:—(1) The rearrangement of the organ. (2) The relaying of the floor of the nave, the cleansing of its walls and pillars, and the substitution of open oak benches for the present pews; also the readjustment and enlargement of the heating apparatus, and the introduction of the electric light. (3) The rebuilding, on a revised plan, of the old vestry, taken down about 100 years ago on account of its dilapidated condition. It is expected that the sum of 5,000l. will be required.

CHRIST CHURCH, LANCASTER GATE, W.—The new morning chapel to Christ Church was opened on the 1st inst. The extension has been carried out, to harmonise with the main building, in Kentish rag and Monk's Park dressings; the interior with oak fittings and dados, whilst the walls have been left for future decoration. The architect was Mr. A. H. Webb, and the work has been carried out by Mr. F. T. Chinchin, builder, of Kensal Green, W.

CRICHTON MEMORIAL CHAPEL, DUMFRIES.—This building, which has been erected within the grounds of the Crichton Royal Institution for treatment of the insane at Dumfries, was opened on the 18th inst. The church, which has been eight years in building, is a memorial to Dr. and Mrs. Crichton. The design is by Mr. Sydney Mitchell, of Edinburgh. The chapel

is cruciform in plan. The building extends to a total length of fully 200 ft. The west doorway is deeply recessed and carved, and the door is of hand-wrought iron work. A porch encloses the entrance, a stair which leads to a height of 11 ft., that being the level of the church floor; and within the porch are two rows of columns, with carved capitals. The church is entered from the stair landing through another doorway. The nave is divided from the aisles by rows of columns, from which spring pointed stone arches, and these carry the opening of the clearstory. The chancel is 28 ft. square, the openings terminating in pointed arches rising to a height of 50 ft., and there are four piers forming the sub-structure of the square centre tower, which rises to a height of 120 ft. The ceiling is of oak, formed into a series of panels decorated throughout with high relief carving. The ceiling height from the floor to the crown of the roof circle is almost 60 ft. in the nave and 65 ft. in the choir. The communion table occupies the eastern extremity of the chancel, in which also are stalls for the choir. These and the pulpit and the screen of the organ chamber are of carved oak. The eastern end of the church is a crypt or mortuary chapel.

MISCELLANEOUS BUILDINGS, BELFAST.—In our last issue we briefly referred to these buildings, the foundation stone of which was laid on the 23rd inst. The following particulars of the buildings were supplied by the architect. The structure has a frontage of 92 ft. and a depth of 135 ft. In designing the building it was sought to avoid long corridors so universal in buildings of this description by assigning a separate entrance hall, with galleries round the main dome light. This hall will give access to all the departments of the building, which radiate from it. The building is divided into seven principal departments. The first of these is a hall capable of seating about 2,000 people, designed in the form of an amphitheatre with a single gallery. This hall will have entrances and exits from the Shankill-road, and also from Carlisle-street, in connexion with the hall are gentlemen's, ladies', and choir committee-rooms and cloak-rooms. The second is a medical mission department, comprising a large waiting-hall, capable of seating about 200; a doctor's consulting-room, and dispensary and dressing-rooms. It is entered by the main entrance from the building, and will also have a separate entrance from Carlisle-street, enabling it to be used directly from the outside. The third, or business, part of the premises will consist of four large shops, two on either side of the main entrance—and also offices over these shops. The fourth is a social kitchen department. This department can also be entered direct from the Shankill-road. The fifth section comprises a minor hall and classrooms. The hall will be situated on the first floor, and will be capable of accommodating 250 people. There will also be several classrooms and committee-rooms. The sixth is a social and recreative department. These rooms will be situated on the second floor, and will comprise general workers' parlour, male reading-room and library, boys' club-room and gymnasium, and also ladies' private sitting-room and bookstall. The seventh department is the residential training home. This will comprise four separate departments:—1. A wing with parlour and bedroom accommodation for gentlemen students, and a corresponding wing for ladies students; 2. The superintendent's residence; 3. The servants' department; 4. The lecture hall. The servants' department, although there will be accommodation for twenty students. Over a part of the building there will be a flat roof with staircase communication, so that it can be used as a recreation-ground in the summer months. The materials proposed in the construction of the building are Scotch stone for the front elevation and part of the return, with red brick for the remainder. The roof will be covered with Westmoreland green slates for the towers and front part of the building. The stone work for the large assembly-hall is being carried out by Messrs. R. Moreland & Sons, London. In order to give as light an appearance as possible to the building and cover the large span of the hall with a diminished one, roof of steel columns has been arranged which will also support the gallery giving a cantilever for the three front rows of seats, and the roof trusses will be in the cantilever form, also with the lower end tied down by long bolts through the walls to bed-plates in the foundations and the upper ends of the trusses supporting the large central dome light. The woodwork to the whole of the main block of buildings will be principally pine, the floors to the large hall and medical department will be wood block, and the corridors and entrance and central hall and cloakrooms will be Terrazzo marble mosaic. The N. A. P. Window Company's patent fittings are being adopted for principal windows. The main entrance hall and cloakroom walls will be tiled, and granite slabs will be used on the walls in more general use. There will be fireproof floors over the greater part of the first two stories. Mr. W. J. W. Roope is the architect, and Messrs. McLaughlin & Harvey are the contractors.

METHODIST CHURCH, CARDIFF.—A Methodist Free Church has just been opened in the Newport-road, Cardiff. The church is capable of accommodating 500 adults, while the lecture-room provides for 300 more. There are five class-rooms, a smaller meeting room, a ladies' parlour, and two

ART GALLERY, READING.—On the 10th ult. Mrs. Samuel Palmer opened the New Art Gallery and extensions of the Free Libraries and Museum, in completion of the block of Corporation buildings at Reading. The site, at the corner of Blagrove-street and Valpy-street, was given for the purpose by the late Mr. George Palmer and by Mr. Samuel Palmer, and the building which completes the block was erected as a memorial to their names. The new wing consists of three floors, with one large room on each. The most important is that on the upper floor, which has been fitted up as the picture gallery. It is 68 ft. long, 21 ft. wide, and 23 ft. high. On the ground floor the new wing is used in part for a news-room and partly for the

librarian's office. The former is 65 ft. long, and has four arched recesses along one side, and nine Gothic windows. The room in the basement is the same size as those above it. Here are all the necessary fittings for the purposes of a juvenile library and reading-room. Part of the room is set apart for the reception and inspection of various files of newspapers. The alterations to the old part of the Free Library and Museum Buildings included the remodelling of the stairs. On the upper floor the landing is now transformed into one long gallery, 76 ft. long and 10 ft. wide. It is lighted by glass ceilings. Part of the Bayeux tapestry which could not be got in the Art Gallery has been fixed here. One end of the gallery is devoted to the British-Roman pavements recently discovered at Silchester. The Silchester Museum has been altered by the removal of the partition which formerly divided it from the Architectural Room. A similar improvement has been made on the ground floor by the removal of the glass screen which formed one side of the old news-room. This room, with the added space formerly occupied by the book-issuing room, will now be used as the reading-room. The lending and reference libraries now occupy the whole of the back room (until lately used as the reading-room). Externally, the new work has been designed to harmonise with the older parts. The Art Gallery wall has been treated with broad brick panels, and relief has been obtained by the introduction of ornamental terra-cotta work above and below the plain part. Emphasis has been given to the corner by carrying up the roof in the form of a steep octagon pyramid, and finishing with traceried windows, dormers, and finials. The ground floor shows ten windows with terra-cotta margins and tracery, and is built of black and red bricks to match the adjoining buildings. The deep Corsehill stone plinth contains the windows which light the Juvenile Library. A feature externally is the series of reliefs on the frieze by Mr. W. Chas. May, the sculptor. The panels are four in number. The architect was Mr. W. Roland Howell, of Messrs. Cooper & Howell, and the general contractor is Mr. McCarthy E. Pitt. Messrs. Silver & Sons have executed all the library fittings, and Messrs. T. C. Williams & Sons the heating works. The terra-cotta was produced locally by Messrs. S. & E. Collier.

HOTEL, EDINBURGH.—The New Royal British Hotel, Princes-street, Edinburgh, has been in course of reconstruction for the past eighteen months, and is now approaching completion. The hotel has been built anew from the foundations, and is in English Renaissance style. The basement is a billiard-room, with four tables, lighted with electric light. Cellarage is also provided. On the street floor is a new buffet, a new restaurant with grill room, and large smoking room, while on the first floor is a dining-room, 60 ft. by 36 ft. Behind the dining-room and directly communicating with it is the kitchen, with its various working apartments. The stairs from the entrance hall to the first floor will be of white veined marble, and all the woodwork of the front entrance hall and landing is of polished mahogany. Adjoining the passenger elevator on the first floor landing is the hotel office. On the second floor there will be a smaller dining-room, capable of accommodating about fifty people, drawing-room, writing-room, and bed-rooms, &c. On the upper floor will be private parlours and bed-rooms. The architect is Mr. J. Macintyre Henry.

PROPOSED THEATRE FOR PERTH.—Mr. William Alexander, City Architect, Dundee, has prepared plans of a theatre for Perth capable of accommodating 1,300 persons, and seated for 920, having dress circles, upper circles, pit stalls, pit, and gallery, with proscenium opening 26 ft. wide, and a stage depth of 30 ft. The entire cost of the theatre is estimated to amount to 4,300l.

CORPORATION BATHS, WOLVERHAMPTON.—The first portion of the scheme for the repair and remodelling of the Wolverhampton Corporation Baths has been completed, and the second portion will be commenced shortly. Two rooms have been added to the caretaker's house, and various improvements have been made to the whole of the baths. The second-class swimming-bath has been converted into a boiler-house and laundry, and a new first-class swimming-bath will be erected to maintain the old degree of accommodation. The work has been carried out under the direction of the Borough Surveyor (Mr. J. W. Bradley, C.E.).

CLOCK TOWER, WEST BROMWICH.—On the 27th ult. the clock tower which has been erected at Carter's-green, West Bromwich, as a memorial of the public services rendered to the town by Alderman R. Farley, was opened by the Mayor (Councillor C. Akrell). The tower has been built by Mr. J. Dallow, under the supervision of Mr. E. Fincher (architect). The structure is of red brick and terra-cotta. It stands 50 ft. high, is elevated on stone steps, with a staircase inside. The clock has four dials.

HALLS, DUMBARTON.—The new halls which have been erected in connexion with the Dumbarton Parish Church were formally opened recently. The premises are situated behind the property at Nos. 53 and 55, Church-street, and are entered from Church-street by a passage 8 ft. wide. Within the buildings are included a hall with sitting accommodation for 735 persons, a lesser hall to seat 140 persons, committee-rooms, retiring-rooms, cloak-

rooms, &c., the total cost being upwards of 3,000l. The architect was Mr. J. M. Crawford, Dumbarton.

BUSINESS PREMISES, LINCOLN.—At the corner of St. Rumbold-street and Rosemary-lane, Lincoln, on the site of the old coach factory, Messrs. F. Arnold & Co., Limited, beer and stout bottlers and aerated water manufacturers, have erected new premises. The architect of the building was Mr. W. Cooper, of Lincoln, while the builders were Messrs. Oltz & Co., the plumber Mr. J. Holland, both of Lincoln, and the shafting and the machinery were also fixed by a local firm, Mr. Roberts, of Hungate.

PARISH HALL, GATESHEAD.—The foundation-stone of St. Chad's Parish Hall and School, West-minster-street, St. Cuthbert's Parish, Gateshead, has just been laid. The building, which has been designed by Mr. Eugene E. Clephan, architect, of Newcastle, consists of a parish hall, and a school with class-rooms, &c.

CONVALESCENT HOME, BOGNOR.—The foundation-stone of a Convalescent Home at Bognor, in connexion with the East London Hospital for Children, Shadwell, E., was laid recently by Mr. H. W. Trinder. The home is to occupy a site in Aldwick-road, and will be of three stories. On the ground floor will be two wards of four beds each, for convalescent surgical cases, a mess-room, large play-room, matron's sitting-room, kitchen, pantry, and the usual offices, together with separate cloak-rooms and lavatories for the boys and the girls. On the first floor will be two dormitories, in which ten girls' and ten boys' beds can be placed, matron's bedroom, a sitting-room, and bedroom for nurses, linen-room, lockers for the children's clothes, and separate sanitary accommodation for each dormitory, and for the staff. On the top floor accommodation will be provided for three nurses and three servants. The bath-rooms and lavatories, &c., will be in a detached building, separated from the main structure by disconnected corridors. The hall and corridors on the ground floor will be paved with Italian mosaic, the play-room with wood block flooring, and the stair-case will be of teak. A lift will be provided for coals, boxes, &c., to the first floor level. The brick walls will be built hollow throughout, and will be faced with red bricks. The greater portion of the upper part of the building and the roof will be covered with Broseley tiles, the vertical tiling being fixed on Wright's patent coke breeze blocks, built into the brick walling behind. The drainage work and the sanitary details have been arranged under the direction of Mr. Wallace Peggs, the sanitary adviser to the hospital. The architects are Messrs. Cheston & Perkin, of London; and the contractor, Mr. A. Burrell, of Arundel. The building is to cost 4,500l.

PROPOSED EXTENSION OF DUNDEE PUBLIC BATHS.—The proposal to extend the Central Baths in order to provide additional swimming and bathing accommodation came before the Baths and Markets Committee of Dundee Town Council on the 28th ult. The Burgh Engineer was instructed to prepare plans and estimates and report.

SANITARY AND ENGINEERING NEWS.

THE MANCHESTER SEWAGE PROBLEM.—The counting of the voting papers issued to owners and ratepayers of Manchester in connexion with the resolution of the City Council to seek powers for the provision of a culvert by means of which to convey the sewage effluent from Davyhulme to the tidal waters of the Mersey took place on Saturday last week. It will be remembered that the resolution of the City Council in favour of the scheme was submitted to a meeting of owners and ratepayers held at the Town Hall on September 24, and rejected. Thereupon a poll was demanded by the Lord Mayor in the name of the Council. The result of the poll was as follows:—Against the resolution of the Council, 49,069; in favour of the resolution, 20,528; majority against, 28,541. The votes against the scheme were contained in 44,973 papers and those for in 17,974 papers. The papers rejected were accounted for as follows:—No votes, 24,000; not signed, 1,043; other signatures than those of ratepayers in whose name papers were issued, 494; other reasons, 688; total, 27,125.

CASTLEFORD SERVICE RESERVOIR: SINGULAR FISSURE.—The District Council of Castleford have received the report of Mr. Malcolm Paterson, M.Inst.C.E., on the state of their service tank on Red Hill. This huge fissure extends across the entire surface of the bottom, 2 ft. to 5 ft. in width, and about 28 ft. deep. This was laid bare some months ago, after the sudden disappearance of the contents of the tank when the concrete bottom was partly removed. The reservoir site is on the Permian formation, the strata consisting of magnesian limestone lying in a compact sand bed almost indurated to rock. This rock yields the best moulders' sand which has been excavated for many generations by mining in long galleries with supports and adit entrances. The workings extend for miles and have been proved to approach within a few feet of the reservoir, and probably extend below it on the north side. By exposure to air and the infiltration of water they have gradually crumbled and fissured, causing the water to leak from the tank, which, in their turn, have accelerated the waste and the subsidence, and have caused the ruin of the tank. An inspection of these work-

ings was necessary, though attended by danger loose rock in the roof. In Mr. Paterson's report previous proposal to buttress the north side retaining wall, arched on plan, is set aside as futile and hazardous operation. Instead of this he proposes to construct a new reservoir holding 1,250,000 gallons on a new site on adjacent ground to the west of the present tank, which appears to be the only suitable site not hopelessly crumbled by the workings, but even here he considers that five borings, not less than 50 ft. deep, are indispensable to prove the ground. The present location of Castleford is 17,000, having increased 6,271 in 1871. The cost of the new reservoir open, is estimated at 3,250l., or if covered, at 4,750l. **WHITBY WATER SUPPLY.**—The Whitby R. District Council have instructed Mr. D. Ball, M.Inst.C.E., Newcastle-on-Tyne, to report on scheme of water supply for Robin Hood's Thorpe-lane, and Thorpe.

MORECAMBE PIER.—On the 27th ult. the first was driven of the new Morecambe Pier. In place the present pier, which is 20 ft. wide, one of the width, with a pavilion thereon, is being constructed from the designs of Messrs. Mangin, Littlewoods, Manchester, the Widnes Iron Foundry Company being the contractors.

PROPOSED SEWERAGE WORKS, &c., COLWYN BAY.—On the 26th ult. Mr. R. H. Hickel held inquiry into an application by the Urban District Council of Colwyn Bay and Colwyn for power to borrow the following loans, viz., sewerage works, 4,036l.; promenade works, 4,000l.; and water supply, 500l. The Council's Surveyor (Mr. W. Jones) explained the proposals. The Inspector called attention to the fact that the present scheme would involve the existence of manholes in the beautiful esplanade which he considered would be a pity. The surveyor admitted this, but asserted that the opinion of no other scheme would be reasonably feasible. Mr. R. Evans, Chairman of the Sanitary Committee, advocated a plan submitted some time ago by Pritchard, by which he claimed that the objection pointed out by the Inspector would be avoided; besides doing away with two of the outfalls proposed by the present scheme (which he contended would spoil the Bay), would carry the sewage to sea beyond the pier. The Surveyor, in reply to Mr. Evans's objection, assured the Inspector that the give effect to it would involve the relaying of the whole sewerage system of the district at an enormous expense. Mr. Farrington, the Borough Surveyor, Conway, at the request of the Inspector, gave views on the scheme, and after stating that Pritchard's scheme was better than the one with which he dealt with, said that the Council's proposals, as he could judge, formed the only feasible practicable scheme.

THE POLLUTION OF THE BRENT.—Extensive works are now in process of completion, under auspices of the Willesden District Council, for purification of the River Brent by dealing with the sewage of the Brent district of Willesden at the Sewage Farm, Stonebridge Park. The farm has been extended from twenty-four to ninety acres, extensive appliances for filtration and purification have been added to the existing plant. The cost has been nearly 60,000l. The water passed the Brent will be in a condition of purity considerably higher than the ordinary water of the river. The work has been carried out under superintendence of Mr. C. Robson, the Engineer of the Willesden District Council.—*Daily News.*

STAINED GLASS AND DECORATION.

THE TIVOLI RESTAURANT AND BUFFET, STRAND.—The premises adjoining the Tivoli Music Strand, have been taken over by a company, have rearranged and redecorated the building; premises consist of three floors above the ground floor, and the work of redecoration and furnishing, &c., has been carried out by Messrs. S. J. Warren & Sons, of Oxford-street, under the supervision of the architect, Mr. E. Runtz. The principal apartment is the Palm Room, with accommodation for people, is on the first floor, the colour treatment the room being green and gold. It has a floor and dado, the ceiling consists of imitation palm-leaves picked out in gold, and the walls the marble dado are divided by fluted and wood pilasters with green velvet panels. An ante-room to this room is treated in oak and green, and the floor is also of marble. The Billiard Room, on the second floor, has a parquet, carved oak panelling, and tapestry instead of paper. The top floor consists of the Masonic, and a small retiring room. A lift is provided in addition to the staircase. The ante-hall and billiard is treated in mahogany stained bright. On the ground floor is a small smoking room decorated in the Turkish style, and a bar ante-room. The premises are lighted by the electric light.

MEMORIAL WINDOW, ST. MICHAEL'S CHURCH, LICHFIELD.—The chancel of St. Michael's Church, Lichfield, was restored some years ago, the feature of the restoration being the opening of the Perpendicular window which had been closed at an earlier period. Part of the scheme was the insertion of stained glass in the window, the fulfilment has been delayed until the present

* Are the Paris Press to be the judges?

into use for the preservation of wood-paving blocks. The Surveyor to one of the London Vestries, who has used it largely for this purpose, reports that he is highly satisfied with the results, as he finds the blocks are not so slippery as creosoted blocks, and they have the peculiarity of appearing moist in hot dry weather, and on the other hand dry very quickly after wet. The material is also preferable in the neighbourhood of clubs and hotels as there is less smell than from creosote. The most recently laid "carbolicized" pavements in London are on the east side of Trafalgar-square and in Agar-street, Strand. The price is about the same as that of the best creosoting.

PUBLIC WORKS, SOUTHAMPTON.—Mr. Frederick H. Tulloch, M. Inst. C.E., one of the Local Government Board Inspectors, held an inquiry at the Audit House, Southampton, recently, as to an application by the Southampton County Council to borrow 10,076l. for the purposes of a new road, quay, and wharf; and 1,260l. for works of street improvement at Shirley and Freemantle. There were present the Town Clerk (Mr. G. B. Nalder), the Borough Surveyor (Mr. W. B. G. Bennett), the Borough Accountant (Mr. A. Ramshaw), and the Assistant Borough Surveyor (Mr. W. H. Killick). The Borough Surveyor explained the plans in detail to the Inspector, and it was further stated that the 1,260l. was required for kerbing several roads at Shirley and Freemantle.

SCOTTISH BUILDING TRADES FEDERATION.—The third annual meeting of the Scottish Building Trades Federation was held on the 28th ult. in the Building Trades Exchange, Glasgow, Mr. John Adam, builder, President, in the chair. A large number of representatives were present from all parts of the country. The report of the executive was submitted, from which it appeared that there are now thirty-two branches affiliated, embracing nearly all the principal towns throughout Scotland. On the motion of the Chairman the report on the financial statement was adopted. The executive and office-bearers were elected for the ensuing year:—Mr. John S. Hay, builder, Dundee, President; Mr. James Leslie, builder, Aberdeen, and Mr. Thomas Kay, wright, Glasgow, Vice-Presidents; with an executive of thirty-six members. Mr. James L. Selkirk, C.A., was re-elected Secretary and Treasurer. Various matters bearing on the progress of the Federation were considered, including draft general conditions of contract.

CITY COMMISSIONERS OF SEWERS.—On Tuesday a meeting of the Commissioners of Sewers was held in the Guildhall. The Medical Officer reported the case of an establishment employing a large number of persons in the City. He had analysed the water used on the establishment and which had passed through a filter, but which was not of the same purity as the water drawn direct from the main. This showed that filters of ordinary manufacture were not only useless but objectionable, and the same might be said of water stored in dirty cisterns, which was not of the same chemical purity as water from the main.—Mr. A. C. Morton said this rather pointed to the necessity of doing away with cisterns.—The Medical Officer: Rather to the necessity of cleaning out the cisterns. In reply to the question as to the alleged contamination of the water in the Lea, near Walthamstow, the Medical Officer said that a recent examination of the water for the Local Government Board showed that it was of the highest organic purity.—Mr. Gordon inquired the cause of the delay in supplying the electric light to the by-streets in the City.—The Electrical Engineer for the City stated that the matter had been the subject of the most careful experiments, and he believed the Streets Committee had been enabled to form an opinion as to the respective values of the various systems of lighting, but difficulties had arisen between the City of London Electric Light Company and the committee as to the interpretation of their agreement, and it was this that had interfered with a final choice.—On the motion of Mr. A. C. Morton it was resolved to send to the municipal authorities throughout the country copies of a small book explaining the dispute of the Commissioners with the Post Office authorities on the subject of opening the streets for the laying of wires for telegraphs.—A letter was read from the London County Council inviting the opinion of the City as to an application for Parliamentary power to enable Local Authorities to provide crematoria under the Metropolitan Burial Acts, and on the motion of Mr. Woodman, seconded by Mr. Malt-house, the letter was referred to the Sanitary Committee for consideration.

THE "ELEPHANT AND CASTLE," LONDON.—At a meeting of the Newington Vestry recently the General Purposes Committee reported that two plans had been laid before them for the rebuilding of the "Elephant and Castle" Estate. (1) To rebuild on the old foundations and using the existing easements under the footways abutting on the estate; and (2) for rebuilding to an improved line in Newington-butt, Walworth-road, rounding the corners of the estate at the headway, and improving the corner of the estate in Short-street by Newington-butt. They recommended that plan 2 be approved, and the easements be acceded to upon the usual terms and conditions. After a short discussion the Committee's recommendation was adopted.

THE FUTURE OF THE CRYSTAL PALACE.—Some time ago the Camberwell Vestry addressed a petition to the Home Secretary on the subject of the future of the Crystal Palace. They then expressed the opinion that in order to commemorate the Record Reign of her Majesty the Queen it was "an opportune time for securing the Crystal Palace as a permanent place of recreation for the people." A committee of the Vestry have since been further considering the matter, and as the outcome of their deliberations a conference of delegates from several London Vestries and District Boards took place on the 1st inst., at the Camberwell Vestry Hall. The meeting was convened at the instance of the Vestry, and its Chairman, Mr. D. C. Preston, presided. The conference was announced as being called "with reference to the proposal for her Majesty's Government to acquire the Crystal Palace as a national memorial of her Majesty's Diamond Jubilee." The discussion was opened by Mr. J. R. Tomkins, a member of the Camberwell Vestry, who proposed the following resolution: "That in the opinion of this conference the present is an opportune time for the Government to secure as a permanent place of instruction and recreation the Crystal Palace and its grounds as a national memorial of her Majesty's Diamond Jubilee, the building being the one used for the International Exhibition, 1851, and under Royal patronage opened to the public in 1854; and, further, that this Conference is of opinion that every means should be taken to present upon the Government to acquire and maintain the same for the enjoyment of the people for ever." In the course of his remarks he referred to the possibility of the estate being split up into building lots, and said that the value of the ground as such was estimated at 400,000l. He also added that it had been for the Government to determine whether the ground and the buildings thereon for 750,000l. The motion was seconded by Mr. W. St. Codd, also of the Camberwell Vestry. At such a moment it was well to remind the citizens of London that the Metropolis was rapidly spreading, and that in a few years what was now open ground in the vicinity of the Crystal Palace would undoubtedly be built over; hence the necessity of the grounds which were now available being secured as a lung for the people for ever was all the more urgent. Several delegates supported the motion, but Mr. Landon, of the Greenwich Board of Works, while expressing himself in general terms as being favourable to the proposal, pointed out that only ten of the forty-five district authorities of London were then represented. Eventually the motion was carried unanimously, and a sub-committee was appointed and charged with the duty of communicating the terms of the resolution to the City and County Councils and the district authorities of the Metropolis, and the governing bodies of the great provincial towns and cities. The result of the communications to be thus opened out will be submitted to another meeting.

CAPITAL AND LABOUR.

MANCHESTER BUILDERS' LABOURERS AND THEIR WAGES.—The Manchester and District Builders' Labourers' Society (affiliated with the Federated Builders' Labourers' Union of Great Britain and Ireland) recently decided to give the employers six months' notice of their intention to seek a readjustment of the conditions under which the men work, and an increase in the amount of wages they receive, and their notice will expire at the beginning of April next. The men state that, seeing that every other section of the building trade is reorganizing, and the employers, they think they are entitled to be as fairly dealt with, as their work is as important, as dangerous, and as laborious as that of any other body of workers. The men have drawn up a revised code of working rules. For masons' labourers the minimum rate of wages is to be 6d. an hour; for tuckers, chaimers, erectors of steam cranes, and scaffolders, 6½d. per hour; men looking after sawing frames and cutters-up, 5½d. an hour; the working hours of all labourers connected with the Society to be the same as those of union masons; the aforesaid hours are to be worked on all jobs within a radius of three miles from the Royal Institution, Mosley-street; all men working on jobs outside that radius to receive train or railway fare, lodging allowance, &c., the same as union masons; proper provision to be made for meals. On the question of overtime, it is proposed that when labourers are required to work all night, from 4.30 p.m. (winter) and 5.30 p.m. (summer), the time should be reckoned as follows:—First two hours, 1½ time; next two hours, 1½ time; and afterwards double time for all hours worked up to 7 a.m. the following morning. Sundays, Christmas Day, and Good Friday are also to carry a double time rate of wages. The rules laid down for the joiners' labourers are on somewhat similar lines, the minimum rate of wage being fixed at 6d. an hour. Working hours, which are to be the same as union joiners, are to be worked on all jobs within a radius of three miles from the respective shops.

BUILDING TRADES AT BOLTON.—The journeyman slaters of Bolton should have struck work on the 27th ult., because the employers refused to concede an advance of 1d. per hour, making their pay 9½d. At the last moment the men accepted the masters' offer, which means an increase of one half

penny per hour. The employers submitted that the men's demands had been conceded they would have been paying more than any other town in the kingdom, not excepting Manchester and Liverpool.—*Manchester Courier.*

LEGAL.

THE CLAIM AGAINST THE ST. PANCRAS GUARDIANS.

THE case of Drew-Bear & Co. v. the Guardians of the Poor of St. Pancras was mentioned to the Court of Appeal, composed of Lords Justice A. L. Smith, Rigby, and Henn Collins, on the 1st inst. The history of the case has been fully reported in former issues (see the *Builder* for November 2 and 28 and December 5, 1896, and January 23 at 20, March 6 and 13, April 17, and May 22, 1897). After some discussion between counsel as to the date of the next hearing.

Lord Justice A. L. Smith said that he had already had two interviews as to the matter in his private room, and he was of opinion that the litigation would never come to an end if a spirit of antagonism were indulged in.

Mr. English Harrison, who represented the Guardians, said that the case lasted twenty-two days before Sir Edward Ridley, and the only question which had been allowed to stand over for further investigation was the assessment of damages. Out of twenty-nine witnesses called twenty-six were called on the case against the Guardians. Sir Edward Ridley had said when the case went before him at the beginning of the Long Vacation that he could not take the case this side of Christmas. The Guardians wished to get the case disposed of, and then he (Mr. Harrison) had suggested that they should go before another judge. His learned friend had, however, consented, and pressed it on. Sir Edward Ridley then said that he could not take the case possibly before January 11, and afterwards, on October 26, the had received a communication from him saying he could not take the case owing to public business and other engagements. He (Mr. Harrison) suggested that no injustice could be done by asking that the case might go before another Official Referee. Mr. Justice Ridley had said that he did not wish to all to take it.

Lord Justice A. L. Smith said that the Court was unanimously of opinion that it was a case which ought to go back to Mr. Justice Ridley. He did not think that any other man could do it in the time. Mr. Justice Ridley had gone into the case with the matter at great length and had come to the opinion that the contract should be torn up and the case decided on quantum meruit. That Court, however, had come to another opinion, and when Mr. Justice Ridley again sat on the case he could soon find what the damages were. He was convinced that if the matter went before another referee the whole of it would be thrown away, but that would not be the result if the case went again before his brother Ridley. Probably Mr. Justice Ridley could take the case on returning from his circuit and if this could be done, he would be of great service to the parties, and his time would not be thrown away.

"DANGEROUS STRUCTURES" UNDER THE LONDON BUILDING ACT, 1894.

IMPORTANT CASE IN THE DIVISIONAL COURT.

THE case of *in re Mead*, a Metropolitan Police Magistrate, came before Mr. Justice Wright and Mr. Justice Kennedy, sitting as a Divisional Court at Queen's Bench on the 2nd inst., when the Magistrate appeared to show cause against a rule for mandamus as to why he should not hear or determine a summons under the London Building Act, 1894, with regard to a dangerous structure. The question to be determined was whether a summons under Section 107 of the Act could properly served by being affixed to the premises only.

It appeared that on September 22 the London County Council applied for a summons under that section in question, the summons being made returnable before the Magistrate on October 1, and it was addressed to the "owner" of the premises *in re Mead*. The owner, however, when called upon, did not appear. The complainant then proposed proceeding, in the owner's absence, on proof that a copy of the summons had been affixed to the premises. The complainant stated that the owner was unknown (but no evidence was given that any steps had been taken to discover him), but contended that the summons was sufficient under Section 188 (1) of the Act of 1894. The Magistrate thought, however, that the service of any summons, even if anonymous, addressed, viz., "to the owner," was a notice of the service of which is provided for by the Summary Jurisdiction Acts, and must therefore be served personally, or at the last known place of abode. He also thought that even if a summons addressed "to the owner" in a case where the owner could not be found was not "provided for" by the Summary Jurisdiction Acts "there should be evidence before him that reasonable diligence had been exercised by the complainant to discover the owner of the property. In these circumstances

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Prerequisites.	Designs to be delivered.
Heating and Ventilating Hospital, Colaba Main.	Edinburgh T.C.	.....	Nov. 25
Public Hall.	Walls (Somerset) T.C.	22, 150, and 100.	Nov. 30
Pier	Men u Bridge (North Wales) U.D.C.	.....	Dec. 16
Water Supply Scheme, Clich.	Belper R.D.C.	104, 150, and 50 guineas	Jan. 1898
Public Library, Fort Elphinst, South Africa.	Committee	100 guineas and 50 guineas	Feb. 15
Scheme for Sewage Disposal.	Belper U.D.C.	50 guineas and 25 guineas	May 1

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Paving, Flagging, &c. Gorton-road.	Redish U.D.C.	T. B. McCallum, Engr. 4, Chapel Walk, Manchester	Nov. 9
Part of Isolation Hospital, near Workhouse.	Halifax R.D.C.	Mitchell & Forl, Archt. 2, Langwood-rd., Easthouse	do.
House, York-street, Dufftown, Elgin.	J. M. William	J. H. William, Townaven Cottage, Albert-place, Dufftown	do.
Alterations, &c. at Workhouse, Selly Oak.	Kline's Norton Union	R. Docker, Workhouse, Selly Oak, Birmingham	do.
Dealt Concrete Wall (300 yards) at House, York-street, Dufftown, Elgin.	Stockbridge R.D.C.	W. J. Ayler, Surv. Bronghton, Stockbridge	do.
*Repairs to Roofs and Pointing Brick-work at Pumping Station.	Wimbledon U.D.C.	C. H. Cooper, Council Office, Broadway, Wimbledon	do.
Three Houses, Skipton-road, Ilkley.	.....	R. Calvert, Archt. 4, Forster-square, Bradford	do.
Belonging Llanvyrnwy Arms Inn, Tynewydd, Wales.	Beddington U.D.C.	A. O. Evans, Archt. 4, Forster-square, Bradford	Nov. 10
Sewer and Pipes, Bedlington.	Bedlington U.D.C.	C. D. Foster, 24, Great-ge-street, West, Newcastle-on-Tyne	do.
Engineering Work at Workhouse, Southdown-road, Liverpool.	Tuxford Park Guards	Mr. Moulding, 15, High Park-street, Liverpool	do.
*About 150 yards Pipe Sewer with Manholes, &c. at Workhouse.	Stoke-on-Trent Union	A. Philp, Bone Surveyor, Stoke-on-Trent	do.
Alterations, Shop Premises, Barn Elfen-street, Blackburn.	Slakes Moor Co-op. Soc. Ltd.	C. Lyman, Archt. Stoke-on-Trent	do.
Store, Larkholme-lane, Keighley.	Keighley Indus. Co-op. Soc. Ltd.	Simpson & Duckworth, Archt. Blackburn	do.
Cut-shed, Brewery Yard.	Alwrick Brewery Co. Ltd.	J. Hargreaves, Archt. North-street, Keighley	do.
*Supplying and Laying Asphalte.	Bermondsey Vestry	G. Dunn, Surveyor Dapenry-st, Alwrick	do.
Work at Baths and Washhouses, East India Dock-road.	Stafford R.D.C.	F. Sumner, Town Hall, Sparrad, S.E.	do.
School, Godey Drive End.	Stafford R.D.C.	Messrs. Clarkson, Archt. 136, High-street, Poplar	Nov. 11
Granite Road Metal, &c. Burn Valley Iron Fencing (1,600 yds.) Burn Valley	West Hartlepool Corp.	W. Jarvis, Archt. Kings-lyon	do.
Shop and Warehouse.	Ossett Co-op. Soc.	W. Brown, Borough Engr. West Hartlepool	do.
Police Station, Marlborough, Wilts.	Standing Joint Com.	C. S. Adye, County Surv. Trowbridge	do.
Sewer, Manorhamilton, Ireland.	.....	F. Reany, Workhouse, Manorhamilton	do.
Engineer's Shop, Union-street South, Hales.	Swindon New Town U.D.C.	A. G. Daisell, Archt. 16, Commercial-st, Hales	do.
Twelve Houses and Two Shops, White-cote Bramley, Leeds.	U.D.C.	J. P. Kay, Archt. 34, Pruden-tial-buildings, Park-wood, Leeds	Nov. 12
Two Houses, Aglionby and Hart-street, Cavell.	Swindon New Town U.D.C.	G. Armstrong, Archt. 75, Louth-street, Cavell	do.
Brewer's Tanks, &c.	U.D.C.	H. J. Stamp, Surv. Public Office, Swindon	do.
Latrines, &c. at Schools.	Great Cornard (Huffin) School Board.	H. C. Canham, St. Friars-street, Sudbury	Nov. 13
*Wall, with Pumps and Engines, about 4 miles Main, &c. and Reservoir, Engine House, &c.	Ergington U.D.C.	Merryweather & Sons, Greenwith, B.E.	do.
Boundary Wall, Springfield, &c. Ashton-road.	Waterworks	Borough Surveyor, Town Hall	do.
Two Pairs Semi-detached Villas, Brumford-road, Swindon.	.....	W. Reid, Archt. Corn Exchange, Swindon	do.
Paving, Sewering, &c. Clare-road and others.	Levensham (Lancs.) U.D.C.	J. Japan, Surv. 2a, Union-street, Levensham	do.
Drainage at Workhouse.	Westbury (Wilt) U.D.C.	W. E. Stanley, C.E. Trow-bridge	do.
Sinking Two Pits, Aber, near Cear-philly.	Windsor Steam Coal Co. Ltd.	Forster & Co. Guildhall-chambers, Cardiff	do.
Carriage Drive, Norbury Park Estate, Mickleham.	L. Salomons	J. Martin, Norbury Park Farm, Mickleham	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Market Hall, Hawes.	J. P. Kay, Archt. 34, Pruden-tial-buildings, Park-wood, Leeds	Nov. 13
Keirring and Channelling.	Middlehead T.C.	J. P. Kay, Archt. 34, Pruden-tial-buildings, Park-wood, Leeds	Nov. 13
Drainage Works, near Glasgow-rd. N.B.	Ayr C.C.	Harry Tagg, Thames Hotel, Glasgow	do.
*Hopper Barge.	Plymouth Corp.	J. Paton, Boro Surveyor's Office	do.
Forming Roads, &c. Bournemouth.	W. Wilson & Phillips, Surv. Clarence-st, Bournemouth	do.
Park Estate, Southdown.	O. G. Smyth-Richards, Surv. Barnstable	do.
Cottage, New Mill, Lynton, Devon.	W. Wilson & Phillips, Surv. Barnstable	do.
Couch-house, Stabling, &c. Hampton Court.	W. Wilson & Phillips, Surv. Barnstable	do.
Additions to Schools, Middle-street, Lancaster.	W. Wilson & Phillips, Surv. Barnstable	do.
Alterations, &c. Wesleyan Chapel, Lancaster.	W. Wilson & Phillips, Surv. Barnstable	do.
Pipe Sewers, &c. Richmond Park.	W. Wilson & Phillips, Surv. Barnstable	do.
Engineers' Cottages, Carr Wood, Lancs.	W. Wilson & Phillips, Surv. Barnstable	do.
Branch Sewer, Hirt.	W. Wilson & Phillips, Surv. Barnstable	do.
Road Works, Battenberg-rd., &c.	W. Wilson & Phillips, Surv. Barnstable	do.
Heating Hospital, Manston.	W. Wilson & Phillips, Surv. Barnstable	do.
*Main Sewerage House Connections.	W. Wilson & Phillips, Surv. Barnstable	do.
*Seven Dwelling Houses, Burnham, Essex.	W. Wilson & Phillips, Surv. Barnstable	do.
Heating and Ventilating New City Hospital.	W. Wilson & Phillips, Surv. Barnstable	do.
*New Road and Sewers.	W. Wilson & Phillips, Surv. Barnstable	do.
*Extension of Clerk's Office at Asylum.	W. Wilson & Phillips, Surv. Barnstable	do.
Road Works, &c. George-street, and Others.	W. Wilson & Phillips, Surv. Barnstable	do.
Sewers, Cheston-road.	W. Wilson & Phillips, Surv. Barnstable	do.
*Erecting Coroner's Court and Office, Lewisham.	W. Wilson & Phillips, Surv. Barnstable	do.
Two Cottages, Ballyhaile Station, Ireland.	W. Wilson & Phillips, Surv. Barnstable	do.
Steel Girder Tramway Rails (2,500 tons).	W. Wilson & Phillips, Surv. Barnstable	do.
Hospital.	W. Wilson & Phillips, Surv. Barnstable	do.
*Construction of Puntoon and Timber Dolphin.	W. Wilson & Phillips, Surv. Barnstable	do.
Schools, Murray-road.	W. Wilson & Phillips, Surv. Barnstable	do.
*Cottages, Woodham Ferris, Essex, &c.	W. Wilson & Phillips, Surv. Barnstable	do.
Factory, &c. St. Ann's-street, Leeds.	W. Wilson & Phillips, Surv. Barnstable	do.
Minister's House, Castlemeads, Roch-dale.	W. Wilson & Phillips, Surv. Barnstable	do.
Two Shops and Houses, Walton-on-Tas.	W. Wilson & Phillips, Surv. Barnstable	do.
Hotel, Rennie's Arms, North Abbey, North.	W. Wilson & Phillips, Surv. Barnstable	do.
Drainage and Road Making, Shenfield, Essex.	W. Wilson & Phillips, Surv. Barnstable	do.
Additions to Rectory, &c. Maunty, near St. Yarnmouth.	W. Wilson & Phillips, Surv. Barnstable	do.
Iron Roofing, &c. Knappes-rd., Cork.	W. Wilson & Phillips, Surv. Barnstable	do.
Two Villas, Douglas-road, Cork.	W. Wilson & Phillips, Surv. Barnstable	do.
Two Villas, Farish Obyll, Ilkley.	W. Wilson & Phillips, Surv. Barnstable	do.
Five Houses, Bradford.	W. Wilson & Phillips, Surv. Barnstable	do.
House, St. Paul's-road, Manningham.	W. Wilson & Phillips, Surv. Barnstable	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applica-tions to be in.
*Inspector, Two.	Committee of Sewers	£1. 4s. per week	Nov.
*Clerk of Works	Enfield U.D.C.	£1. 3s. per week	Nov.
*Foreman Drainage, &c.	Enfield and Walton U.D.C.	.....	Nov.
*Manual Training Instructor and Assistant Instructors in Woodwork	School Bd. for London	£200. per ann.	Nov.
*Assistant Surveyor	N. Riding of Yorks. County Council	£200. per ann. Travelling Expenses, &c.	Dec.

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & xxi. Public Appointments, pp. xviii. & xxi.

Feering, &c., Essex.—"Houchin's Farm," 276 a. 3 f. 14 p. f.	£2,000	Chingford.—Chingford-rd., two freehold shops.	£600	By ORGILL, MARKS, & ORGILL, (At Masons' Hall Tavern).	
Various enclosures of land, 53 a. 2 r. 37 p. f.	885	Lewes, Sussex.—"The Southover Brewery," with 35 licensed houses attached, f. and c.	117,100	Westbourne Park.—Cornwall-rd., "The Warwick Castle" p.h., u.t. 38 yrs., r. 150s., with goodwill.	do.
Maldon (near), Essex.—The Manor of Great Totham, with its Rights, &c.	7,020	King's Langley, Herts.—"The King's Langley Brewery," with 32 licensed houses attached, f. and c.	64,000	Varmouth, Norfolk.—Regent-st., a freehold residence and business offices adjoining.	do.
October 15.—By HANDS & BRADY.		October 19.—By BEAN, BURNETT, & ELDRIDGE.		October 20.—By JOHN BOTT & SON.	do.
Catford.—14, Westdown-rd., u.t. 76 yrs., g.r. 81, c.r. 40s.	395	Clerkenwell.—8, Clerkenwell Close, f. r. 300s.	4,150	Herne Hill.—27 and 29, Shanker-street, u.t. 70 yrs., g.r. 12s., r. 75s.	do.
Walhamston.—394 and 396, Hoe-st., f. r. 97, 10s.	1,830	St. John's Wood.—17 and 19, Hilgerton-rd., u.t. 28 yrs., g.r. 32s., r. 75s.	880	By VICTOR VAUGHAN.	do.
77, Beulah-rd., f. r. 30s.	1,860	Old Ford.—273 and 275, Old Ford-rd., u.t. 28 yrs., g.r. 32s., r. 75s.	870	Willesden.—Denzil-rd., f.g.r. 61. 10s., reversion in 83 yrs.	do.
Regent's Pk.—85, King Henry-rd., u.t. 64 yrs., g.r. 12s., c.r. 85s.	565	Notting Hill.—99, St. Mark's-rd., u.t. 78 yrs., g.r. 10s., r. 75s.	700	By H. E. FOSTER & CRANFIELD.	do.
New Cross.—47, New Cross-rd., u.t. 204 yrs., g.r. 81, r. 36s.	180	Hoxton.—291, 293, and 295, New North-rd., u.t. 104 yrs., g.r. 15s. 10s., r. 120s.	490	Manor Pk.—25 and 27, Coleridge-av., f. r. 50s.	do.
By MAY & ROWDEN.		Ilkington.—110, Barnsby-rd., u.t. 22 yrs., g.r. 6s., r. 15s.	335	Lewisham.—St. Donat's-rd., &c., i.g.r. of 271, u.t. 55 yrs., g.r. 11s.	do.
Regent-st.—No. 176, a profit rental of 130s., u.t. 9 yrs., with reversion.	3,400	Barnsby.—Cloudesley-rd., f.g.r. 41. 10s., reversion in 24 yrs.	210	Kingston Hill, Surrey.—f.g.r. of 35s., u.t. 67 yrs., g.r. 11s.	do.
By Messrs. COBB.		By J. & W. JOHNSON & CO. (at Masons' Hall Tavern).		By ERNEST OWERS.	do.
Hfield, Kent.—An enclosure of land, 5 a. 0 r. 37 p. f.	1,100	Wood Green.—Green Lanes, "The Queen's Head" p.h., u.t. 58 yrs., r. 400s., with goodwill.	24,000	Brixton.—85, Tasman-rd., u.t. 77 yrs., g.r. 6s. 10s., r. 28s.	do.
Northfleet, Kent.—Enclosures of orchard land, 18 a. 2 r. 14 p. f.	2,200	By BELTON & SONS (at Masons' Hall Tavern).		Hampstead.—17, 17A, and 17B, Coleridge-av., f. r. 50s.	do.
October 18.—By V. Y. CHEW.		Spitalfields.—Gun-st., "The Artillery" Tavern, f. r. 35s.	4,000	By FRANK JOLLY & CO.	do.
Leyton.—1 and 2, Fernside-villas, f. r. 54s.	800	By SEDGWICK, SON, & WEALD (at Watford).		Clapton.—45, Down's-rd., f. r. 60s.	do.
Walhamston.—Hawkesley-rd., five plots of building land, f.	140	Watford, Herts.—Vicarage-rd., "Faralline," and o.a. 3 r. 21 p. f.	3,780	Wapping.—Chandler-st., freehold warehouse premises, f. r. 50s.	do.
Aldersgate-st.—3, Farn-st., f. r. 175s.	3,060	By HEPPEY & SONS (at Leeds).		By A. DOWELL (at Edinburgh).	do.
By J. W. KEMSLEY.		Leeds.—308, West-st., 1 to 10, Chatham-st., and 1 to 4, Clark's-yard, f. r. 201s. 15s. 4d.	450	Loch Fyne, Argyllshire.—The Estate of Strachur, area 7,922 a.	28
Plaistow.—506 and 508, Barking-rd., f. r. 90s.	1,300				
Ilford.—Ilford-lane, four blocks of building land, 25 a. 3 r. 22 p. f.	16,300				

100

RYTON (Durham).—For the erection of branch stores and cottages at Clara Vale, near Ryton, for the Blaydon Co-operative Society, Limited. Messrs. Liddle & Browne, architects, Prudential buildings, Newcastle. Quantities by architects —
John Reed & Co. £2,451 0 0 R. Thompson & Co. £2,212 7 0
Henderson & Son .. 2,457 18 6 Mrs. Bates .. 2,225 5 5
T. & R. Lamb .. 2,458 18 1 Mrs. Armstrong .. 2,225 0 0
Davison & Bellam .. 2,318 5 6 Jos. Pelton .. 2,233 0 0
T. H. Wilson .. 2,312 15 0
Mr. Pelton refused the contract, and Messrs. Bates and Armstrong submitted reduced tenders from schedule of deductions, and Mr. Bates' tender of £1,913. 15s. 10d. was accepted.

STALYBRIDGE.—For the erection of a Conservative Club, Muttonhead, Messrs. John Eaton, Sons, & Cantrell, architects, Ashton-under-Lyne.—
Garstide, Barnes, & Co., Stalybridge (accepted).....£2,158

THIRSK.—For the execution of sewerage works, Sowerby, for the Rural District Council. Mr. Theo. Stokes, surveyor, Market-place, Thirsk:—
G. Wilson .. 2,095 1 4 F. W. Simpson .. 2,095 1 4
Parker & Sharp .. 2,045 6 0 Burton Leonard .. 2,045 6 0
W. Standing .. 2,071 3 3 Leeds .. 2,146 11 2
Geo. Wright .. 1,961 11 0
* Accepted.

TAUNTON.—For alterations and additions to Rosemount Cottage, Taunton, for Mr. Vere Hare. Mr. F. W. Roberts, architect, 2, Hammett-street, Taunton. Alterations. Additions. Total
T. Manning .. £376 10 .. £288 .. £664 10
A. J. Spiller .. 875 0 .. 245 .. 1,120 0
F. W. Rowell, Taunton .. 297 0 .. 260 .. 557 0
* Accepted.

TAUNTON.—For new laundry, West of England Collar Works, Viney-street, Taunton, for Mr. R. M. Moody. Mr. F. W. Roberts, architect, 2, Hammett-street, Taunton. Quantities by the architect:—
T. Manning .. £798 0 0 A. J. Spiller .. £795 12 6
F. W. Rowell .. 775 0 0 W. Potter .. 789 2 6
H. J. Spiller, Taunton .. 774 0 0
* Accepted.

TWICKENHAM.—For the supply of Gurnsey granite, for the Urban District Council. Mr. G. E. Laffan, Surveyor, Town Hall, Twickenham:—

Nowell & Co. .. 5 d.
W. Griffiths .. 15 6 per cubic yard
A. & F. Manuelle .. 15 6 ..
Mowlem & Co. .. 15 11 ..
R. L. & J. Jennings .. 3 3 ..
L. Sommerfeld, London, E.C. (accepted) 15 3 ..

WIVELISCOMBE (near Taunton).—For entrance lodge, Abbotsfield, Wiveliscombe, for Mr. W. Macadam Smith. Mr. F. W. Roberts, architect, 2, Hammett-street, Taunton. Quantities by the architect:—
W. Potter .. £249 0 0 T. W. Richards .. £780 0 0
Vickers & Poole .. 255 0 0 F. W. Rowell, Taunton .. 248 0 0
* Accepted.

LONDON SCHOOL BOARD TENDERS.

The following lists of tenders were submitted by the Works Committee at the last meeting of the London School Board:—

DALMAIN-ROAD SCHOOL.—Enlargement. Extra amount required for building brickwork in cement.
J. Longley & Co. £12,017 .. £2,815
J. Charteris .. 11,970 .. 210
F. & H. F. Higgs .. 11,970 .. 395
Simpson & Co. 11,317 .. 350
E. Lawrence & Sons .. 11,041 .. 394
S. Hart .. 10,999 .. 359
J. Shillies & Son .. 10,761 .. 395
Treasure & Son .. 10,735 .. 396
J. & M. Patrick .. 10,540 .. 398

MANSFIELD-ROAD SITE.—Removing three iron buildings, &c., from the Kennington-road site, and re-erecting them on this site.
J. & M. Patrick .. £1,400 .. £795
Humphreys, Limited .. 1,027 .. 920
D. Charteris .. 963 .. 920
T. J. Hawkins .. 920 .. 887
J. Mitson .. 887

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TRAP, VENEER, and TIMBER MERCHANT, Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, BAY STREET, FARRINGTON ROAD, E.C.

HE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE. Telephone 58, 74, 80, 81, 82. This Address: "SNEWIN, London."

HUGH MYDDELTON.—Adapting portion of basement for timber store —

Extra or omitted line
whiting per
yard super.
J. Harvey .. £135 0 0 .. 4d.
W. Martin .. 131 10 0 .. 4d.
Marchant & Hirst .. 109 0 0 .. 4d.
G. Barker .. 101 0 0 .. 4d.
Johnson & Co. 98 7 6 .. 4d.
J. Kiddle & Son .. 97 0 0 .. 4d.
* Accepted.

NECKINGER-ROAD.—School drainage and sanitary work —
J. Corbett & Son .. £1,590 .. £1,439
W. V. Good .. 1,590 .. 1,439
H. Leney .. 1,590 .. 1,439
Lathey Bros. 1,493 .. 1,293
W. Akers & Co. 1,435 .. 1,341
H. & G. Mallett .. 1,341

SURREY-SQUARE SCHOOL.—Overhauling heating apparatus and providing new boiler:—
J. Fisher & Son .. £107 0 0 .. Whippell Bros. & Rowley 18 6
J. Eason .. 195 0 0 .. J. Wootton-Smith, Gray .. 14 2
Dargue, Griffiths & Co. 105 12 0 .. Turner & Co. 79 8 0
W. G. Cannon & Sons .. 99 0 0

SUPPLY OF BENTWOOD CHAIRS, on a running contract —

Anderson Furniture .. Per 100. .. H. S. Benjamin .. Per 100. ..
Co. Ltd. £17 10 0 .. Thonet Bros. 15 0 0
Arkinson & Co. 16 10 0 .. Bentwood Furniture .. 15 0 0
Stanley Phillips & Co. 15 16 8 .. Co. Ltd. 15 0 0
E. & O. Quilmann .. 15 8 4 ..
* Recommended for acceptance.

TO CORRESPONDENTS.

W. B. G. (Below our limit).—R. W. C. (Amount should have been stated).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is applied DIRECT to the Office to residents in any part of the United Kingdom, at rate of 1s. per annum PREPAID. To all parts of Europe, Asia, Australia, New Zealand, India, China, Ceylon, &c., 2s. per annum. Remittances payable to DOUGLAS FOURDRINIER, per address addressed to the publisher of "THE BUILDER," No. 6, Cannon-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS preparing at the Publishing Office, 138, per annum 4s. 6d. per quarter), can ensure receiving "The Builder" by Friday Morning's Post.

THE BATH STONE FIRMS, LTD.
BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Doulting Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Co.)
The Doulting Stone Co.,
Chief Office:—Norton, Stoke-under-Ham,
Somerset.
London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic L. Asphalte Company (Mr. H. Glenn), Office, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADV.]

SPRAGUE & CO'S

INK-PHOTO PROCESS,

4 & 5, East Harding-street,
Fetter-Lane, E.C. [Ad.]

QUANTITIES, &c., LITHOGRAPHIC
accurately and with despatch.

METCHIM & SON 8, PRINCES STREET,
ST. GEORGE'S ST. WESTMINSTER.
"QUANTITY SURVEYORS' TABLES,"
For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADM.]

PILKINGTON & CO

(ESTABLISHED 1888),

MONUMENT CHAMBERS,

KING WILLIAM STREET, LONDON, W.C.

Registered Trade Mark,

Poloncean Asphalte

PATENT ASPHALTE and FELT ROOFING,
ACID-RESISTING ASPHALTE.

WHITE SILICA FAVIN

SEYSSSEL ASPHALTE.

EREST MATHEWS & CO. 61, ST. MARY AXE, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.

PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION.

OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.

Head Office and only City Address, 61, ST. MARY AXE, E.C.

SEND FOR ILLUSTRATED PRICE LIST.

Payne-road Wharf, Bow,
Branch House, 37, Victoria-street, Bristol.

The Builder.

VOL. LXXIII. No. 2898.

NOV. 15, 1897.

ILLUSTRATIONS.

Monument to Maupassant, in the Parc Monceau, Paris.—M. Verlet, Sculptor.....	Single-Page Tint-Block.
Monument to Lelaine, in the Square des Épinettes, Paris.—M. Dalou, Sculptor; M. Formige, Architect.....	Single-Page Tint-Block.
Competition Design for Church at Exeter.—By Mr. C. A. Nicholson.....	Double-Page Ink-Photo.
House and Stabling at "Maidenhatch," Pangbourne.—Mr. W. Ravenscroft, F.S.A., Architect.....	Double-Page Ink-Photo.
The County Hotel, Salisbury.—Mr. E. Doran Webb, F.S.A., Architect.....	Single-Page Photo-Litho.
New Ball-Room, Royal Palace Hotel, Kensington.—Messrs. H. S. Legg & Son, Architects.....	Single-Page Photo-Litho.

Blocks in Text.

Striking Treatment of Two-Light Window.....	Page 388	Livesey Hall.....	Page 387
Sketches of details, St. Michael's Church, St. Albans.....	" 389	Design for Church at Exeter: Plan.....	" 400
Portions of the Old Marshalsea Prison.....	" 390	House, Maidenhatch, Pangbourne: Plans.....	" 401
Sketches at the School of Art Wood Carving, Exhibition-road.....	" 395	Stables at Maidenhatch: Plans.....	" 401
Royal Palace Hotel, Kensington: Plan.....	Page 402		

CONTENTS.

The Matter of Chichester Cathedral.....	387	Archæological Societies.....	390	Obituary.....	413
Grinshope's Latest Effort.....	388	Monument to Jean Leclaire, Paris.....	400	General Building News.....	414
Architectural Association.....	391	Design for Church at Exeter.....	400	Sanitary and Engineering News.....	416
Game and Reviews.....	394	"Maidenhatch," Pangbourne, Berks.....	400	Electric Lighting News.....	416
Pool of Art Wood Carving.....	395	County Hotel, Salisbury.....	401	Painted Glass and Decoration.....	416
London County Council.....	395	Royal Palace Hotel Extension.....	401	Foreign.....	417
Owen Artificial Stone.....	396	Institution of Civil Engineers.....	402	Miscellaneous.....	417
Surveyors' Institution.....	397	The Auctioneers' Institute.....	402	Capital and Labour.....	418
Surveyors' Association.....	397	Applications under the 1894 London Building Act.....	403	Legal.....	418
Architectural Societies.....	398	Competitions.....	403	Meetings.....	419
		The Institute's Fellowship and Examinations.....	403	Recent Patents.....	419
		Surveyorships.....	403	Some Recent Sales of Property.....	419
				Tenders.....	419

In the Matter of Chichester Cathedral.



CONTRACT for rebuilding the north-west tower at Chichester Cathedral has been signed and preparations for the work are now being made in the shape of the erection of scaffold.

If it seems rather odd that the intention should have been pretty nearly kept a secret, and that even when an illustration of the west front as proposed was published in a local paper the architect's name was suppressed, that is easily accounted for by a natural desire on the part of the Dean and Chapter to avoid the dish but irritating newspaper letter persecution to which the custodians of all ancient buildings are now subjected as soon as it is known that they mean to make any alteration, repair, or addition to the buildings in their charge, and also by the fact that the name of Mr. Pearson, who is in fact the architect for the work, appears to act on the paper of these critics like a red rag on that of a bull. The reason for this peculiar animus against Mr. Pearson is, we presume, that he is regarded as the natural successor of Mr. Scott, who was the butt of these kind of attacks during his lifetime (with rather more success in some cases); and Scott being safe in the grave, the dose is served on his successor.

The attempt has already been made to use the usual hue and cry against the cathedral authorities, but not, so far, with much success. A violently expressed letter in "A Sussex Churchman" in the *Times* a few weeks ago elicited no comment; and a few days ago the same journal published a long protest from the Secretary of the Society for the Protection of Ancient Buildings. After recent events, it may be doubted whether the public will give much more attention to the protests of the Society, and in fact we had some doubts whether the Society had not practically been beaten out of existence; for it is significant that their last Annual Meeting was not held this year; or if it was, it was held with closed doors. There must have been a reason

for that; at all events it is rather a collapse after the bellicose language used by a member at the meeting of the previous year, who congratulated his colleagues on the fact that the Society "was beginning to be feared;" and we are almost led to doubt whether the Society now really means anything more than the private opinion of Mr. Thackeray Turner and one or two of his friends. The Society (if there be one) has done good on some occasions, and might have done much more if it could have been reasonable; but it (or he) has cut the ground away from under its (or his) own feet by persistent intolerance and unreasonableness. In the present case there is one point, to be mentioned just now, in which we agree with the protest, but it would have far more weight if it were not coupled with so much that is exaggerated and foolish.

The proposed work at Chichester, and the right or wrong of it, affords an illustration of that distinction between architecture as design and architecture as history which persons of "anti-scrape" tendencies cannot be got to perceive. To them ancient architecture is entirely history and nothing else (at least judging by their public speech and action), and it is all of equal value whatever the design, whether a mere wall or an elaborate piece of decorative work; an ancient building with one side gone is as sacred as an ancient building which is a complete architectural design. Now we maintain that ancient architecture has its claim to be considered as design as well as history.

The west front of Chichester is now in an incomplete state. The south tower is complete, the north tower is gone except a portion of the lower part of the walling, which is finished by a raking battlemented coping of debased Gothic work, terminating in a turret of similar work. It is difficult to understand exactly what has been done with a portion of this walling, for it looks like Norman walling, but there is a straight joint in each face of the outside of the north-western bay of the nave, leaving on either face a narrow perpendicular strip of undoubtedly untouched work, divided by the straight joint from the broader mass, which may perhaps have been built up again to a certain height, with the same stones, after the tower fell. But however the west front came into its present state, it is, as a matter of design, in an incomplete and lopsided

condition, and looks very bad. The south tower is there as a model; the rebuilding of the north tower on the same lines is merely the completion of an architectural design of which one side has been destroyed. Now this is quite a different thing from that other form of restoration, in which Scott indulged so much (though it must be remembered that in the early part at least of his career he did so with the support of the general feeling and opinion at that date), and which consists in conjectural restoration of something which has altogether gone, by a process of reasoning from the piecing together of some few remains of portions of the ancient work. That is a kind of restoration which is of no value; the new thing is not the old thing; we cannot even say that it is like the old thing; we can only say, at the best, that something of that kind was once there. But the completion of a symmetrical design of which one half exists complete stands on quite a different footing. Here art comes in; we are completing a known architectural design which has been partially destroyed. But that is just what the "anti-scrape" mind cannot see. Mr. Thackeray Turner girds against "this useless tower," this "proposed sham Norman tower," and so on. It is not "useless"; it is wanted to complete the architectural ordinance of the west front; and as for being a "sham," there is no occasion for any pretence whatever; it is perfectly possible to build in an inscription in permanent material stating when and by whom the tower was rebuilt, so that the archaeologist of future days may not run any chance of being deceived.

Another point that has been raised is that it is proposed to build upon the remains of the old work, and that this may not be strong enough for that purpose, and then, we are told, the excuse will be made for pulling down all the north-west bay of the nave in order to rebuild it in such a manner as to safely carry the new tower. "That would be scanned," as Hamlet says. It is we presume for that reason that Mr. Turner, with the unconscious humour which so often marks the reports and criticisms of the S.P.A.B., speaks of building a new tower as "a work of destruction." It appears to us to be a work of edification. However, it must be admitted that portions of the outside walling look rather shaky, though the stone itself (several trial

holes have been cut) is apparently in good condition; and part of the wall over the western arch of the arcade, as seen from the exterior, is also not in the best condition. But as far as this last is concerned it must be remembered that there is not much weight to add to it; what would be the south wall of the tower already exists, over the nave arch, for the greater part of its height; the addition to be made to carry it up level with the south tower does not amount to very much, and the wall seems capable of being sufficiently strengthened without pulling down the work. The other walls could be strengthened from the inside without destroying their outer faces, which besides have no detail on them of any kind that needs special care. As seen from inside the cathedral, the ground floor and triforium arches do not appear to be in any worse condition than those on the opposite side, which are carrying the north wall of the south tower. Therefore we do not see that the rebuilding of the north tower need occasion any damage to the existing substructure, if carried out with the care and caution which Mr. Pearson is sure to bestow on it. And at all events, we protest against it being described as a "useless" tower. It is not useless, it is an essential part of the complete architectural design of the front, which without it is incomplete and sorry-looking.

The one point in which we do agree with Mr. Turner is in regard to the proposal, which we know was originally entertained, but about which nothing definite has been done at present, to place a square timber and lead-covered spire on each of the towers. Those might be described as "useless"; they are not necessary and they would not in our opinion add anything to the general appearance of the cathedral, which will look quite sufficiently dignified with the two towers completed in masonry. Moreover, to put a spire on the ancient south tower may put it to a strain which it is not now very fit to bear, and to put one on the rebuilt north tower will increase the difficulty of dealing with the weak portions of the old wall at the base. Such spires would not harmonise at all, in an architectural sense, with the central spire; and moreover they will overshadow and diminish the effect of the campanile which stands at about 60 ft. from the north end of the west front, and which, as every one knows, is one of the finest and most interesting things in connexion with Chichester Cathedral. For all these reasons we are opposed to the building of these west-end spires, and believe the completed elevation will even look better without them, more especially as, owing to the nature of the site, which is cramped and confined in that direction, there can be no general view of the west front from a distance. We hope, therefore, that the idea of the spires will be abandoned.

In the almost summer-like weather of Wednesday last Scott's modern central tower and spire, built after the fall of the ancient tower in 1862, looked remarkably fine; it forms a convincing example of Scott's extraordinary and complete knowledge of Gothic architecture. The carving would no doubt tell its tale on close inspection, but at a distance it would not be very difficult to believe it a genuine mediæval structure which had been scraped and rubbed to a new face. It looks as beautiful

as a piece of mediæval work; which we suppose we shall be told is so much the worse. Well, what would the "anti-scrapes" have done? The fall of the ancient tower at least was no one's fault. Would they have left the fragments to lie where they fell, and the building to be deserted and go to pieces? Or ought the tower and spire to have been rebuilt on another and not a Gothic design, as a palpably modern and nineteenth-century piece of work? That raises a contingent question on the principle of restoration. The case was an exceptional one. A perfectly new addition to a mediæval building, for a practical purpose, might reasonably, perhaps, be treated as a modern building; only it would have, in an architectural sense, to harmonise with the design of the ancient portion of the building. In the case of Chichester tower and spire we hold that the right thing was done. The architectural beauty and completeness of the cathedral have been preserved, to a degree in which no other course would have availed to preserve them; and on the whole we may thank Scott for having done it so well.

LORD GRIMTHORPE'S LATEST EFFORT.



COMMUNICATION which we received the other day from St. Albans, expressing the greatest indignation at the manner in which St. Michael's Church has been treated by Lord Grimthorpe, led us to make a visit to the place to see whether the facts were as bad as they were represented to be. Our conclusion after an inspection of the building is that it is even worse than we were led to expect, and that Lord Grimthorpe's last addition to the church architecture of St. Albans is the most absurd and mischievous piece of work he has done, though of course in one sense it is not of such importance as the additions by which he has defaced the Abbey.

St. Michael's is a small but very interesting Late Gothic church standing in a secluded position a little way out of the town. Its exterior architecture, though presenting nothing that is very striking, is remarkable for its quiet and picturesque character. The small north-west tower, though of no particular architectural interest, harmonised with the general appearance and grouping of the whole structure. It was, however, in a somewhat dilapidated condition, so much so that it was urged in some quarters that it ought to be entirely rebuilt. Whether this was really necessary, or whether some repairs and underpinning would not have met the case, is a question on which we cannot now express an opinion, the tower being no longer there to speak for itself. But its condition evidently appeared to Lord Grimthorpe to promise him an opportunity for another restoration job to amuse himself with, and he offered to rebuild it at his own cost provided he were allowed to do what he liked with it. A wealthy inhabitant of a small town has of course a good deal of local influence to assist him in getting his own way, which is no doubt one reason why Lord Grimthorpe's architectural ministrations have been confined to St. Albans; he would not be likely to get a hearing anywhere else. As it was, there was a good deal of opposition to the

proposal, made at a meeting last year, and hand over St. Michael's to him as an architectural plaything; and no wonder, with the examples of his architecture which the inhabitants had before their eyes. The objectors however seemed to have been out-voted after the utterance of Lord Grimthorpe's usual formula—"You can have it on those terms or not at all." It is amusing to note that the petition to the Chancellor of the Diocese read by Lord Grimthorpe at the meeting, quoted the authority of Scott to the effect that "the tower needed thorough restoration." The opinions of architects are only weight with Lord Grimthorpe when they can be twisted into a support of his demands; when they are against him, architects and ignorant persons actuated by selfish and reprehensible motives.

The promise was that the tower would be rebuilt on the old design, only a story higher. Of course, if it was to be entirely rebuilt there would be no particular virtue in copying the old tower; it would not be the same thing as the original work, and it might be better not to copy it, but to make the new tower ostensibly a nineteenth-century addition. The important condition would be that it should harmonise in style and feeling with the ancient building to which it was attached.

The result has been the very opposite to this. The body of the church is late work of an exceedingly quiet and unobtrusive type; the exterior reveals to the windows being very shallow, and the glass-plane not much recessed from the face of the walls. Lord Grimthorpe's notion of harmonising the new work with the old is to introduce window with a cavernous depth of reveal, which

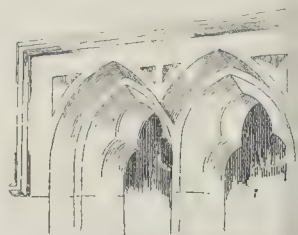
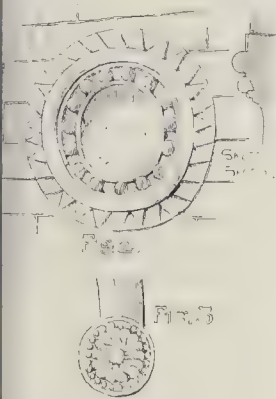


FIG. 1. STRIKING TREATMENT OF TWO-LIGHT WINDOW.

then does not know how to manage, and the outer member of the splay is left to mitre and hang over the mullion, as in the sketch of one of the tower windows shown in fig. 1. Observe also the apex of the window coming above the line formed by the spandrel oilets, the use and meaning of which he evidently does not in the least understand. Here is a man taking in hand church restoration without even a knowledge of the A B C of Gothic detail. As to the decorative detail, the style of that may be surmised by the sketches we give of the ornament in the west gable (fig. 2) and the boss which forms a label-stop to the north doorway (fig. 3); things commonplace in themselves and utterly out of keeping with the style and feeling of the ancient building. There are other gimcracks of this kind on the tower, which Lord Grimthorpe seems to have been desirous to show how many absurdities could cram on to a very small tower. The whole feeling of the place is destroyed by the

modern excrescence stuck on to it. The extraordinary thing is that people should be found so foolish as to give up their ancient buildings in this way into the hands of Lord Grimthorpe, and talk of his "generous offer." There is no generosity in the matter. Lord Grimthorpe has a craze for acting as an amateur architect, and has money enough to purchase from the St. Albans people the right to hack about their ancient buildings for his own amusement. If he were to say "this building is in need of repair, get it done in the best possible manner and I will defray the cost," he would earn the gratitude of every one; but as it is, this so-called generosity is only a form of selfishness and vanity, ministered to by some foolish people who think that



because a man can pay for a building he is incompetent to design it. If Lord Grimthorpe is so anxious to exercise himself as an architect, let him re-build his own house, or build houses for his friends (if they will let him), and as long as he keeps them well out of sight no one will complain; but it is too ridiculous that he should be allowed to botch ancient buildings just as he likes, because he can afford to pay for it.

We have never visited St. Albans since the day when we made an excursion there to look at the then newly-completed west end of the Abbey. The sight of that acted as a pretty strong deterrent against further visits. A fresh look at it after that lapse of time entirely confirms us in the justice of the opinion we then expressed; and in fact, the effect of the angle turrets is even worse than we remembered. The treatment of the south transept, with its railway station turrets, could be sufficiently judged of from a photograph; an inspection of the north transept on the spot leads one to conclude that nothing but a real inspection can enable any one to do justice to it. The window does not look quite so bad from inside as from outside, as attention is more directed to the spaces between the lines, and an artist in stained glass might do something with it. But the eternal appearance of this huge window, made of circles of different sizes stuck round like coins on a table, must be seen to be realised; it really impresses one as the work of a lunatic. It has been too much for some of Lord Grimthorpe's own friends, to our knowledge. Perhaps when the St. Albans people fully realise that every one is laughing at them for their complacency to Lord Grimthorpe, they may be induced to put

their foot down and resolve that there shall be no more of it. Unfortunately, most of the possible mischief is done now.

NOTES.

The Engineers' Strike. It is to be hoped that the Conference which is now at last arranged between the engineers on strike and the employers will lead to the conclusion of the long struggle. Every one has read the terms of the Conference in the daily papers. It appears to us that they embody the victory of the employers, as was inevitable. The strike notices in regard to the forty-eight hours week being withdrawn, one main contention of the men is gone. As the latter also agree not to interfere in the management of the employers' works, the great aim of the employers seems to be attained. That the employers agree not to interfere with the legitimate action of the unions merely asserts what they have all along declared was the fact, that for purely protective purposes they had nothing to say against trades unions. But if the men accept defeat under the guise of a Conference, no one can complain—public appearances have to be saved, and leaders have to justify their action to those whom they have impoverished uselessly.

An International Congress of Architects in London. SOME weeks back we spoke of the possibility of having an International Congress of Architects in London, and pointed out how popular such a gathering would be abroad, and how useful it would be if well managed. We find that the Amalgamated Societies of German Architects suggest the consideration of having an International Congress in Germany. The constant selection of Paris is apparently everywhere unpopular. Our German contemporaries now suggest that if Paris is to have a Congress in 1900, London might very well have one in 1902, and Berlin could follow in about 1904-1905. Our French contemporary, *Construction Moderne*, on the other hand, seems to favour our proposal of the London Congress taking place prior to the next gathering at Paris, and the *Deutsche Bauzeitung* also appears to agree with this, in which case the order would be—London 1898 or 1899, Paris 1900, Berlin 1902. Seeing how our suggestion of having a London Congress has been taken up, it would seem a pity if something could not be done in the matter, but, as we have said, the English profession as a whole would have to do the honours of the country, and personal or professional differences would have to be disregarded. If that could be brought about, it would in itself be one of the best results of the conference.

Railway Works in Paris. THE works for the future line from Courcelles to the Champ de Mars are being actively pushed forward. Between the Place Pereire and the Trocadéro Station, lines of straight stone walls are already replacing the former irregular contours along the margin of the Ceinture railway, as a preparation for doubling the tracks. Between the Trocadéro Station and the Rue Raynouard at Auteuil, a long tunnel, passing under the whole central portion of Passy, has been carried out, without interference with the traffic. Beyond the Rue Raynouard the line will be continued on a viaduct and will cross the Seine at the Ile

des Cygnes. The railway will be ready before the 1900 exhibition. Its cost will be about twenty million francs.

ACCORDING to a correspondent of the *Standard*, the Archaeological Society at Athens has decided to resume the works "for the restoration and strengthening of the ruins of the Parthenon." The English Company which is working the marble quarries at Pentelicos has offered for the purpose marble blocks of excellent quality and large size. We should like to know what is the meaning of the word "restoration." It is a dangerous expression to introduce in speaking of the Parthenon.

The Hamburg Town Hall. On the 1st of this month the Town Hall at Hamburg was practically completed, and the various officials took possession last week. Taken as a whole, the Town Hall is certainly a success in an architectural sense, but unfortunately the site, as we remarked long ago, is cramped, and the building dwarfs its surroundings, and even on the opening day the accommodation afforded to the various administrations was not sufficient to allow for any considerable extension, whilst the situation presents no opportunity for future additions. Architecturally, the exterior is certainly far more successful than the interior, where, in fact, the "tavern," or restaurant in the cellar, is certainly the most interesting part of the building. Nearly all the reception rooms and the council chambers are coarse in detail and commonplace in design. The design, it should be remembered, was in the hands of nine architects, and though Herr Haller assumed the lead, it can be scarcely said that any individuality is observable in the work. The original estimates were for 4,500,000 marks, or about 225,000*l.* In 1889 the estimates were raised to 350,000*l.*, and at present the expenditure is said to have been about 500,000*l.* The whole of the work in the building was carried out by Hamburg contractors, and everything executed, as far as possible, locally; but if we compare the workmanship with that of other German cities, we are afraid it will be found that this local patriotism has been carried too far.

Architecture and Railways in Berlin. It is characteristic of the manner in which public work is being done at Berlin at present that Messrs. Siemens & Halske, who are executing the new electric overhead railway, have opened a competition for the architectural treatment of this railroad; 550*l.* are offered in premiums, and there will be a very influential committee of assessors. The idea of a new railway company disfiguring the city at its pleasure is practically impossible nowadays at Berlin, public opinion being sufficiently advanced to resent anything that would tend to spoil the appearance of the capital.

Fire-resisting Building at Hamburg. HAMBURG is well known for its extensive warehouse fires, and there has been considerable discussion as to the small resistance offered by the more recent forms of iron construction adopted when the new storehouses and sheds were erected, some ten years back, on the creation of the Free Port. The authorities at Hamburg have under-

taken a series of experiments and tests of which the concluding Report has now been issued, and in which cast-iron, wrought-iron, steel, and timber work, various forms of plastering, terra cotta, etc., have been the subject of inquiry. The practical outcome may be seen in some new warehouses which have been lately completed under the direction of Messrs. Schrader of Hamburg, and which may be said to be models from a fireman's point of view. We here find a very careful isolation of the different "risks," an excellent arrangement of the staircases, and (what will be surprising to many) the return to oak work for the main supports and flooring, though this is only what the evidence and experience of late years seemed logically to point to. From the student's point of view, it would be very instructive if there should soon be a fire on these premises, so that comparison could be made with the effects already known on the warehouses where iron and so-called "fire-proof" flooring have been so extensively used. The question is of considerable importance to Hamburg, as some extensive harbour works have been commenced this month, and the type of warehouse plan will soon have to be decided on.

Eight Hours Arguments.

We showed in these columns a few weeks ago how the fallacy of one of the pet theories of the Amalgamated Engineers was demonstrated by a resolution passed at the Trades Union Congress. Now we have one of their most prominent supporters owning that "it might have been wiser if the men had said to their employers 'Give us the eight hours' day and we shall be content with wages corresponding to the amount of work we turn out.'" We very much doubt if this is the sort of wisdom which commends itself to the men, or that they would be so easily contented; but if they would only listen to their candid friends, they might very possibly be at work again in a very short space of time. We are told in the article from which we have just quoted, that the men have set their hearts on a little more leisure, and that "there are hundreds of skilled artisans in London who from their boyhood upwards have been working from six in the morning till nine at night." Now, the action of the engineers would have been far more intelligible, and would have commanded far more sympathy, had they struck against such a monstrous and intolerable system. But they did nothing of the sort, and it is difficult to see how a nominal eight hours' day will secure much more leisure for the men in shops where they are being worked from six in the morning till nine at night under a nine hours' day.

Electric Traction.

THE paper on the "Mechanical Features of Electric Traction," read by Mr. Philip Dawson last week before the Institution of Mechanical Engineers, whilst bringing forward nothing startlingly new, yet duly emphasises the great progress that has been made in traction design during the last ten years. In the early days motors using double reduction gear had very seldom an efficiency as high as 60 per cent. Now, with single reduction gear, an efficiency of 80 per cent. can be secured over a wide range. The absurdity of the common practice of rating motors in terms of horse-power instead of by torque

the car wheels was pointed out. The requirements of engines for use in power stations were mentioned, and Mr. Dawson stated that in some cases it was insisted on that there should not be a variation of $1\frac{1}{2}$ per cent. in the speed of an engine when the normal load was thrown on and off. The fly-wheels have to be made much heavier than for ordinary electric-lighting work, and as the strains they are called on to bear are enormous the utmost care has to be taken in their design. This has led to fly-wheels being built up of rolled plates. He stated that some of the fly-wheels used in tramway-stations can be stopped in less than one revolution with perfect safety. Tables were shown from which it appeared that the commercial efficiency of large modern American tramway generators was over 90 per cent. at quarter load and 95 per cent. at full load. The insulation of these dynamos has to stand a great strain, as one of their poles is put to earth. We were disappointed that Mr. Dawson did not touch on "surface contact" or "conduit" systems.

Metropolitan Improvements: the Marshalsea, and Parliament-street. The London County Council have sanctioned (see our report of their proceedings, p. 352, ante) an expenditure of 207,400*l.* for the widening of Long-lane and an extension of Tabard-street (formerly Kent-street) through St. George's Churchyard,

in the premises four or five years ago, could, on passing down Angel-place (formerly Bridewell-alley) turn into a yard of the right hand, and easily identify the four storied block of eight houses, built back to back, each having seven rooms—the male debtors' side; beyond one saw the old Tavern, its first floor being the turnkey's and taster's rooms, its second floor the female debtors' side, and beyond that the Admiralty Prison and the Chapel, latterly registered lodging-house. The high wall since lowered, to the south of the yard separated it from the churchyard. No. 21, High-street, stands on the site of the front gate, forecourt, and keeper's house of the Marshalsea, and there, by the tenant's courtesy, we recently saw the four posts and cross-beams, with their brackets, of the two prison gates, or "lock," within. In the churchyard—opened as a recreation ground on May 22, 1882—Bonner was buried, 1569; it formed the usual graveyard for inmates of the two Marshalsea and (old) King's Bench prisons. The church, designed by John Price, was built in 1733-6, on the site of that seen in the distance of Hogarth's "Southwark Fair." The widening of Parliament-street has been begun by the demolition of houses at the north end, on the western side. The street was laid out pursuant to an Act 29 Geo. II., c. 38; until 1751 the approach from Whitehall to Westminster



Fig. 1.



Fig. 2.

Portions of the old Marshalsea Prison.

Fig. 1.—The former day and night rooms, felons' side; now the kitchen and sleeping-room of the lodging-house. The ceilings are covered with sheet-iron; the floors studded with nails. Some prisoners' names are cut in the stones of the yard.

Fig. 2.—The old chapel, now used as sleeping-rooms for the lodging-house. Some of the prisoners' names are carved on the panels within. The benches are coeval with the prison.

into High-street, Borough. The new street will absorb, it seems, what is yet left of the later Marshalsea Prison, familiar to readers of "Little Dorrit." The site was originally that of the "White Lion" inn, which was converted for purposes of a gaol circa 1558. But it is to be borne in mind that the old Marshalsea, or Borough Prison, wherein Bishop Bonner died, lay further north on the same side of the street: that is, between Mermaid-court and Newcomen, formerly King, street—the Axe and Bottle-yard of Rocque's map, 1746—and extended eastwards to the Bowling-green whereon booths were erected during the holding of Southwark Fair (see Horwood's map of 1799, and Wilkinson's plan and view, 1812). Having served as a jail for rather more than two hundred years the "White Lion" was replaced by a new Bridewell on the western side of the main street,* and its site was taken, in 1811, for the later Marshalsea, used, until about fifty years since, for smugglers, pirates, and debtors. Before some changes were made

was through King-street. The King-street gate, built by Henry VIII., and pulled down in 1723, stood just by the present south-east corner of Downing-street.

THE catalogue of the Architectural Exhibition of the T-Square Club at the Pennsylvania Academy of Arts is so fully and beautifully illustrated that it seems almost to give us the exhibition on a small scale. As usual in American exhibitions of this kind there are a good many students' designs, competitions for prizes, &c., which look exactly as if they came from the Académie des Beaux-Arts at Paris; in fact, there is a "Society of Beaux-Arts architects," and we observe in the Report of the Club that a competition is called a "concours" in one place, and in the catalogue before us a design is called a "projet"; so French are the American architects. They had much better try to be Americans. But among the designs for modern buildings by practising architects there is a great deal that is interesting and excellent. Some well-known drawings by English architects have also been sent

* At Hangman's-acre (now Hill-street), where Friar-street joins Great Suffolk-street.

over, and are reproduced in the catalogue. There are a great many good effective sketches of ancient work; and altogether the catalogue illustrations give the idea that the exhibition of the T-Square Club must be an exceptionally good one. In the matter of architectural drawing the Americans are beating us, if they have not done so already.

BESIDES the exhibition of lithographic work at Paris which was mentioned in our columns on page 342 *ante*, there is another society, that of the "Peintres Lithographes" or original artists who are designing in topography, which has opened its first exhibition in the Rue Caumartin, and which differs from the other in admitting only original work and not lithographic copies. It includes some work of the first order. M. Fantin-Latour exhibits a series of illustrations to the works of Wagner and Berlioz many of these have been seen in London (exhibitions). Among other exhibits are a remarkable collection of designs for posters by M. Léandre; and among others of the more remarkable drawings are those by M. Bourgonnier, Dillon, Millot, Bahut, Van Eyden, and others.

THE ARCHITECTURAL ASSOCIATION

The ordinary fortnightly meeting of this association was held on the 5th inst. in the meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. Hampden W. Pratt, President, occupying the chair.

The minutes of the last meeting having been read and confirmed, the following gentlemen were elected as members:—Messrs. F. G. May, O. Payne, W. S. Payne, J. H. Pearson, C. E. Case, C. M. Quilter, E. R. Taylor, E. P. Archer, C. Stair, C. C. Duggan, R. C. Fry, J. Haslam, F. Innocent, and E. H. Kent. It was also stated that Mr. N. L. Ashburner had been re-elected.

The Chairman stated that the *Conversazione* would be held at the *Matinée Theatre* (formerly at George's Hall), Langham-place, on the 26th inst. The President's reception will take place at eight o'clock, and at 8.45 a musical play will be given. The play, which has been specially written for the occasion by Mr. F. D. Clapham, with music composed by Mr. Leonard Butler, will be entitled "A Broken Contract; or an Egyptian Enigma."

Mr. S. Flint Clarkson then read the following paper, entitled "A Proposal for Classifying Builders' Work":—

The proposal is that Classes, such as fair (A), good (B), best (C), shall be agreed upon. The Committee, realising that I need not be lengthy, thought part of the evening would be sufficient; I hope that we may see our way to rapid progress. The proposal is made in the interest of employers, architects, and contractors. It will probably be about equally serviceable to all, as long as contract amounts are settled by competition tendering. Other systems besides competition may be tried with advantage; but, at present, the greater part of the work is allotted in that method, which seems likely to be kept to also in the immediate future. Drawings, specifications, quantities, competitive estimates, clerks of works, and their superintendence, and 5 per cent. are the recognised machinery,—by which an employer gets exactly what he ought to wish for, and is assured that he is to pay no more than the market price for it. We propose only a minor improvement in the regular machinery. Let us see why it seems desirable.

Gradation in quality is as legitimate in builders' work as it is in anything. People know this very well, though they may grumble when gradation takes too wide a range. Proportion is not simply securing the right relation of function and apparent importance. Thorough proportion requires that materials and workmanship shall be varied judiciously by the architect in different buildings, and in different parts of the same building. Blunders and wild tendering will account for anything, but there

will be smiles, and notes of admiration also, for less outrageous disparities—which might often be traced to misapprehension as to the class of work required. Between work of the highest class and fair work without pretension to excellence, there is a wide distance. From work ranking with the best of all time we reach by proper stages the most ordinary work—sound and serviceable, though wanting in fineness of quality and finish; and thence the déclassés may be reached—found in building as in life. Certain contractors lay themselves out for work of a certain kind—selecting work-people and materials accordingly—and anything out of the usual course meets with less cordial welcome, and is sometimes not competed for with eagerness. The selection of such imperfectly sympathetic contractors accounts for other bad tenders—as also the selection of people who differ a good deal in the class of their business. Classification of work will not help us over all difficulties, but it may be of service in many.

Any decent names of Classes will prove better than any others as soon as they are generally accepted. Naming of Sub-Classes would cause little trouble; every one could do it for himself, or definitions might be agreed upon from time to time, and then used in general practice. There are good precedents. Ships sort themselves into classes. "Best best best" is in general use. There are degrees of merit in timber and other trades; it is, in fact, difficult to find a trade which does not supply precedents. "The Act to facilitate the granting of certain leases" (8 and 9 Vic., c. 124) has supplied for over fifty years specimens of concise forms having much meaning. Fair, good, best; Classes 1, 2, 3; ordinary, average, superior; and many other words or forms may suggest themselves, doubtless all with show of reason. There must naturally be two extremes and a mean. The worst work with which an architect could be connected would be at one end, first-rate monumental work at the other, and something better than the one and less excellent than the other between. Let us try:—

Class A.—Nothing special anywhere; the most current things in all trades.

Class B.—Something below the best; special design, adaptation, &c., in the more important parts of the building; good execution, but a keen regard for cost.

Class C.—Excellence in materials and execution; the most finished work of the time; for the best public and private buildings.

Objectors will hint that some contractors might try to supply the least costly work of its Class—in fact, the worst work which the architect would pass—instead of what was intended; but the same sort of contractors do that sort of thing now. It will also be suggested that general specifications are not effective, and that Classification might be interpreted by some architects as an encouragement to undue brevity. "The building is to belong to Class B, and is to be completed in all respects accordingly," is the pithiness which is feared; but the passion for detail will keep most architects on the old lines. Old friends, in new clothing, always come to the front to hinder changes; but this brave self-devotion does not entitle them to special mention.

Hurried, slovenly, and generally inferior specifications (and drawings) should not increase in number, as they are serious evils; but it does not follow that anything which might prevent an inferior specification from failing hopelessly would necessarily be an evil. Hopeless failure results when everything proves adverse; but pursues pleasantly full, well-occupied lives, and a healthy appetite for compromise, enable many meagre specifications to keep their virtue. Sometimes they are even (in retrospect) looked upon as blessings in disguise. Some employers appreciate low tenders; the architect who has obtained so much for so little is spoken of as skilful and economical; and the contractor, if treated with judicious liberality, does not object to posing as a benefactor who works more cheaply than other people. Contractors are sometimes informed, in suitable language, that they are not to add a large sum per page of specification to their tenders, because the specification seems unusually big; and so much per drawing also, because some of the detail drawings, which will form part of the contract, have been prepared in good time instead of later on. Shrewd employers have the same thing in view, when they ask whether a specification of 150 pages is really necessary, and hint that explanations about moderation in quality to the

builders submitting tenders should be very precise. The mention of a recognised class of work at the beginning of a specification need not lead to the omission of a word from the most thorough specification. The proposed prefatory words would, however, throw a strong light upon every detail.

There are pieces of work which fall to every one of us, where time is so all important, that delay, of a few days, in starting the work, may lead to serious reflections on the energy and resource of the architect. These are, happily, exceptional cases, though apparently on the increase, and should not influence ordinary practice conducted under better conditions. But an architect thus pressed for time, after describing all special items and throwing the rest of the work into one of the proposed Classes, might feel solid ground under his feet, in carrying through a contract.

The Classification would frequently be, in effect, a record of the result of negotiations; such a record as ought to be in writing, in view of the uncertain future—for general understandings are frequently misunderstood, memory fails, or ill-will and bad blood distort it, and much else; or parties die and give no sign. A specification may call, in conventional terms, for the best materials and labour of their respective kinds, and describe the respective kinds, and still leave a good deal to the discretion of the architect. People who can get on with very imperfect specifications manage to struggle through with more perfect ones. Difficulties arise when a contractor tries to supply a good deal less, and an employer, at the same time, asks for a good deal more than the discreet architect considers that the contract provides. The employer, who anxiously suggested explanations to the contractors as to a moderate sum and a good deal of work for it, may find that events before the contract was signed, after a busy interval, become more and more shadowy. He then prayed, as a favour, for mediocre work; now he and his friends read the specification with much care, and interpret conventional phrases literally and liberally—and there is perhaps assistance for them from legal minds. If the contract made it quite clear that work of Class A was intended, such an employer might be disposed to leave things alone. An architect selected because he has a reputation for thoroughness and work of high quality; an appeal by the employer for the mildest treatment such a reputation will permit; resolute bargaining and a low contract sum; and in the sequel a tender solicitude for the keeping up of the architect's reputation—might thus, in the future, be treated by a playwright as one of the dramatic situations possible only in the elder days.

It happens too frequently that Fate rewards a fair-minded architect with more than adequate retribution for other people's faults. The same post may bring him remonstrances both from contractors and employers. One contractor cannot find in the one-eighth scale drawings several mouldings for which he has received full sizes; another finds too many check grooves and tongues in the joinery, and unlooked-for stoolings in stonework; another suggests vigorous reductions (or extras), and something nearer a freeman's liberty as to materials. Employers, on the other hand, say their say. Pleasant-minded architects have remarked that, if there is an ambient atmosphere of imperfect satisfaction while the works are in progress, there will not be very much cause for grumbling at the end. But would not things go more smoothly in many cases if everybody had the help of the proposed Classification?

It should be added that no minor change will prove a panacea for all building ills. A trial of Classification is only a modest little practical proposal. It could be easily introduced, and should be generally accepted in a short time.

The Chairman, in opening the discussion, said at first sight the matter might appear to be a simple one, but the more they looked into it the more difficult it would be found to realise it in a practical way. If they took a building which had been erected, it would be quite possible as architects or surveyors to classify it under Class A, B, or C—good, better, or best—as the case might be. But how could they, when commencing a building, set a model before them and say that the building was to be erected in the same class? After all, a building was made up of parts and details, and

the different degrees of merit or quality in it were matters of specification. In his opinion it was more a question of difference of material or quality of material which made a classification, than quality and difference in workmanship; and therefore builders with reputations would tell the architect, when called upon to build in class A, for instance, that they only built in one class, viz., the best. In his opinion that would be a reasonable attitude. A builder might naturally consider it beneath him to build in any but the best class. In looking at the matter from the builder's point of view, and not from the architect's, he felt that the best class of builders would not agree to the proposed classification. Would it not be difficult, supposing the classification were adopted, for any particular building about to be erected to be named under any particular class? He did not see why it should not belong to two or three instead of one. It was just a question of material, and in some part of the building a better kind of material might be used than in another, and a mixed result would be obtained. He thought it was more a question for builders to consider than for architects. As architects, they had been accustomed to specify that all work and materials should be of the best kinds, and they knew perfectly well that that meant nothing unless they saw that the materials and the workmanship were of the kind specified. In his opinion, if they had a good and clear specification and some control over the materials that were to be used, they would be able to get what they stipulated for.

Mr. W. H. Seth-Smith said that there was something very fresh about the proposal, which required time for consideration. But on the face of it he was rather inclined to agree with the Chairman that it would be found difficult to work out, and that it was more a question of labour than of materials. As the result of the present disposition of trades unions, the good workman received the same wages as an indifferent man, and therefore the price of first-class workmanship would have to be paid whether the building was, or was not, classed as first, second, or a third rate job. Two-thirds of the cost of erection were for workmanship and not materials. He felt that the suggestion was one which would be more valuable as between architects and clients than between architects and builders. If they could give their clients who wanted too much accommodation and first-class work for a low figure to understand that they could only have second or third class work for the money, much misunderstanding would be avoided. One mistake that architects had a tendency to make was in putting too much detail in a building which they were required to erect at a small and inadequate sum. His experience was that a better result was obtained in omitting a good deal of detail on such occasions.

Mr. H. J. Leaning said they were much indebted to Mr. Clarkson for bringing before them a subject of such interest, though he felt bound to disagree with the lecturer's conclusions. It was a pity that Mr. Clarkson had not moved a resolution so that some evidence might be obtained as to the feelings of the meeting on the question. Do what he might the architect often felt that with stereotyped specifications such as now predominate he could not get from the builder all that he specified, and the builder, on the other hand, seemed to expect to escape some of his obligations in every contract. When the architect, instead of being master of the works and chief director, became merely a spectator the specification was merely a cipher, but that was no fault of its own. Mr. Clarkson had said that the classification would not take the place of specifications; on the contrary, it would not lead to the omission of a single word. Presumably then it would only indicate how far these words meant what they said. What was the difference between good and bad materials and workmanship? The quality of a building was determined, apart from any questions of plan or design—(1) by the fitness and efficiency of its several parts, such as thicknesses of walls, scantlings of timbers, and the amount of detail put into its finishings, which were all matters determined by the specification, drawings, details, and quantities, and (2) by the quality of the materials used and the style and finish of the workmanship. There seemed to be a confusion of ideas in Mr. Clarkson's definitions, for he referred to matters of design, adaptation, &c., which would come in the first category. In his opinion the classification

could only apply to the character of the materials and certainly not to the drawings and details. How was it that a speculating builder could produce a given house for so much less than the architect? Largely, he believed, by economies effected in the first category—thinner inner walls, zinc instead of lead, no roof boarding or felt, &c. All these were quite distinct from any saving in the quality of materials or workmanship. The latter were not capable of quite such clear and easy definition, but even here there was very little that defied intelligent description. The architect was able, without much trouble, to bind the builder hand and foot. He could specify the makers of facing bricks, &c., the quality of the sand, and whence to be obtained, and so on; and his chief difficulty was with regard to his timber. As to that, insistence upon well-known brands and specific market qualities seemed to be the only safe guide. As to labour, architects could not specify so precisely. The only protection, especially just now, was to go to builders who had a command of the labour market and with whom their leading men in each trade had worked for years. It would be seen that the proportion of work in a building which was indefinable was really quite small, and got smaller with every day of our increasing technical education. The classification would be very well if applied to separate articles, but when applied to a collective mass it ceased to have any meaning. Furthermore, it allowed nothing for questions of taste. He knew, for instance, architects who would not have stock bricks, but insisted on malms for so-called stock facing, which often meant a difference of 15s. per thousand. Then as to locality, they would want a classification to apply all over the country, and for various reasons that would be impossible. If the suggestion had been rather for the formation of three or four model specifications, to be circulated among architects purely for themselves, to define what were really suitable materials to use for certain classes of work, he thought that a good purpose would have been served. In conclusion, he thought that by the present system it was quite possible not only to produce work of the very best description, but when necessary to economise without sacrifice either of good taste or good construction, and for evidence of that he would point to the work of many of our architects (well known among builders) who asked for what they wanted and saw that they got it.

Mr. J. Douglass Mathews said that it would be easier to get a classification of materials than of buildings, though that would be a difficult matter unless they were in touch with all the manufacturers' terms and got that which they asked for. Mr. Clarkson's suggestion was a very valuable one, though the matter was much more difficult than the lecturer seemed to think. No doubt builders understood at the present time the different classes of work, but to get the classification acknowledged it would have to be so clearly put that there would be no doubt whatever in the mind of either employer or builder as to which class a building belonged. There was not much difficulty about classifying the best class of building—whether such buildings were described in the way suggested, or whether the usual method were adopted, such as a note on the specification that all the materials and workmanship were to be of the best class procurable. But he did not see how that could be done in Class A, although it might be possible. In Class B, however, there would be still greater difficulty in carrying out the suggestion. Naturally they, as architects, would insist upon having in the foundations as good concrete, brickwork, and mortar in Class B as in Class C. The same remarks applied to timber. But all these matters were really covered by the specifications and drawings. Therefore, he thought that to really classify these materials, a skeleton specification would have to be drawn up which must be acknowledged by architect, builder, and employer, in such a way that it would be an instrument which would be binding. There would not be so much difficulty with the builders as with the architects, for some builders would be very glad to know in which class they were to build; and, no doubt, some of them would build as near as possible to the class below the one specified, and considerable supervision would be necessary to keep a builder in the class specified. The paper had not been as clear to him as he had hoped, but, perhaps, Mr. Clarkson would be able to make a further

communication on the subject. Mr. Clarkson was a member of the Practice Committee of the Institute, and, no doubt, if he would take the trouble to bring the matter in a tangible form before that body, the members would be very pleased to fully consider and carry out the suggestions if they were found to be practicable.

Mr. H. Lovegrove, in proposing a vote of thanks to the lecturer, said he would like to reverse the order of the classes, so that the might be more in accordance with the names of ships. But was it not a fact that builders were very much classified at present? If they were going to carry out a rough job in the suburbs they would not ask the best known builders to tender for it; and, on the other hand, if they wanted perfection in joinery they would not ask X, Y, or Z in the suburbs to carry out the work. Builders were certainly divided in that way. Another difficulty was, when, in a finished building, carried out in an inferior class, they found awkward gaps in the mitres of the mouldings, shrinking panels, &c., the builder would be able to point to the specification and show that the building was specified in an inferior class.

Mr. Osborne Smith, in seconding the vote of thanks, said that he must agree with those who had taken part in the discussion rather than with Mr. Clarkson. If they made their specifications and drawings clear, and had the quantities properly taken out, builders would not make a mistake as to the kind of building to be erected. He had considered whether a classification as had been proposed by Mr. Clarkson would be of use in his own practice, but he had come to the conclusion that if he made proper drawings and specifications the builder would understand more readily what he wanted than by any classification. If such classification were made he did not see how it would work.

Mr. Max Clarke said he could not see what object would be served by the proposed classification. In his opinion as good building should be erected for the poor man as for the rich. A house should be built to live in, and the poor man should be provided with a dwelling which would preserve his health just as much as the rich man. Therefore, this classification should only apply to ornamentation. Under such a classification he was afraid that some builders would supply the least costly materials possible in the class specified. For instance, the other day he visited Peterborough, where he was surprised to see that Fletton bricks of very much higher quality than those supplied in London. He would like to know how many architects, who had written specifications the present year, had intimated to the contractor their desire to get the very best class bricks. This was so of other materials as well, and the contractor often assumed that he was to use the lowest class of material. There were some houses which it would be very difficult to classify at all.

The Chairman said that he quite agreed with Mr. Lovegrove that builders were already classified, and that being so, when a particular class of building was wanted, a particular class of builders was invited to tender for erection. It was in regard to the quality of material that the classification could be made. The discussion had made it clear that, however desirable it might be to have classification, it would be difficult to carry it out. However, if the Practice Committee of the Institute could take the matter into consideration, as Mr. Mathews had suggested, some practical result might follow.

The vote of thanks was then put and carried by acclamation.

Mr. Clarkson, in reply, said that many of the remarks made were of value, though they did not come as a revelation to him, as he had given much consideration to the general principles and details. As had been said, the subject was a difficult one to deal with, though he was surprised that so few of the speakers seemed to consider the classification desirable. There was another paper to follow, however, he did not propose to make a long reply to that occasion.

Mr. H. D. Searles-Wood then read the following paper, entitled "Some New Materials for Use in Building."

The two materials that I propose to consider to-night are asbestic and petrifite. I do not pretend to have any experience in the use of either, but they having come under my notice, and striking me as of very great importance,

ance, I thought that the members of this Association might like to have their attention called to them.

Mr. Harbott, the secretary of the London Agents for Asbestos, is here to answer any question relative to that material, and Mr. G. F. Seddon, the engineer to the Petrifite Company, will explain what the possibilities of petrified are.

Asbestos comes to this country from Lower Canada, and is a name given to a by-product from the manufacture of asbestos from serpentine. After the fine white fibrous asbestos has been extracted by machinery, this sand is left, and it is the various uses to which this can be put, that I propose to call your attention.

Large quantities of this material have recently been used in the United States and Canada in the form of plaster.

It is claimed for plaster made with ordinary cement and asbestos (the proportion recommended being 3 cwt. of lime to 1 ton of asbestos) that it is absolutely fireproof, and being fibrous and possessing very great elasticity, there is no cracking, chipping, or crumbling away, and it is driven into it enter in the same way as into a pine board, and can be easily withdrawn.

This plaster is also a perfect non-conductor of heat, and rooms plastered with this substance keep an even temperature much longer than rooms plastered with other materials.

It is stated that this plaster, being a perfect non-conductor of sound, has a curious effect on the room or hall where it is used, making them much easier for singing or speaking in.

For the protection of metals, this substance is a great help. An elaborate series of experiments were carried out by General Sooy Smith, when he found that asbestos not only protected the metal against fire, but at the same time preserved it from any corrosion.

The covering properties of the asbestos plaster are about 40 per cent. more than those of ordinary plaster, and it is 40 per cent. lighter to handle; the mixing and application is so much easier that there is a saving of 10 per cent. in actual labour.

The directions for use are given as under:—For rough coat: Slack about 3 cwt. of lime, and while liquid run it through a sieve into a box large enough to hold one ton of asbestos.

Mix thoroughly, adding the requisite amount of water. After the lime and asbestos are thoroughly mixed, the plaster should be allowed to stand at least twenty-four hours before being used. For finishing coat: Mix two parts of one to one of asbestos finish and gauge with plaster of Paris. No hair or sand is required.

The price of the asbestos, per ton of 2,240 lbs., is 31s.; asbestos finish, 5s. The sole agents for London are Messrs. Witty & Wyatt, of 88, Adenwall-street, E.C., where numerous samples can be seen.

The foregoing information I have obtained from the trade circular.

The plaster takes about three weeks in setting, gets thoroughly hard, and it gradually strengthens after that time.

The asbestos is now being made up in slabs about 1/4 in. thick; these can be worked as easily as wood, and as non-conductors of heat and cold they can be utilised for walls, ceilings, trusses, mosaics, &c., and can be used out of doors and coloured as required. In hot climates will resist the attacks of the termite, or white ant.

A bungalow constructed with an outer and inner skin of this material and a confined space between would have a low temperature in the hottest weather. It can be moulded in any shape and fixed in position by nails, screws, or cement. This material is far more suitable for buildings in new countries such as Africa or West Australia than corrugated iron.

Hessian (that is, canvas and framing that is used for walling in many of the new towns in those countries). A friend of mine who has just returned from West Australia particularly complained of the discomfort of the Hessian built hotels. Picture to yourselves an hotel constructed entirely of canvas in which there were five bars, and all of them filled with miners whose panacea for every ill is hiskey. The non-conducting property of asbestos plaster would in this building be of great value.

In America and Canada asbestos roofing is largely used; it forms a light roofing material that is absolutely incombustible, and, being a non-conductor, keeps the building of an even temperature. For hot countries glazed asbestos tiles are being made for roofing purposes.

In the manufacture of paper, asbestos is

being largely used. Paper 130 in. in width is being produced in one factory for building purposes. Asbestos has been recently selected by the London County Council as one of the fireproof materials that may be used in the alterations at Olympia.

Talking over the subject of this paper with Mr. Drew, when we were at Furness Abbey, I asked him what new material in his opinion was most wanted. He replied, "An artificial slate." By the kindness of the proprietors of the two materials I am describing to-night, I have made some artificial slates which I think will meet this want. The samples were only made yesterday, and so are not yet fit for experiments, and the surface is smoother than I intended; but I think that they show that a good roof covering can be made in this way. They would be light, non-combustible, and non-conducting. These samples are self-coloured, and are a dark grey, but they could be made to any shade of colour.

Petrifite is a white cement which appears to have the power of binding together almost any material that can be thought of. The principle of the invention was discovered in 1891; but it was not until some years later that a cheap and practical method of making petrifite was worked out and patented, and even now it is not practically on the market, though I am informed that it is hoped it may be by the 15th of this month. During the lapse of time from its discovery a large series of exhaustive and interesting experiments have been made, and some wonderful results obtained.

Messrs. David Kirkaldy & Son have reported on the following experiments:—

Table of Messrs. Kirkaldy's Tests.

	Proportion of Petrifite or Portland Cement.	Days Old.	Resistance in Tons per square foot.	Greater strength of Petrifite.
CRUSHING STRENGTH.				
Portland cement and clean pit sand	25 per cent.	10	47.2	Eleven times the strength.
Petrifite and ordinary sea sand	"	"	520.4	Nearly four times the strength.
Petrifite and common earth	"	"	180.4	Nearly twice as strong.
Natural Bath stone	"	"	117.7	Stronger when only thirty days old.
Petrifite and ordinary sea sand	10 per cent.	30	218.9	8 per cent. stronger.
Natural Portland stone	"	"	554.8	
Petrifite and ordinary sea sand	25 per cent.	30	574.1	
Marble—Carrara blocks	"	"	772.4	
Dust from the same with petrifite	50 per cent.	10	833.5	
TENSILE STRENGTH.				
Portland cement and clean pit sand	25 per cent.	10	150	Over five times as strong.
Petrifite cement and clean pit sand	"	"	838	Over seven times as strong.
Petrifite, sea sand, and powdered chalk	"	"	1203	
POROSITY.				
Portland cement and clean pit sand	25 per cent.		Absorption per cent. upon original weight.	
Petrifite cement and clean sea sand	"		5.42	Nine times less porous.
Petrifite cement and clean sea sand	"		60	

All the above were cast without pressure.

In a further report made by Messrs. Kirkaldy in May, 1897, as to the effect of immersion in water, it was found to reduce the ordinary petrifite 25 per cent. in strength, as against 10 per cent. in natural Portland stone and 20 per cent. natural Bath stone, but samples made with hydraulic petrifite, which is ordinary petrifite mixed with from 5 to 10 per cent. of inexpensive materials, the diminution in strength is slight.

As regards hardness of surface and hardness internally, there is hardly any appreciable difference between 2 to 1 Portland and 6 to 1 or 9 to 1 petrifite.

A backing of 6 to 1 petrifite, faced with 3 parts plaster of Paris to 1 of petrifite, yields a hard and smooth surface very suitable for walls.

The tests made to ascertain the relative adherence of petrifite mortar show that 6 of sand to 1 of petrifite adheres as well to the face of rough bricks as good Portland cement mortar mixed 3 to 1. In the case of bricks with rather smooth surfaces, petrifite mortar gave nearly four times the adhesive strength. Petrifite mortar mixed 3 to 1 with

smooth bricks had ten times the adhesive strength of the same proportion of Portland cement mortar. Another feature of petrifite is that it adheres to wood.

Messrs. Kirkaldy summarise their two reports by stating that petrifite has the following valuable properties:—

1. Its combinations have great crushing and tensile strength and adhesive qualities.

2. It will solidify unclean materials, the presence of which, even in small quantities, would be fatal to the setting of Portland and other cements, and bind together into useful blocks many substances which cannot now be utilised.

3. Dirty or unwashed materials can be used, which is not the case with other cements.

4. Its compounds do not sweat or effloresce, thus enabling sea sand to be used.

5. It will adhere perfectly to wood or iron.

6. As ordinarily used it solidifies slowly, so that work need not be hurried; it then dries and sets hard with great rapidity.

7. It is so powerful that a much smaller quantity suffices, considerably reducing the cost of freight and transport.

8. After setting has commenced, it can be still used again, as but little deterioration takes place, unlike other cements, when small quantities have to be mixed for immediate use.

9. It does not become inert after exposure to a damp atmosphere.

10. It may be used when quite freshly made, without fear of failure.

Messrs. Stanger & Blount's report states that petrifite, when mixed with a suitable aggregate, e.g., sand, expands on setting to about the same

small extent as Portland cement. This expansion is not likely to be perceptible in ordinary use.

Mr. G. F. Harris, stone and quarry expert, summarises his very interesting report on petrifite sandstone, that the Petrifite Company can deliver a first-class dressed building stone in London at a price under half that of dressed natural building stone, and of a superior quality.

As a plaster, petrifite has been reported on by Mr. Marson. Its advantages over Portland cement are that it can be used with sea sand without risk of efflorescence, and the surface is harder and closer than when Thames sand is used. Thus the labour of screening and washing the sand is saved. Petrifite grips the whole surface, both smooth and rough places, and, being "fatter" than Portland cement, can be laid more easily, and does better. Compared with Keene's cement, it has the advantage of being non-porous, much harder when set, and can be worked much more quickly.

If petrifite compounds are painted whilst wet, the paint sinks into the soft material. It takes no longer to dry than ordinary paint put

on woodwork. In twenty-four hours a room can be finished and ready for occupation.

With colouring matter, petrinite and water is a first-class substitute for ordinary distemper.

In moulding, all difficulty of allowance for contraction is avoided, and for making the moulds for casting repeats, petrinite mixed with plaster of Paris or sand is a perfect material.

Plaster slabs made of petrinite are much stronger than the ordinary slabs, which are going out of use, as they are not strong enough, although of great convenience.

As a cement for iron, an ordinary galvanised iron building can be covered with petrinite plaster, and it will adhere perfectly.

Petrinite has one special quality—viz., that the water which is added does not evaporate but enters into a chemical union with the cement. The hardening process takes a very short time; it may be delayed by cold weather, which has a bad effect on all other cements and lime, but the setting is not stopped. A wall coated with petrinite mortar will not crack if done in hot weather. Petrinite cement may be used in any climate and at any season of the year.

Used as artificial wood, petrinite mixed with sawdust has the following advantages over ordinary wood.

1. It is one quarter the price of hard wood.
2. It does not expand or contract as natural wood does.
3. It does not split, nor crash, nor warp.
4. Uninflammable.
5. Free from the ravages of white ants.

Two tables at the works of the company, about 12 ft. long by 3 ft. broad, made of sawdust are faultless, although they have had rough usage for about three years.

This artificial wood can be cast into any shape or size, and can be worked with the same tools as ordinary wood. It also has the advantage that it can be made in large masses, uniform in quality and strength throughout. For flooring it can be made in an unbroken sheet. It can be made so as to be easily sawn at any time, or else it can be made as hard as stone, and can be coloured to any shade.

Two artificial stones made of sawdust and petrinite have been tested for four years, one as a step outside the main entrance of the Landsberg Factory, and the other as a flag stone at the entrance gate of a flour mill at Landsberg; both of these stones show little signs of wear although they have had very hard usage.

At the offices of the Petrinite Company, 10, Walbrook, there is a very interesting collection of specimens of a great variety of waste materials, such as road sweepings, ashes, and clinkers from the destructors, made into bricks for the City Commissioners of Sewers by being mixed with 25 per cent. of petrinite; and some really beautiful slabs made of waste paper pulp, and some slabs of polished plaster made of marble dust, even the sawdust and petrinite blocks being capable of taking a polish, the grains of wood being so indurated with the petrinite. The sawdust blocks also are practically incombustible.

But it is not as an artificial stone, marble, or wood that I bring this before you to-night, but as a new material to take up its own ground. And I think that this is the direction in which any discussion might be most usefully turned. Here are two materials of a highly plastic nature, and what is the legitimate treatment for them from an architectural point of view?

Petrinite can be run, moulded, or worked by a tool; either moulded and built in the walling in blocks, or run and modelled *in situ*.

Much remains to be done to develop the proper treatment of cement work. Within its own limits, stucco is as legitimate a building material as stone or brick.

The Chairman said that when new materials of the kind under their notice, were introduced into the market, the great idea of those concerned seemed to be to imitate something that was much more costly. Twenty or thirty years ago the practice of imitating marbles and beautiful woods would not have been countenanced by architects. He was afraid that we had degenerated a good deal since those times. There must, however, be uses to which these materials could be put, and it was of considerable advantage to be able to use these waste products. The question, however, was how could architects direct manufacturers to properly use the materials.

Mr. C. H. Brodie then briefly proposed a vote of thanks to Mr. Searles-Wood.

Mr. Seth-Smith, in seconding, said it was most important, if they were to make any progress in building, that they should know the latest results of scientific research and experiment. Nothing was so likely to get an architect into difficulties as the use of new and untried materials, and architects needed to have very open, and, at the same time conservative, minds in regard to such materials. As far as they knew the materials they were considering might be usefully employed in interiors, but at present they had no evidence to enable them to say much more.

Mr. E. Howley Sim said that he had noticed that when a new material was put upon the market it was often said to be capable of being used for nearly everything. If such a material was highly recommended for a particular purpose there was more probability of it receiving attention. He would like to ask what was the weak point about "Petrinite"? There was usually some weak point, and information in this direction would be of interest to them, and also the comparative cost.

A member asked if the use of "Petrinite" in a building had an unhygienic effect upon people. If the material could be mixed with paper-mill refuse, &c., could it not be used with sewage sludge? If so, a good means would have been found for dealing with a very difficult problem.

Mr. Douglass Mathews asked what action acids had upon "Petrinite." Some of the specimens shown seemed to indicate that the polish would not last.

Mr. G. F. Seddon, a representative of the manufacturers of "Petrinite," in reply to some of the questions, said that the material would not resist strong acid solutions any more than other cements would, though it would stand weak solutions. He knew of no reason why the material should affect the health, and as to the cost, the price of cement "Petrinite" was 60s. a ton, though the material was not yet on the market. The plaster specimen which had been shown was not simply "Petrinite," it was what they called "Petrifine," which was supplied at about 50s. a ton. It had been found that the action of frost delayed the setting of the material a considerable time, but it did set, and much sooner than Portland or any other cement. He did not know that the material had any weak point. With regard to the porosity of the cement, coal brickettes (composed of coal dust and 3 per cent. of "Petrifine") were immersed in water for twenty-four hours, and the absorption was 6 per cent.; after forty-eight hours it was 6½ per cent., and after fourteen days there was no appreciable difference.

The vote of thanks to Mr. Searles-Wood having been agreed to unanimously, and Mr. Searles-Wood having acknowledged it, the Chairman announced that the next meeting would be held on December 3, when Mr. J. Osborne Smith would read a paper on "The Planning of High Schools and Endowed Schools for Girls."

The meeting then terminated.

MAGAZINES AND REVIEWS.*

THE illustrations of the *Architectural Review* (Boston) consist in the last issued number principally of details, including a fine piece of imitation Roman cornice to the "Society for Savings" building by Messrs. Peabody & Stearns, at Hartford, in which the details are certainly all borrowed, though there is a little modern freedom in the treatment of the *anastomosis* in the carved frieze. Mr. Russell Sturgis contributes an important article on competitions, with a curious list of the results of several in which he was concerned, and some suggestions for the better regulation of competitions in the future. The article is worth the attention of English architects. We gather from it, among other things, that one per cent. on the estimated cost is considered in the States to be a proper remuneration for competition drawings in a limited competition, and that this proportion of payment has in various cases been made to unsuccessful competitors in limited competitions; a rate of remuneration which we seldom or never hear of in this country. Mr. Sturgis seems to suggest that there should be no competitions except those called

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is noticed, it is because that number contains nothing that it is within our province to comment upon.

"limited"; but how in that case is the unknown genius to come to the front?

The *Art Journal* contains an article on the works of Mr. G. Frampton, among the illustrations of which is the portion of the Mitchell memorial in which the sculptor substituted tree-trunks and branches to play the part of an architectural arcade—a piquant idea, but not altogether satisfactory; nor (*pace* Mr. Miller who writes the article) is the column "a highly conventionalised representation of the tree," or anything of the kind. Among articles dealing with the crafts is one on the Langdale linen industry and one on the Rookwood pottery in Cincinnati. Also Mr. Edwin Dolby's recollections of an old lithographer are of considerable interest. Mr. Dolby, in old days before the dawn of photographic lithography, made many of the finest and best known lithographic drawings for architectural works. Among other things, he mentions the Haghe and others used to employ assistants called "tinters," whose office was to work up the general masses of shadow ready for the artist to finish upon, and this was a very well-paid industry.

The *Art Annual* of the year is devoted to the career and works of Mr. Orchardson, and gives an exceptionally interesting collection of the illustrations from his various works make, when taken collectively treated. Mr. Orchardson is one of the most intellectual painters we have, though this is not always realised by those who connect intellectual painting only with ideal subjects. His pictures are a kind of criticism of life.

The *Magazine of Art* devotes an article to the works of Mr. Robert Fowler, of Liverpool, who merits the attention as an original and poetic artist, and whose designs appear better in black and white than in his rather peculiar and fanciful scale of colour, which gives one the impression of being a conscious effort at originality. An article on the Harrow Art School is illustrated by sketches and designs by the boys, which show how successful the school has been in developing a faculty of drawing and design among them. Who would have thought a generation ago of public school boys troubling their heads about studies for nature or conventionalised floral designs? An article on Greek landscape and architecture, by Mr. A. Higgins is appropriately illustrated by Mr. Fulleylove. A coloured print from Sir Poynter's "The Offering" is given as a sample of the effect to be obtained by what is known as the three-colour process, in which of three coloured inks—red, blue, and yellow, is employed to produce all the gradations to be seen in the finished print.

Every artistic journal nowadays must have its articles upon some living artist, with examples of his works, his talk and his criticism; and the *Studio* takes Mr. Frank Brangwyn, and gives among other illustrations two designs for Mural Panels which are new to us. Mr. Frampton's article on Woodcarving is excellent in its tone, its preference of beauty of line to mere high finish, and its correct estimate of the work of Gibbons, but an example of a carved capital and corbel pleases us not; it is far too realistic; his pastoral style is piquant and original. There is an article with a good many illustrations, on the work done at the East London School of Art and Craft which is called Essex House; a most notorious institution, but one which certainly loses no opportunity of advertisement.

In the *Nineteenth Century* Prince Kropotkin's article on "Recent Science" (a subject which he writes from time to time, and which in this magazine is mainly occupied with the subject of the origin of the variations on the surface of the earth—its modelling, in fact)—and recent scientific opinion and investigation in regard to it.

The *Atlantic Monthly* includes an article of some interest on "Peculiarities of American Municipal Government," by Mr. E. L. Godkin, who sets out with stating the essential difference between American municipalities and those of the Old World as consisting in the fact that the Old World municipalities were to a great extent the continuation of a life and privilege, historically pertaining to the city itself, whereas the American municipalities are the creations of the State. The article, however, deals with the political rather than with the administrative aspect of municipalities.

The *Revue Générale* completes the paper "John Ruskin et L'Art Anglais" by M. Arn Goffin, begun in a former number, and it is curious to read here all the blind adulation

Ruskin which was prevalent in England some twenty years ago, now beginning over again in France.

The *Antiquary* commences a series of articles on "Spanish Historic Monuments" by Mr. L. Powell, commencing with "A Mosque and Synagogues in Toledo." We regret to see that the *Antiquary* still keeps reiterating the same absurd and bigoted remarks about the repair of the gable at Peterborough, remarks which are simply a perversion of the facts.

The *Journal of the Sanitary Institute* for October contains the addresses delivered and papers read at the Sanitary Congress at Leeds September.

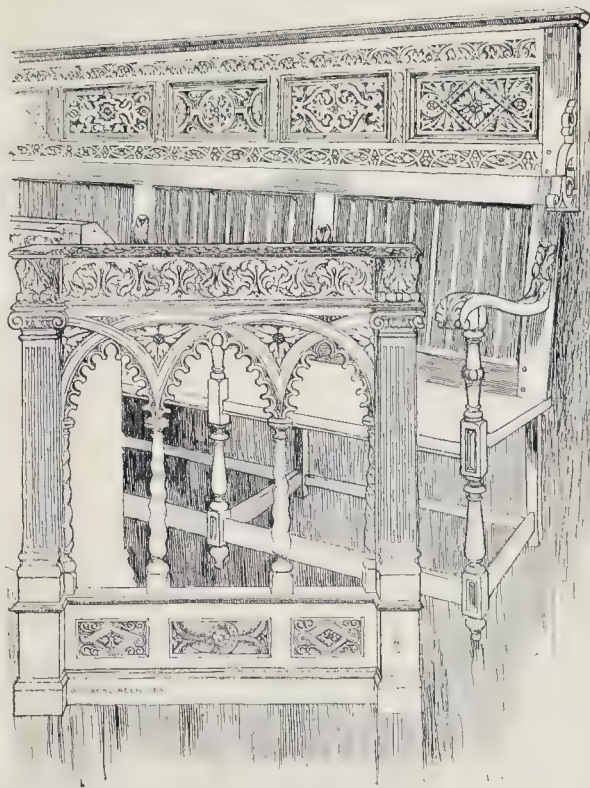
The *Essex Review* seems to have rather exhausted the architectural objects of the county, but is keeping up a series of short articles on the church bells of Essex, with the inscriptions on them, &c.

The *Genealogical Magazine* includes a history of Oswestry Parish Church.

SCHOOL OF ART WOOD CARVING.

THESE sketches illustrate some of the recent work done at the School of Art Wood Carving, South Kensington. The stalls have been executed for Mr. Geo. Churnside, of Melbourne, by the students in training. The construction was designed by Mr. F. A. Crallan, the details for wood-carving by Mr. W. H. Grimwood. They are not intended for choir stalls as would first appear, but for a private pew of six seats. At each end of the pew runs a low wall in which the end brackets rest, and to which the open part of the kneeling desk is hinged. The stalls can be viewed up to the 13th, and are worth a visit to those who are interested in modern wood carving; the handling of each piece is precise and definite, showing no hesitation in the method of getting a pleasant result. Constructionally the design is open to criticism—the lower rail connecting the front legs of the seat is certainly very inconvenient for kneeling down; the upper part of the kneeling desk is weak in design: it merely displays excellent wood-carving. The whole executed in oak.

The two panels are in pine, and are the work of Mr. W. H. Grimwood; they are good examples of a simple flowing line in decoration, and are excellent in execution.



Sketches at the School of Art Wood Carving, Exhibition-road.

PAROCHIAL CHURCHES.*

WRITING in or about 750 A.D., the Abbess Alpurga stated: "It is the custom of theaxon race that on many of the estates ofnobles and of good men they are wont to have a church but the standard of the holy cross dedicated to our Lord, and revered with great honour, lifted up on high, so as to be convenient for the frequency of daily prayer." This statement receives confirmation from Bede, who tells us that such was the esteem for religion among the Saxons that "If any presbyter chanced to come into a village, the inhabitants flocked together to hear from him the word of life; for the presbyters and clergy went into the villages on no other account than to preach, baptise, visit the sick, and in short to take care of souls. And they were so far from greedy avarice that none of them received lands and possessions for building monasteries, as we should say glebe-houses) unless they were compelled to do so by the temporal authorities."

About a century, however, before the Conquest there must have been a certain number of private churches or at least of private chapels ordained for conducting services regularly in particular places, who claimed in consequence to be entitled to receive the people's tithes and offerings. This is manifest from the second of King Edgar's Ecclesiastical Laws in the year 958 A.D., and this was the first step to what afterwards became the parochial system. The parochial system introduced a new kind of churches and a new kind of service, churches which were private oratories in their foundation, but were allowed some of the rights of public churches, and had a form of service which was neither a solemn service conducted by many clergy, nor yet a private service conducted by a single priest. The Irish was the manor or group of manors under its ecclesiastical aspect. The origin of the parochial system is therefore contemporary

with the origin of the manorial system, but although it may have existed earlier in France, in this country its beginnings date from the Norman Conquest; the system was not, however, complete before the thirteenth century.

After showing that the Saxons had not the parochial system, the lecturer proceeded: "The Norman conquerors of this country, although

rough and ready in manners, were pious and devout in heart, and they altered things greatly to the advantage of the church. The ancient ministers in a few cases they simply left in possession of their lands, but more frequently a Norman churchman was placed at their head as abbot, and the estates of the religious house were conferred upon him to hold by baronial

* A portion of a paper read last week before the Devon and Exeter Architectural Society by the Rev. Oswald J. Siebel.

tenure. Over and above this the more religious among them began to pay tithes on their newly-owned estates, as their ancestors had paid before them in Normandy. These tithes they sometimes bestowed on an ancient minister, but quite as frequently they gave them to the priests whom they appointed as chaplains for newly erected churches on their own estates. Gradually the ties were broken down which connected the villages with the ancient ministers. The newly-built village church, with its monasterium or glebe-house, became a centre of religious life, but not of discipline, and the village service ceased to be a private service celebrated by a travelling missionary from the bishop, without becoming a solemn one.

The village church is not intended for solemn worship like a cathedral or minster, therefore the presbytery and apse and a detached altar standing in the chancel of the apse are not required. In it the priest is simply the public leader of the people's worship. He takes his place at their head like one of themselves, for, as Micrologus says, the people are necessary to him to make up the two or three without whom there can be no public or corporate worship.

The most suitable place for the altar, therefore, is against the east wall. As solemn services died out in ancient minsters, which appears to have been the case at the beginning of the thirteenth century, a straight wall was erected even in these against the east side of the altar, the bishop's seat was removed in consequence from the east end to a place in the choir, and the presbytery converted into an ambulatory or enlarged to form a Lady Chapel.

The village church being without a presbytery, the seats for the clergy, often one, never more than three, were placed on the south side of the altar.

Owing to the same reason—the absence of solemn worship—the choir or chancel of a village church is usually found of small dimensions, and in most cases incapable of accommodating a choir, notwithstanding the modern practice of placing these; it seems, indeed, impossible that a choir could ever have occupied the chancel, if any attempt was made—as no doubt it would be on great days—to celebrate the service with any degree of solemnity. A certain amount of space would be necessary for the deacon and sub-deacon to pass to and fro to the rood-loft. Had a choir in the chancel been contemplated, we may be sure the chancels would have been constructed much wider than they are usually found. This view is strikingly confirmed by some of the latest pronouncements of the Society of St. Osmund, who consider the west gallery the most suitable place for the choir. In a collegiate church the singers formed a semi-clerical order, who were instructed and brought up in the house of the church. In the village church there was no order of singers. The only other clerk besides the priest was the parish clerk, without whose assistance both the third and fourth Lateran Councils forbid any priest to offer the Eucharist.

We may even go so far as to say that the existence of the nave at all in the village church appears to have been really an afterthought. For the Saxons, as they held their shire-motes and hall-motes in the open, so, too, they themselves prayed in the open.

It seems not improbable that small prayer-cells, those parts of a village church, in fact, which we now call chancels, were the original buildings constructed in a number of places by the ancient ministers, both episcopal and monastic, which took upon themselves the task of sending clergy round to minister to the people. First the clergy had ministered under the shadow of the village-cross, next they erected a small cell to protect the altar, at which they ministered when they came round, and from its entrance they read the Epistle and Gospel, and preached to the people who stood without in the open. The bishop's minsters and the monastic minsters built these prayer cells, and so they and their successors in title continued to maintain them; the practice has still survived even in our own day. In some cases village churches were built where no prayer cell existed before, and this probably explains the rarer cases where, by custom, neither rector nor incumbent, repairs the chancel.

In a captain like ours attending a service in the open must have been, at certain seasons, fairly trying, hence in Norman times the

manorial lord and his yeomen constructed for their own use a nave adjoining the chancel, practically a separate structure, and maintained it, until the church rates abolition, at their own separate charges.

The chancel and the nave, however, appear to have always been looked upon as two separate buildings. They were entered by separate doors, and the obligation to repair them fell upon different parties. We may, therefore, conclude that there is no rule for the size and appointments of the nave of a village church save the number of persons to be provided for and the funds available for the purpose.

4. Of old, the ancient minsters, and only the ancient minsters, were supplied with baptistries, for only at these was there an adequate staff of clergy to prepare adults for baptism. To this day only one church in Florence—El Duomo, the domus or house of the church—has a baptistry. All lesser churches are, and were, supplied with fonts for the baptism in infancy of the children of Christian parents, not for adults. In this country it is doubtful whether village churches, except, perhaps, in a few instances, had fonts before the constitutions of Langton in 1223.

As to chapels which exist for the ease and convenience of parishioners who are unable to attend their parish church, or else for the commemoration of the dead, little need be said. Their object being purely private, there is no reason why they should assume one form rather than another, except to serve the purpose for which they were intended. It seems, however, hardly reasonable that they should always be built on the lines of a parish church, unless they are built as district churches, and there is a prospect of the district being erected into a district parish. Perhaps such buildings afford the best opportunity for the architect to strike out some new line of his own.

To sum up briefly:—

There is and always has been in the use of the term "church" applied to buildings a broad distinction between public churches and private churches. Public churches or ancient minsters are those provided with a staff of clergy capable of handing down traditions and exercising public discipline. Private churches are praying places for the living, or places for commemorating the dead.

Intermediate between public churches and private churches are the village churches, the majority of which were originally private chapels, served by itinerant clergy, but were constituted in a certain sense public churches, and endowed with tithes and lands as such by the Norman conquerors between the eleventh and thirteenth centuries in this country.

The intermediate character of a village church is, therefore, represented in its architecture.

1. Instead of a presbytery, apse, and detached altar, the altar is fixed against the north wall, and seats for one or at most three clergy are placed on the south side. This construction of a village church has reacted on the constructions of the cathedrals.

2. There being no body of clerical singers, the chancel is small, and the singers, not a semi-clerical body here, but a mixed body, are placed in some other part of the church. The west gallery, according to the Society of St. Osmund, seems to have been chosen for this purpose.

3. The shadow of the Cross was the earliest oratory among the Saxons. It was succeeded by the prayer cell of modest dimensions, usually constructed and maintained by one of the greater churches. When the prayer cell became a village church, the body of the church was added by the people for their own use, and by the people it has ever since been maintained, until the Church Rates Abolition Act was passed.

4. Village churches, being only public churches for certain purposes, are required to have stone fonts for the baptism of children. Baptistries for the baptism of adults belong to collegiate churches, otherwise called baptismal churches.

5. In constructing chapels it is desirable to consider their ultimate destination and to construct accordingly.

CLERK OF WORKS, INGHAM INFIRMARY EXTENSION, SOUTH SHIELDS.—Mr. William Bygate, of Newcastle-on-Tyne, has been appointed clerk of works in connexion with the extension works at the Ingham Infirmary, South Shields.

THE OWEN ARTIFICIAL STONE.

ON Tuesday, November 2, the mode of manufacturing this artificial stone was explained to members of the Press at the works, Worplesdon, near Woking. The essential components of the material are quartzose, sand and hydraulic lime, and these are united so as to form a solid stone by a peculiar and interesting process, which differs somewhat from the method adopted by Mr. Owen when we first noticed a material bearing the same name in the columns of the *Builder*, and when the production of the stone was in its experimental stage. As now placed on the market, Owen's stone is prepared, briefly, as follows: Quartzose sand dug in the vicinity of the works is first dried by being heated; it is then thoroughly mixed dry with hydraulic lime in the proportion of about 12 per cent. of the latter to 88 per cent. of the former. This mixture, still in a dry condition, is packed into very strong moulds of any desired shape, the filled moulds being subsequently built up in a steel frame or box. The latter is conveyed by tramway to an immense steel cylinder, inside of which it is placed, the cylinder now being closed and the door strongly bolted up. Water near the boiling point is then admitted until the cylinder is full and an indicated pressure of from 60 lb. to 70 lb. maintained. The water is kept in a highly heated condition by steam coils running along the length of the cylinder inside, and this, we were informed, is a very essential part of the process.

We may pause for a moment to see what is taking place inside the cylinder. On the admission of the boiling water the hydraulic lime in the moulds commences to slake, and the pressure maintained assists in forcing the water into the sand and lime mixture so as to bring about complete slaking throughout the mass. The mixture being confined in strong moulds follows that the expansion of the material consequent on slaking is not allowed free play, that immense pressure is set up within the material itself, which tends to render it much more compact than might otherwise be the case. It is regarded as important that as little air as possible shall be admitted into the cylinder during the slaking; that is why the water is admitted just below the boiling point, and the temperature kept up by steam coils, instead of injecting live steam direct into the water.

On the lime being thoroughly slaked, under the conditions named, the pressure and temperature are gradually relaxed and the material is allowed to cool slowly. The cylinder-converter is subsequently opened, when the mixture is found to be converted into solid stone. The latter is in a wet condition, and becomes harder in the course of twenty-four hours. The whole operation, from the packing of the cylinder to the withdrawal of the moulds, occupies about three days.

And now, in regard to the stone itself. Many experiments have been made on it. A chemical analysis gave:—

Insoluble siliceous matter	...	...	73
Combined silica (Si O ₂)	...	...	4
Alumina and Ferric oxide (Al ₂ O and Fe ₂ O ₃)	...	...	2
Lime (Ca O)	...	...	12
Magnesia (Mg O)	...	...	2
Carbonic anhydride (C O ₂)	...	...	2
Combined water and loss	...	...	5

Test blocks of the stone were exposed for sixty-six hours to a moist atmosphere containing sulphur dioxide, it being thought that such a test would show what effect the deleterious air of large towns might have upon the stone; result, no appreciable amount of corrosion. Two samples were immersed in water and frozen and thawed alternately—times each sample; result, no indications of disintegration. Samples were also heated and plunged into cold water, and the result was satisfactory. And another series of tests of somewhat similar character produced the same results.

The samples viewed by us showed that the material is very fine grained and homogeneous, the stone takes a sharp arris. Its normal tint is light grey, though other colours may be obtained when desired. From a careful microscopic analysis we have made, and from the general character of the material, we are of opinion that this is as good a quality of artificial stone as any in the market.

THE SURVEYORS' INSTITUTION :
PRESIDENT'S ADDRESS.

THE first ordinary general meeting of this institution for session 1897-8 was held in the temporary premises of the Institution, Savoy-street, Victoria Embankment, on Monday, when the President, Mr. Christopher Oakley, delivered an opening address.

In the course of his remarks the President said that he had lately read with much interest the opening addresses of his predecessors in the chair, especially that of their first President, and he might say founder, Mr. John Clutton. Of the twenty surveyors who, at a meeting held at the Westminster Palace Hotel on March 23, 1868, were by resolution provisionally constituted the Association or Institution (and of which number his father, John Oakley, was one) only two now survive, i.e., Mr. Robert Collier Driver and Mr. William Sturge of Bristol. He advised the younger members of the Institution to take an opportunity of reading Mr. Clutton's first address, and the speech of Mr. John Horatio Lloyd, which followed it. They contained much valuable and wise advice, and they especially pointed out that the success of the Institution depended chiefly on the conduct, influence, and continued effort and co-operation of the individual members, which was as true now as it was then. There was very little legislation in the past session affecting their profession. The Extraordinary Fifth Act, 1897, settled two doubts which had arisen under the Extraordinary Fifth Redemption Act, 1886, and enacted that any rent-charge certified by the Land Commissioners or the Board of Agriculture should be a charge on the whole farm or parcel of land described in their certificate. The President subsequently referred to the question of agricultural depression, and dealt at some length with the final report of the last Royal Commission on Agriculture, dated June 27, and recently issued. In considering the effect of the depression on the sale and price of land, he quoted some figures to show that a very large increase had taken place in acreage sold in 1895-6 compared with 1894, the total for 1895 being more than three times that for 1894, and the total for 1896 being more than double that for 1895. The price per acre in 1895 was about 20 per cent. below that for 1894, and, on the other hand, the price per acre in 1896 was more than 50 per cent. above that for 1895. This large increase must be partly due to some sales of land not strictly agricultural being included in the return, as the value of land had not increased by one-half. The following table gives the sales of ground rents registered in 1875, 1885, 1894, 1895, and 1896, and showed that though the amount sold had very largely increased, the price realised had increased from 26½ to 33½ years' purchase.

		Sold for.	Years' Purchase.
1875	£9,498 10 2	£251,680	26½
1885	12,298 9 6	342,478	27½
1894	13,518 4 6	376,700	28
1895	18,149 0 0	551,378	30½
1896	24,830 0 0	832,584	33½

The total amount of all sales registered at the Estate Exchange in 1896 for London and the country, both auction and private contract, was 10,554,263l. For the first nine months of this year the total was about 6 per cent. larger than for the same period in 1896.

In reference to the new buildings for the Institution, the President said that, in the Council's Report in May last it was confidently predicted that the roofing in would be completed before the winter, but owing to unforeseen difficulties as regards foundations a good deal of time was lost which it would not be easy to overtake. Rapid progress was now being made, and there seemed to be some reason for hoping that a portion of the building would be available early next summer. In regard to the new Employment Registry which had just been established by the Council, it was hoped that those of the younger members who were seeking employment or desired to improve their position would in course of time derive considerable advantage from this new means of bringing them in touch with employers, and that employers would also find advantage in knowing where to look for qualified assistants. The Council had taken another very important step in deciding to hold one ordinary general meeting in each session in the provinces, and they had selected Manchester, which was an important examination centre, for the first experiment in this direction.



Other parts of England would, in turn, be visited, and it was hoped that the results might prove advantageous in every way to the best interests of the Institution.

A vote of thanks was unanimously accorded to the President for his address. The proceedings then terminated.

SANITARY INSPECTORS' ASSOCIATION.

A GENERAL meeting of this Association was held at Carpenters' Hall on Saturday last to receive the inaugural address of the new Chairman, Mr. T. G. Dee, for the election of foreign honorary members, and to consider the applications of two ladies holding appointments as sanitary inspectors to become members of the Association. These applications were supported by Mr. Shawcross (Cheshire branch), Mr. W. W. West (Walthamstow), Mr. H. Thomas (Bermondsey), and other members, but after full discussion they were rejected by 49 votes to 39. Mr. H. Alexander (Shoreditch), Mr. W. H. Grigg, and Mr. Watson (St. James's Vestry), who voted with the majority, pointed out that in the early days of the Association and before it was formed, there was much dissatisfaction on account of the appointment as inspectors of men ignorant of building construction and of other essential technical matters. The Association had laboured in conjunction with the Sanitary Institute to set up a higher standard and to raise the status of sanitary inspectors. Could they expect a lady to possess the kind of knowledge which was the most important qualification for this office? Even if she had the knowledge necessary to enable her to order structural alterations to be carried out, could a lady properly supervise the work ordered to be done? It was also pointed out that competency as a sanitary inspector, did not, by itself, give even an appointed inspector an absolute title to become a member of the Association. Subsequently eight male candidates were elected, and Sir Hugh Gilzean Reid, Monsieur de Bruyn (Belgian Minister of Public Works), with other government and communal officials, including the Burgomasters of Brussels, Ghent, Bruges, and Ostend, were elected honorary members.

The proceedings concluded with the inaugural address of Mr. T. G. Dee, who reviewed the work done by the Association in the past, and then proceeded to consider the means which would enable them to advance towards the realisation of such of their aims as they had not hitherto been able to accomplish. Unfortunately many of their earliest aims still remained unrealised, but the progress made justified the hope of ultimate fulfilment. Among the later aims was their endeavour to obtain a measure of superannuation, in furtherance of which the Council had drafted a bill which they would attempt to get introduced into Parliament next session, notwithstanding the discouraging fate of the "Municipal Officers and the Local Authorities' Officers' Bills" during the last session. After dealing with this matter at considerable length, the address concluded with an appeal to the members to always remember that they were banded together to attempt to obtain for their fellow countrymen that greatest of all blessings, health. Of what use could be the efforts of our architects and engineers in providing

luxurious homes and methods of travel if health were denied to the community? The usual vote of thanks was accorded to the Chairman.

LIVESEY HALL.

THIS small sketch was one of those made to accompany the account of the Architectural Association excursion in Lancashire earlier in the year, but was accidentally omitted on that occasion. The quiet-looking old house, in combination with the trees, makes a pleasant little picture of old English domestic architecture.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Vestry of Rotherhithe 7,200l. towards the cost of erecting a town hall, &c.; the Wandsworth District Board 3,000l. for the formation of a new street; the Hackney Guardians 14,470l. for the enlargement of the infirmary and the purchase of premises for the enlargement of the workhouse and for other work; the Guardians of Mile End Old Town 5,500l. to defray the cost of electric light at Bancroft-road; and the St. Pancras Guardians 6,000l. towards the reconstruction of the workhouse.

Tramway Functions and Extensions.—The Highways Committee recommended, and it was agreed (a) that the Council do approve the estimate of 8,500l. submitted by the Finance Committee; and that the Council do, under the provisions of the agreement dated May 27, 1897, between the Council and the North Metropolitan and London Street Tramways Companies and confirmed by the North Metropolitan Tramways Act, 1897, and also under the provisions of that Act, direct the North Metropolitan Tramways Company to construct the undermentioned tramways:—(1) junction between Parkhurst-road and Seven Sisters'-road; (2) junction between Camden-road and Holloway-road; (3) junction between Pentonville-road and Goswell and City roads; (4) two furlongs two chains of double and one furlong of single line in Upper Clapton-road; (b) that the solicitor do prepare the necessary notice to give effect to the above decision; that the seal of the Council be affixed to such notice when ready; and that the notice be served upon the company.

Contracts v. Direct Labour.—The Fire Brigade Committee reported as follows:—

"We reported on July 27 last that we contemplated recommending the Council to carry out without the intervention of a contractor the work of altering and enlarging two fire-engine stations, one of which was that at Hampstead, and the Council authorised us, in the event of the manager of the Works department not being satisfied with the architect's estimate, to invite tenders for the work by public advertisement. The architect's estimate of 4,170l. was referred to the manager of the Works department under the standing order of July 20, 1897, but the manager having reported to us that he was of opinion that the estimate was not sufficient for the work described in the specification and quantities, tenders were invited. Those received were referred to us by the Council on October 26,

and are as follows—Messrs. F. Gough & Co. 4,055*l.*; Messrs. R. A. Verbury & Sons, 5,138*l.*; Messrs. J. Chessum & Sons, 5,153*l.*; Mr. W. Thompson, 5,372*l.* Messrs. Gough & Co. state on their tender that if the work were carried out under the general conditions for building contracts agreed upon by the Royal Institute of British Architects and the Builders' Society, and adopted by the Central Association of Master Builders of London, the firm's tender would be reduced by 5 per cent. The firm also adds that it would require the clause in the form of contract as to payment altered. It will be observed that the lowest tender is 785*l.* in excess of the estimate of the architect which was made in April last. He states that about 100*l.* of the difference is attributable to the rise in labourers' wages which took place in June last, but that, having looked over the bills of quantities which Messrs. Gough & Co. submitted with their tender, he finds that some items are priced at rates which in his opinion are excessive. After the advertisement had been issued a further modification was suggested in the plan for altering the engine-room and forming a recreation-room, and we propose to consider this before determining what course we shall recommend the Council to adopt to insure the enlargement of the station. We are not prepared to recommend the acceptance of any of the tenders, and we therefore confine ourselves to recommending that none of the tenders for the enlargement and alteration of the Hampstead fire-engine station be entertained."

Mr. McKinnon Wood moved an amendment to refer the matter back for further consideration, to include the causes which had led to the tenders exceeding the estimate by so large a sum. He said that in the past considerable complaint had been made against the Works Committee of quarrelling with the estimates. The present case went far to justify the action of the committee. They said the estimate in the present case was too low, and that had been confirmed by the contractors.

Mr. Ward seconded, and in the course of his remarks he said that prices had gone up a good deal, and that the Council's estimating officers had not, apparently, allowed for that.

Mr. E. White said that his complaint against the Works Committee had been that it had accepted work at too low a cost. The reason that contractors were shy of tendering for the Council's work was that the conditions imposed by the Council, from which the Works Committee were free, were very onerous. This fact also probably accounted for the tenders in this case being so large.

Mr. J. Burns, M.P., said that the reason the Works Committee took work at low prices was that they were urged to do so by Mr. White and his friends. The so-called onerous conditions which had been referred to applied to the Works Committee just as much as to the contractors. The Works Department had offered to do the work under discussion for 4,800*l.*

The amendment was agreed to.

Painting of Aqueduct, Middle-Level Sewer.—Mr. White drew attention to a paragraph in the report of the Main Drainage Committee, in which the Council was asked to sanction an additional expenditure of 343*l.* for the repainting of the middle level sewer aqueduct over the Metropolitan Railway at Farringdon-road. He said that the work was carried out by the Works Department under a schedule of prices, the value amounting to 375*l.*; whilst the actual cost of the work had been 718*l.* If this work had been given to a contractor this excess would never have occurred; and the ratepayers would not now be saddled with this loss. He moved as an amendment, that the excess expenditure should not be sanctioned until the Finance Sub-Committee on Works had reported on the details of the expenditure.

Mr. Fletcher seconded the amendment, which was agreed to.

Coronet Theatre.—The report of the Theatres and Music Halls Committee contained the following paragraph, the recommendations being agreed to:—

"We have further considered eight drawings dated 16th October, 1897, which have been submitted on behalf of the Coronet Theatre, Limited, for a new theatre to be erected at Notting-hill-gate. The site complies with the Council's regulations as it abuts on Uxbridge-street, Johnsons-street and High-street, Notting-hill-gate. The theatre will have seating accommodation for 1,143 persons, and the Council's regulations are shown to be complied with throughout. We therefore recommend—(a) That the eight drawings, dated October 16, 1897, of the proposed Coronet Theatre be approved on condition that the works be commenced within six months, and be completed in accordance with the Council's regulations and the provisions of the London Building Act, 1894. (b) That upon our report-

ing the completion of the building in accordance with the approved drawings, and the above condition, a certificate under the Metropolitan Management and Buildings Acts Amendment Act, 1878, be sealed and issued to the owner of the premises."

Lines of frontage in Hampstead-road.—The Building Act Committee brought up the following report:—

"We have considered an application by Mr. R. Parry, on behalf of Mr. T. Sandilands, for consent to the erection of a one-story shop upon part of the forecourt of No. 78, Hampstead-road, to the line shown upon a plan submitted with the application. It has been ascertained that the late Metropolitan Board of Works gave consent on July 10, 1874, to the erection of one-story shops in front of the houses Nos. 62 to 106 (even numbers), Hampstead-road; but no condition was attached that the erection of the shops should be completed within any specified time. Similar applications with regard to Nos. 72 and No. 66, Hampstead-road, were granted on October 27, 1891, and March 12, 1895, respectively, but the time for completion of the erection was in each case limited to eighteen months from the date of consent. We are advised that the consent given on July 10, 1874, still holds good for the purposes of section 22 (as to lines of frontage) of the London Building Act of 1894, as, by section 116 it is provided that all consents given under Acts repealed by that Act shall be of the same validity as if they had been given under the Act. Shops have, under the consent given in 1874, been erected in front of several of the adjacent houses, and there appears to have been no necessity for the application now under consideration. We recommend—that the Council do make no order with reference to the application of Mr. R. Parry, on behalf of Mr. T. Sandilands, for consent to the erection of a one-story shop upon part of the forecourt of No. 78, Hampstead-road, to the line shown upon the plan submitted with the application."

Mr. Roberts moved, and Mr. Taylor seconded, that the report be referred back; but after some discussion the amendment was defeated, and the Committee's recommendation was agreed to.

The Works Department.—Lord Hardwicke moved, and Mr. Whitmore, M.P., seconded:—"That the Finance Committee be requested to furnish to the Council, before its second meeting in the month of December next, the estimated and actual cost of all works completed up to September 30 last as reported to the Executive Committee, together with a return of works refused by the Works Department for which tenders were afterwards received from contractors in continuation of the return presented on May 11 of this year."

The resolution was agreed to, with an addition to the effect that returns should also be presented of the lowest tenders for works not offered to the Works Department, together with the architects' estimates.

The Thames Embankment.—Mr. Goulding, M.P., moved, and Mr. Hayter seconded, "That it is desirable that the embankment of the Thames should be continued from the Victoria Tower garden to Lambeth-bridge, and that it be referred to the Improvements Committee to report generally upon the subject, such report to also deal with the question of the widening of Millbank-street, and the utilisation of any surplus land which might remain after the carrying out of the improvement."

This was agreed to, and the Council adjourned.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.—The second meeting of the Discussion Section of the Architectural Association was held on the 3rd inst., when a paper was read by Mr. H. V. Crawfurth Smith on the "Interior arrangement of Churches." He treated the subject principally from a historical standpoint, tracing the development of the planning and furnishing of churches from the Jewish synagogue to the Hall of Worship in the Catacombs, the Basilica of the Romans and the English medieval church, which he illustrated by diagrams. He minutely described the furniture of an English church of the sixteenth and seventeenth centuries, and concluded with the following suggestions as worthy of note in designing modern churches:—"The altar should be raised and visible from all parts; sedilia, piscina, and credence constructed in the walls of the fabric so as not to project; a maximum width given to the ritual choir, with the seats low; the chancel screen rich, but not so as to obstruct the view of the altar; the choir raised three steps and sloping from east to west; the nave sloped slightly from west to east; the organ

placed in a west gallery or tribune in the choir; the baptistry, as far as possible, a separate compartment; the reredos, if any, well raised above the altar shelf, with a plain surface beneath, as a background to the cross and candlesticks." Following the discussion which ensued, Mr. Fellows Prynn, the special Visitor, laid stress on the necessity of every one who attempted to design a church being thoroughly imbued with the spirit of the religion which his church was to enshrine, and knowing the symbolic meaning and value of all the several parts. He instanced Salisbury as having, in a symbolic sense, the most beautiful plan he knew. He also sketched on the blackboard other plans which were based on traditional forms, but which were quite suitable for modern churches with large congregations. He advised the members to closely study the old work with a view to finding out the exact symbolic meaning which each part had; only as they did that would their work have any lasting worth.—The next meeting of the Section will take place on the 17th inst., when Mr. J. Hunt will read a paper on "Ecclesiastical Vestments."

GLASGOW ARCHITECTURAL ASSOCIATION.—The usual monthly meeting of this Association was held in the Rooms, 187, Pitt-street, on the 2nd inst., when Mr. James Salmon read a paper entitled "Design in Construction." The lecturer divided his subject into two parts—the æsthetic and the practical. In the former he satirised in a racy fashion the common practices of present-day architectural design, where features of old work were selected and strung together, either inflated or shrunk down as the case required. The same principle was acted upon in construction, the stock forms of the textbooks being reproduced without any consideration of their applicability or attempt at fulfilling the same requirements by independent thought. This state of things, Mr. Salmon attributed to the recognised system of stuffing students with dull rule of thumb details instead of endeavouring to direct their minds to grasp the general principles and think independently. This was demonstrated by showing in drawing and on the black board modes other than those generally in use for carrying out a few of the commonest pieces of construction.

EDINBURGH ARCHITECTURAL SOCIETY.—A meeting of this Society was held on the 4th inst. Mr. J. A. Williamson, President, in the chair. Mr. A. N. Paterson, Glasgow, delivered a lecture entitled "Evolution of the House," which was largely illustrated by diagrams. Mr. Paterson first treated of the earliest developments of domestic dwellings, and then described, in historical order, the houses of the Greeks and Romans, the Saxon hall, and Norman castle, the grange and the monastery, the early tower house, and the mansions of Elizabethan and Jacobean times. He traced the special Scottish developments from the fifteenth to the seventeenth centuries, and gave a short description of the Palladian type of house, and the houses of the times of Queen Anne and the Georges.

DUNDEE INSTITUTE OF ARCHITECTURE.—A conversazione in connexion with Dundee Institute of Architecture, Science, and Art was held recently in the University College Buildings, Dundee. The proceedings were opened at seven o'clock, when Mr. Leslie Owen, the President of the Institute, took the chair and delivered an introductory address. After referring to the report for the past year, and several other matters of interest to the members, he addressed his remarks to the students. Opportunities and facilities for the study of their profession were available now to every one in a far greater degree than ever had been the case in their country. Other nations—France in particular—had encouraged the study of art and architecture for generations before we thought the subject worthy of notice; and just as the parochial schools of Scotland, instituted in an age when education was at a very low ebb in all countries, raised the Scot above the average of his fellows, so had the art education of France raised her standard above that of other nations. But they were fast making up for lost time, and it behooved their students to take every advantage of the opportunities put in their way. But let not the student think, on the other hand, that all of architecture, and all necessary for the practice of his art, was to be learned in schools, aye, or even in the office. The world was the architect's schoolmaster, for he had many to serve, many wants to supply, many crude ideas to reduce to workable shape, many aspirations to sympathise with and strive to give effect to.

had much to learn, for the public expected much from him. Indeed, his experience was there was almost nothing an architect did not need to know about. He had to be artist and a thorough business man, two qualities which, like old age and want, were an matched pair. He had to have a thorough knowledge of all the trades, and to be skilled in construction and in the properties and lengths of the various materials with which he had to deal. Sculpture and painting he had to be familiar with, so that he might appeal to them as his good fairies for the final touches to grace his finest works. He had to be sympathetic and trustworthy, a gentleman in his feelings and address, judicious as well as firm in many responsible positions. Though they had chosen a profession which entailed hard and life-long study, it was one which had its compensations. They were engaged in an honourable profession, which, if properly pursued, brought pleasure if not profit to its devotee. Especially would he say reveal the pleasurable parts of their profession in their student days, while they had time and opportunity. Enjoy their sketching tours and visits to old buildings, and to new ones also, for in them much was to be learned. Cultivate the love of the beautiful and seek it in all they met. On the members he would urge the necessity—nay, the necessity—of their taking decided and loyal stand together on many points. Petty jealousies ought not to be allowed to keep the profession from showing a united front when unreasonable demands are made, or unfair conditions laid down for members as regards competitions, fees, or other question affecting the profession as a whole or any individual member of the Institute. In those days of excessive competition combination was absolutely necessary, as they could see in all trades and professions, and the only way of making their profession take the position it was entitled to be to be loyal to their common professional interests and to each other. Proceeding, the President remarked that they had only to look at the prices of everyday use to see that there had been a great advance in public taste in recent years, and the tendency was still to rise to greater excellence. In this advance in public taste and the bringing of beauty and ornament into the life and soul of the people, thought there was great ground for satisfaction. Art had a great and enviable influence, leading men's minds to the contemplation of sources of all that was beautiful and true, those who encouraged it in any way, whether in the common articles of everyday life, in painting, in sculpture, or in building, might rest assured that they were at least helpful in some degree the building of a spiritual temple "whose walls shall be adoration and whose gates praise."—Professor then presented a series of experiments in electricity. A concert followed. In the chemical laboratory a number of drawings were shown by Mr. T. D. Dunn.

HEFFIELD SOCIETY OF ARCHITECTS AND DECORATORS.—The monthly meeting of this Society was held at the School of Art on the 11th inst., when there was an unusually large attendance. The President (Mr. R. W. Fowler) was in the chair. The following new members were elected as Associates:—Arthur Appleby (Student), Frank Barker (Student), Henry W. Le, John H. Chorlton, Sydney L. Chipping (Student), Joseph W. E. Clayton (Student), Herbert Ogden, and George E. Turner (Student); and as Students:—Wm. C. Antcliffe, Alfred F. Bond, Herbert S. Hague, Thomas Hill. Mr. J. A. Gotch, of Kettering, then delivered a lecture on "Eighteenth Century Architecture," illustrated by numerous photographs of buildings, with plans and details, and lantern slides. The lecturer said the history of architecture taken in the eighteenth century was very narrow, being little more than a consideration of the Five Orders. The Evelyn nor Addison had the slightest sympathy with Gothic work, and they ought to be taken to represent the cultured taste of the age. The Renaissance was now developed to such an extent as to produce little more than copyism of Italian designs without suitable adaptation to English tastes. Architectural design was amateurish and superficial, and its professors were far behind the masters, Inigo Jones and Wren, in ability. Large houses, of which many were built by great nobles, were devised for display rather than comfort. The State apartments were large and magnificent, and the exteriors

were stately and striking, but the family apartments were tucked away as best they could be, without regard to the first principles of house planning. The smaller houses, however, were much more pleasing. The interiors of these smaller houses were generally well treated, and the woodwork of the period still furnished abundant hints to designers of the present day. The next meeting will be on December 14, when Mr. F. R. Farrow, London, will lecture on "The Warming of Public Buildings."

GLASGOW INSTITUTE OF ARCHITECTS.—The newly-elected council of this Institute held their first meeting on the 3rd inst. in the chambers of the Secretary, Mr. C. J. MacLean, 115, St. Vincent-street, under the chairmanship of Mr. David Barclay, Vice-President, when the following office-bearers were elected, viz.:—President, Mr. John Jas. Burnet, A.R.S.A.; Vice-President, Mr. David Barclay; Hon. Treasurer, Mr. Alexander Petrie; Auditor, Mr. Campbell Douglas; Secretary, Mr. C. J. MacLean. The committees for the year were re-appointed, including the Committee on Public Architecture and Competitions, the Committee on Prizes, and the Committee on a Curriculum of Architectural Education. The treasurer's accounts for the year were submitted and approved of. Some reference was made to the work of the past year, and it was stated that the joint occupation of the rooms at 187, Pitt-street by the Institute and the Architectural Association had continued to be of benefit to both societies. Special attention was directed to the fact that no less than nineteen new standard works on architecture had been added by purchase to the joint library, which was now a valuable one, and was at all times available for reference to the members of both societies. In addition to these, several gifts of valuable architectural books had been received. Reference was also made to the success of the Metal Work Exhibition which had been held during the past session. Reference was made to the satisfactory results of the educational work done by the Institute during the past year, and to the exhibition of prize drawings of the Royal Institute held in the rooms last April. It was stated that a conference had now taken place between the committee of the council which had been invited to meet with the Glasgow Corporation regarding the designs for a proposed public hall at Springburn, and that the suggestions of the Institute's representatives had been fully adopted by them.

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—A general meeting of this Institute was held on the 3rd inst., Judge Baylis, Q.C., in the chair. Mr. F. G. Hilton Price, exhibited seven burgesses' caps, or flat caps of the sixteenth century, found in Finsbury.—Mr. J. Park Harrison, of Christ Church, Oxford, read a paper on Carfax Tower. He said that the results of recent research showed that two rude arches and a doorway high up in the north wall inside the ringers' chamber are, without doubt, of early Saxon date. This, it is to be hoped, when known will lead to their preservation intact, on account of the interest they possess in connexion with the history of the city. The Oxford Council and the eminent architect and antiquary employed by them would, it cannot be doubted, have taken measures to do so had it been known that the remains were of earlier date than Canute. Antony Wood, in his "City of Oxford," says that the earliest mention he could find of St. Martin's Church was a charter, by which Canute gave a church dedicated to St. Martin to Abingdon Abbey in 1035, adding that this was some time after he became possessed of it, and also that it was believed in his time to have been built by Eadward the Elder. Mr. Fletcher, too, the last vicar previous to the union of the parish of St. Martin and the adjoining parish of All Saints, and the consequent demolition of Carfax Church to widen the highway, points out in his history of the former parish that Canute's charter "was not the foundation of a church," and that it was not known when St. Martin's Church was built. History, then, merely contributing the bare fact that a church dedicated to St. Martin was given to Abingdon Abbey by Canute, it rests with archaeology to ascertain whether any distinctive architecture inside the tower is of Saxon type; and this can be shown to be so. The evidence would require photographs to

illustrate it. It may be stated, however, that the remains exhibit peculiar structural features common to Roman and Saxon architecture, which Mr. Micklethwaite states to have continued in use to the end of the Saxon period. It may be styled a wall impost, the object of which was to support framed centering for turning arches. The earliest examples of this structural feature are to be found at the east end of Oxford Cathedral, and are believed to date from the first half of the eighth century. They are in a wall which Ethelred II. appears to have religiously preserved when, as we learn from his charter of 1002, he restored and enlarged the church founded by Didon and his daughter, St. Frideswide. There are also two other examples in Oxford, Canute's famous city. They may be of ninth century date. In all four cases the span of the arches is more than the width of the doorway below. The exterior of Carfax Tower was shown, if it were stripped of later work, namely, Early English, Decorated, and modern, to have been of true Saxon proportions.—Mr. F. G. Hilton Price contributed a paper on the remains of Carmelite buildings upon the site of Ye Marygold at Temple Bar. It was in 1878 and 1879 that extensive excavations were made at Temple Bar for the purpose of building the new bank of Messrs. Child & Co. During these excavations a square cellar was found, which had the appearance of a crypt of an ancient building, a portion having a pointed roof, which was supported by several large stone pillars. Three feet below the floor of this cellar was found a layer of encaustic tiles, having a green and yellow glaze, and in another part a large quantity of human bones, arranged in five regular rows, lying N.E. and S.W. A copper cauldron was also discovered, and pronounced to be of the time of King John. No documentary history was known to exist by which these early foundations could be identified with any early building, until this year, when Mr. W. F. Noble came across some old documents in the Record Office relating to the history of the site of Ye Marygold. A Recovery Roll for Easter Term in the seventh year of James I. describes the tenement called Ye Marygold as once "parcel of the possessions of the late dissolved Priory of Carmelite Fryers in the suburbs of the City of London," founded in 1241. From this and other documents Mr. Noble was able to trace the continued ownership of Ye Marygold from 1241 to the present day, a period of 656 years. From the evidence thus brought forward Mr. Price considered it proven that the Carmelite Priory stood on the site of No. 1, Fleet-street.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The first meeting of this Association for session 1897-8 was held at 32, Sackville-street, Piccadilly, on the 3rd inst., Mr. Thomas Blashill, Hon. Treasurer, in the chair. The Rev. J. Cave Browne, M.A., exhibited an elegantly-shaped vase of terra-cotta of mediæval date, found in the neighbourhood of Maidstone. Mr. J. Chalkley Gould submitted several good examples of James the Second base coinage, 6d., 1s., 2s. 6d., and 5s. respectively, known as "Irish Gun Money," and read some notes descriptive of them, partly derived from Gill's "Manual of English, Scotch, and Irish Coins." Mr. Gould also exhibited some examples of James's British pewter coins, which circulated also in Ireland, having a plug of copper or mixed metal in the centre of each. Mr. C. H. Compton, V.P., read a paper on Rhuddlan, a town or village in Flintshire, where are the ruins of a castle, and formerly were a hospital, a priory, and a preceptory of Knights Templars. The earliest record of the place occurs in A.D. 795, when a battle was fought between the Saxons and Welsh, in which Caradoc, King of North Wales, Meredyth, King of Dyvid, and Offa, King of Mercia, were slain. Very little is known of the hospital. It most probably merged into the priory, which lasted till the dissolution, when it was granted to Henry ap Harry 32 Henry VIII. The castle is said to have been built by Llewelyn ap Idris in A.D. 1015, and after frequently changing hands between the English and Welsh, it was held by King Edward I., when he conquered the Welsh on the death of Llewelyn in 1282, and it was here that the terms of the Welsh capitulation, known as the Statute of Rhuddlan, was signed on the Sunday in mid-Lent in 1284. The Chairman made some observations descriptive of the formation of the castle, and Mr. Worsfold, Mr. Patrick, and others took part in the discussion.



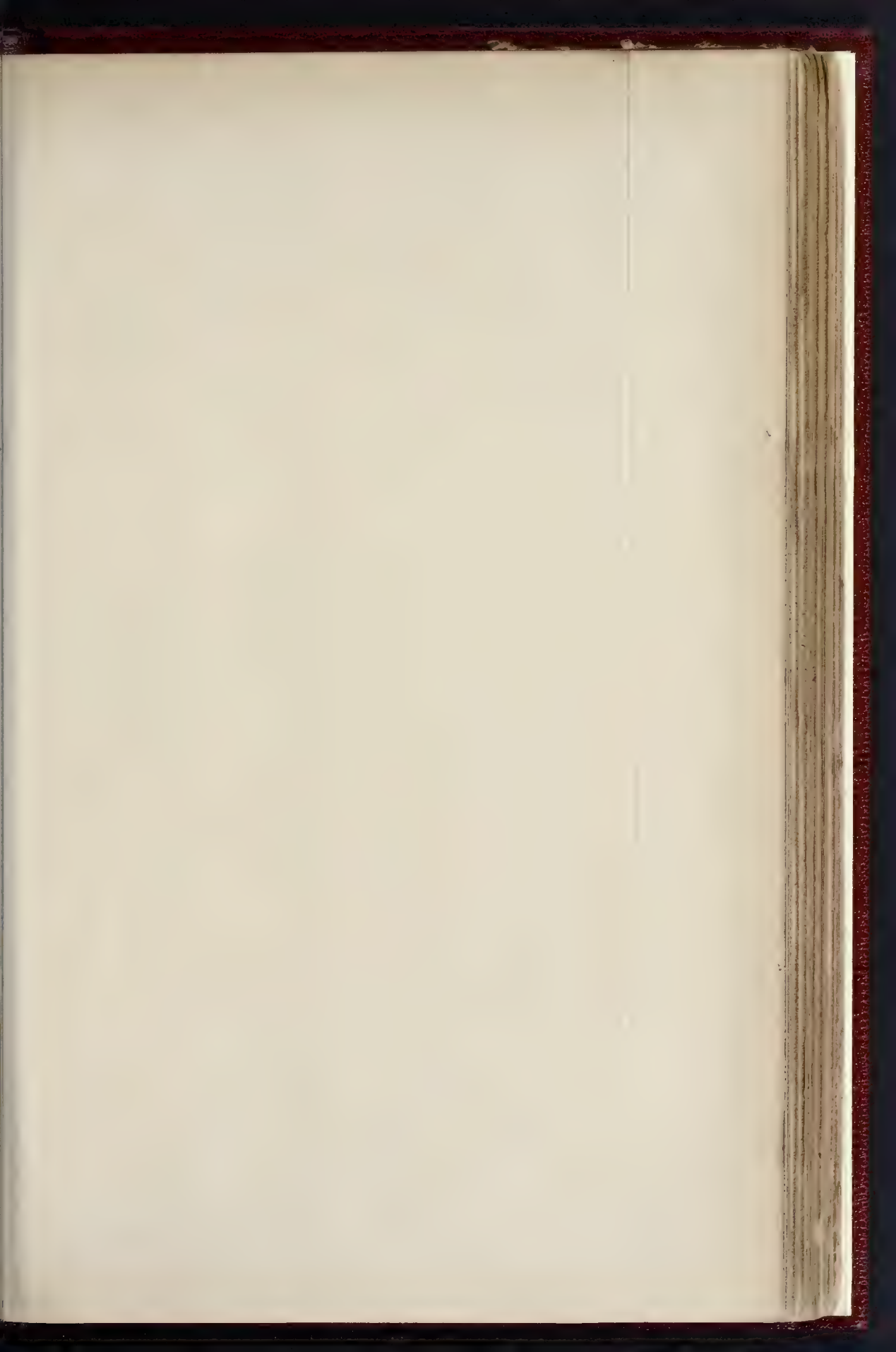
MONUMENT TO MAUPASSANT, IN THE PARC MONCEAU, PARIS.

M. VERLET, SCULPTOR.

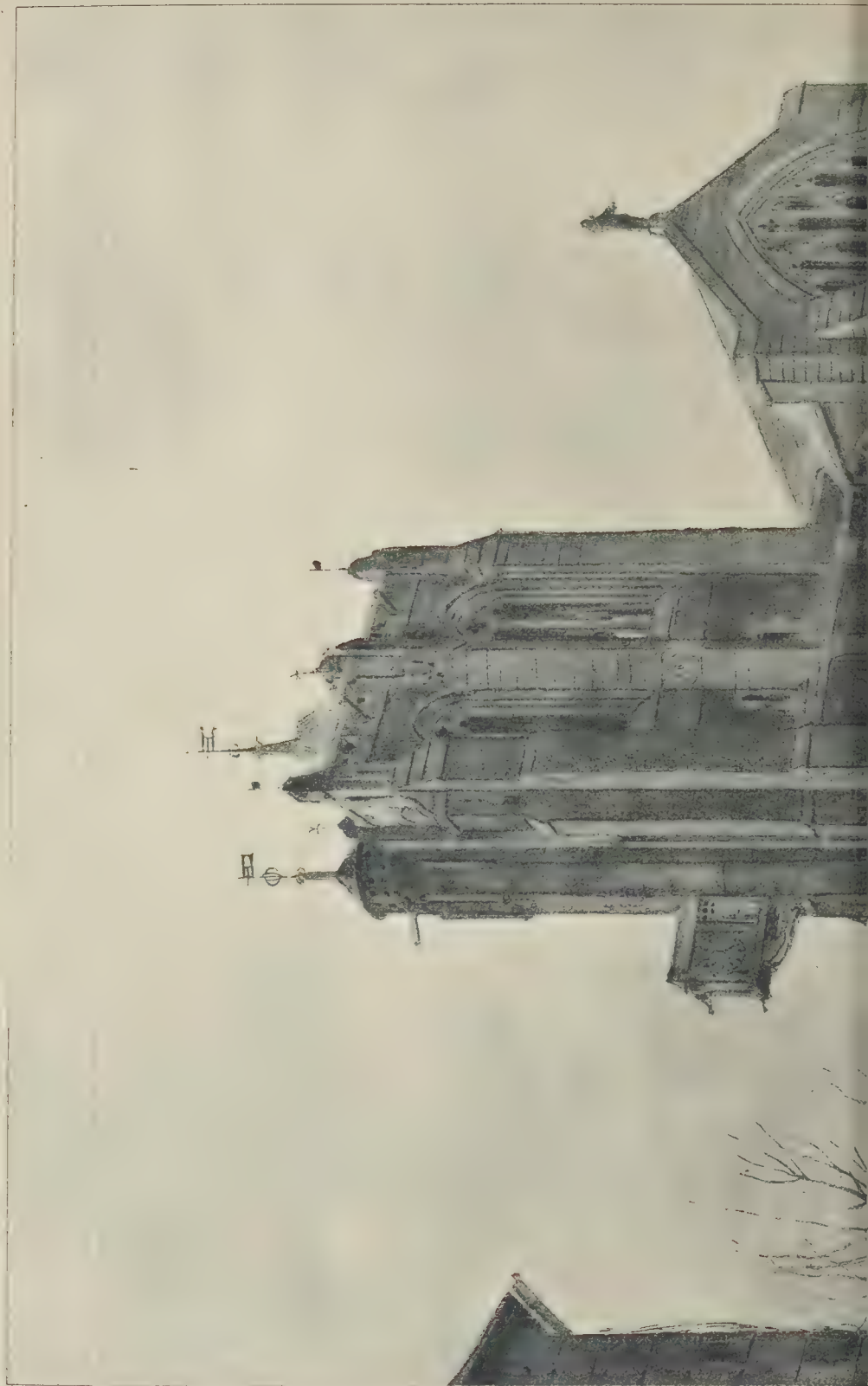


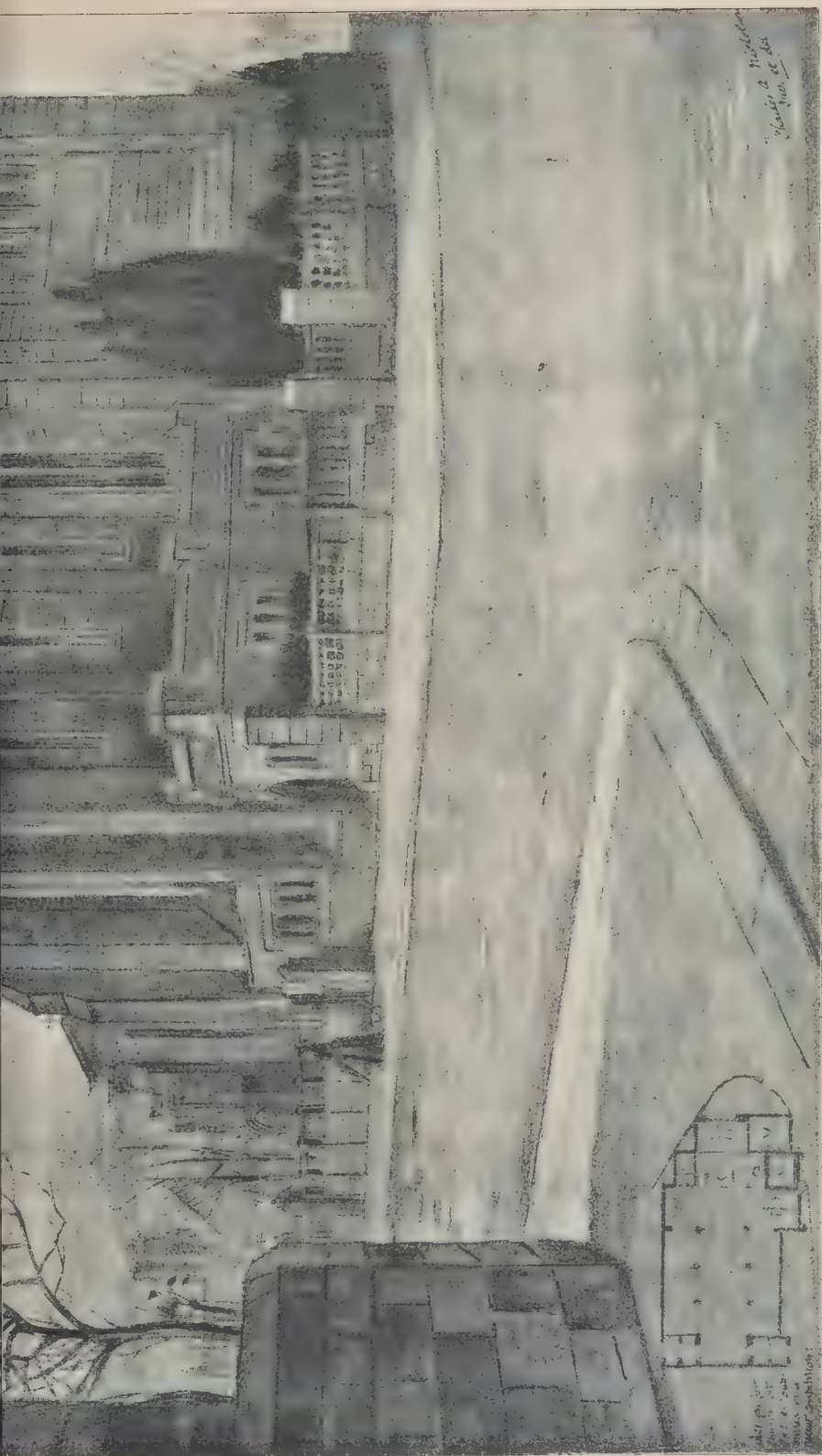
MONUMENT TO LÉCLAIR, IN THE SQUARE DES ÉPINETTES, PARIS.

M. DALOU, SCULPTOR: M. FORMIGÉ, ARCHITECT.

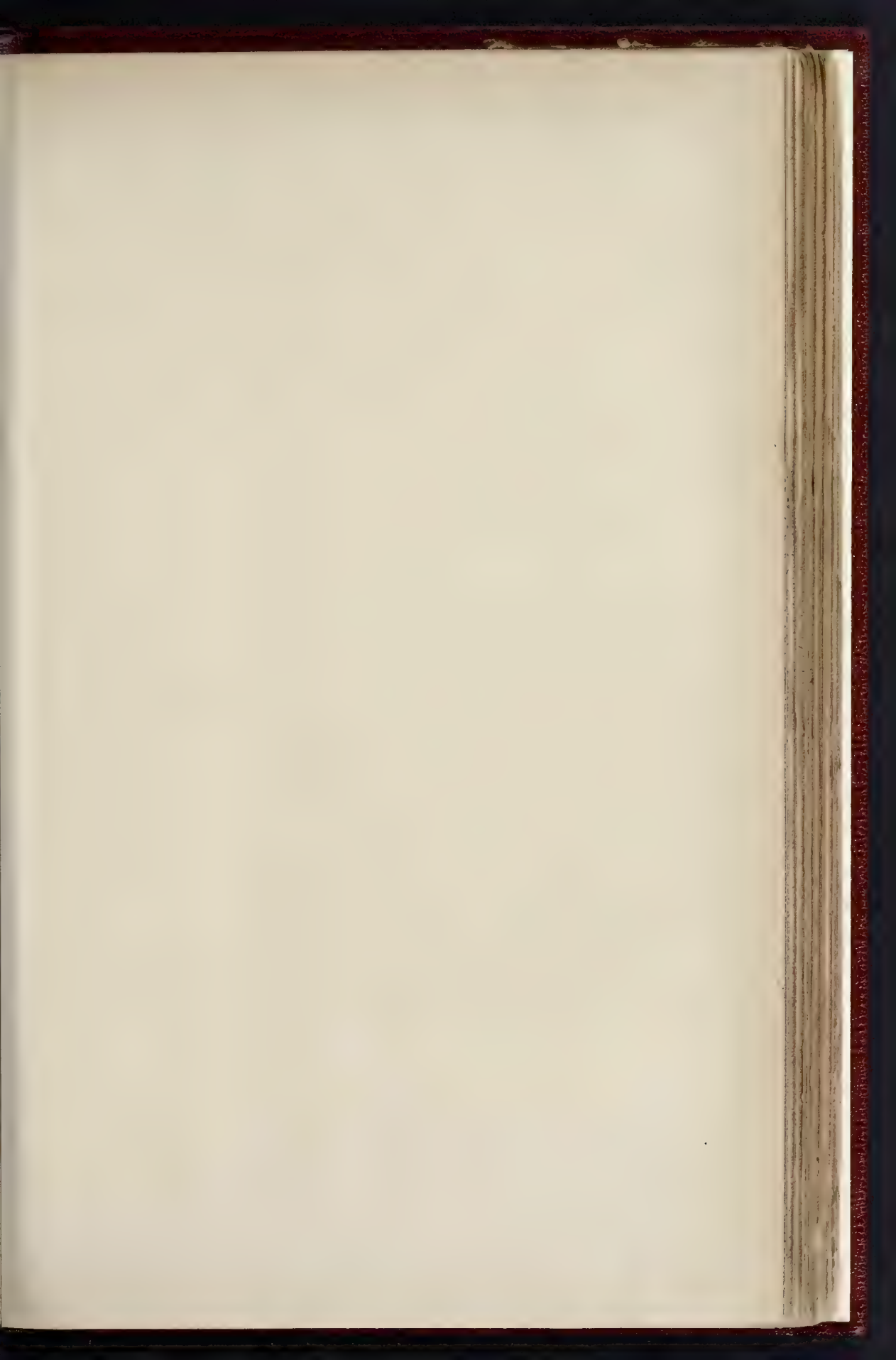


THE BUILDER, NOVEMBER 13 1894.





COMPETITION DESIGN FOR CHURCH AT EXETER - JB Mc C A Nicholson



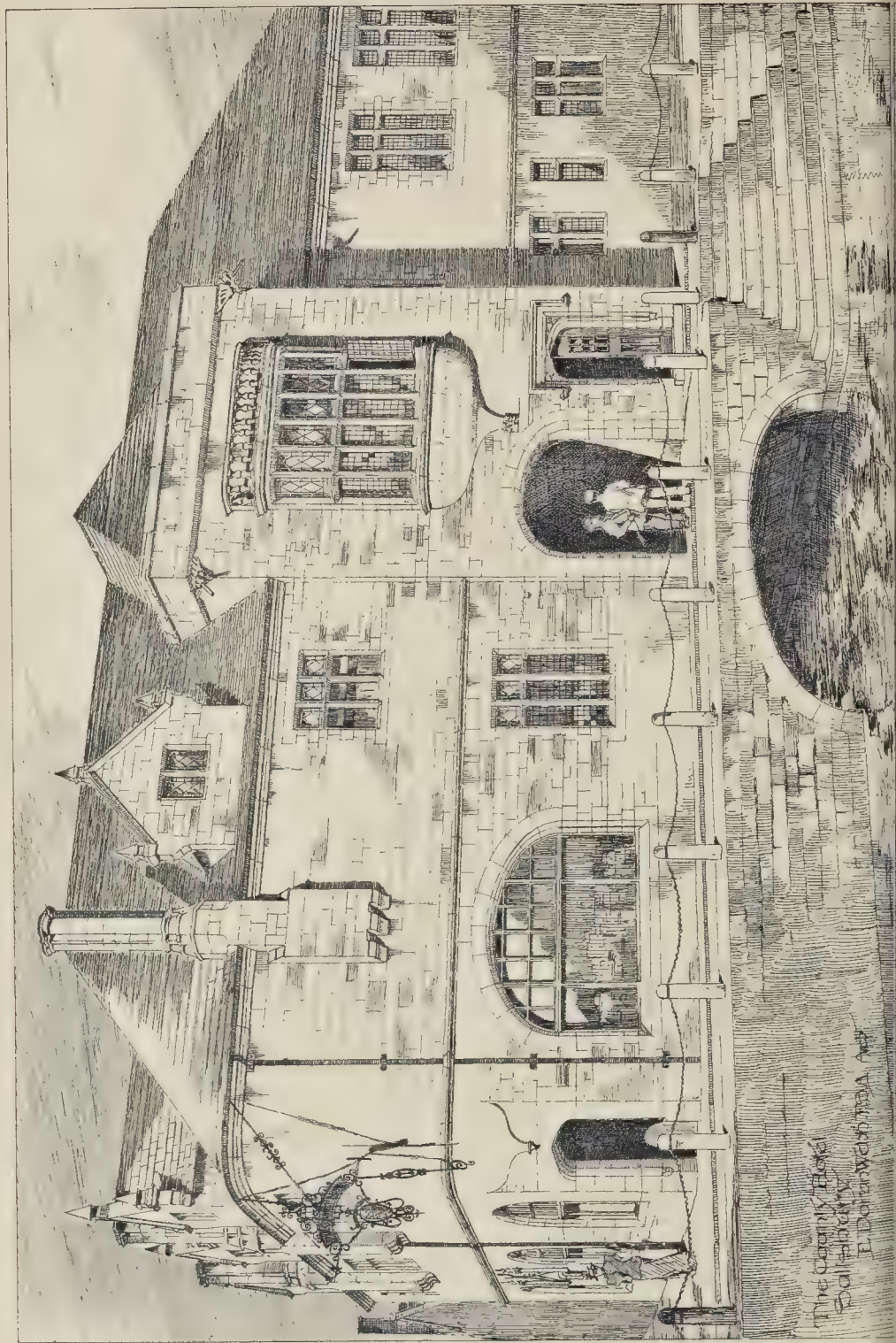


HOUSE AND STABLING AT "MAIDENHATCH."

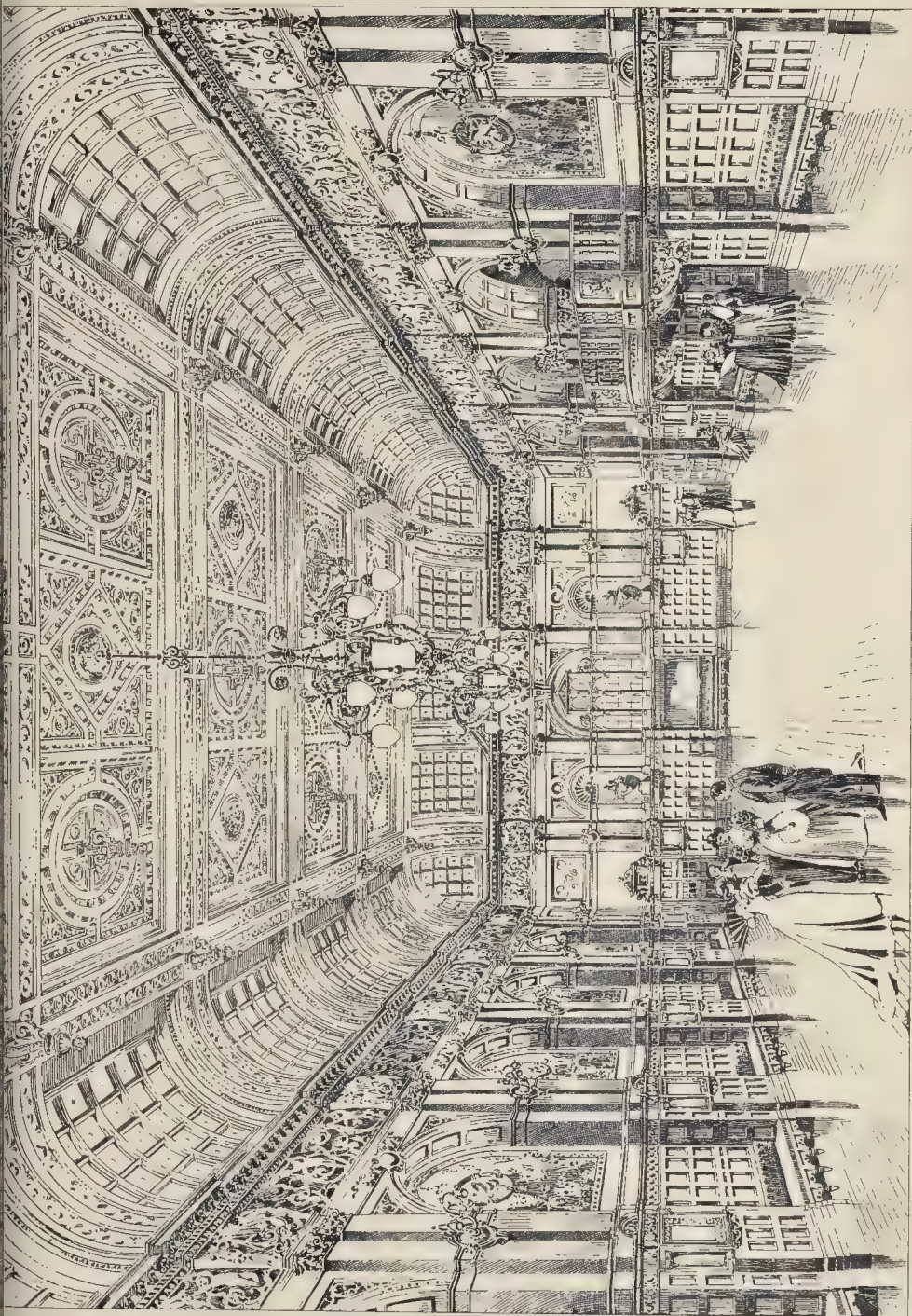


GBOURNE.—Mr W RAVENSCROFT, F.S.A., ARCHITECT

THE BUILDER. NOVEMBER 13, 1897.



The Century Hotel
Sullivan
E. D. W. W. 1897

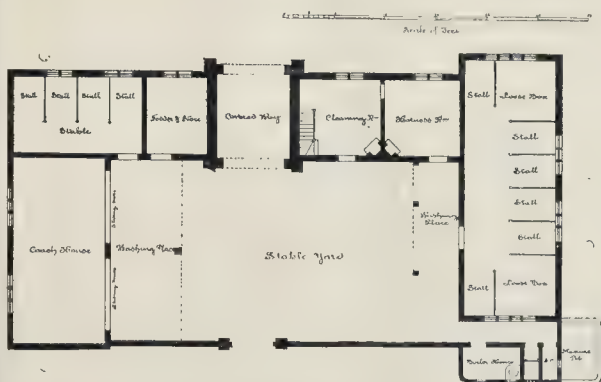


Wm. J. LITTON SPASQUER & CO. 45 EAST HARDING STREET SEVEN JANE 11

NEW BALL ROOM ROYAL PALACE HOTEL, KENSINGTON — MESSRS H S LEGG & SON, ARCHITECTS



House, "Maidenhatch," Pangbourne. Plans.



Stables, "Maidenhatch." Plan.

Reading, Messrs. Wheeler Bros., of the same town, being the contractors.

COUNTY HOTEL, SALISBURY.

This building is of Ham stone, worked and fixed by Messrs. Trask & Son, of Norton, Stoke-under-Ham, Somerset; no builder was employed, but a staff of workmen were engaged with a foreman, and I had to superintend this as well as the building.

E. DORAN WEBB.

ROYAL PALACE HOTEL EXTENSION.

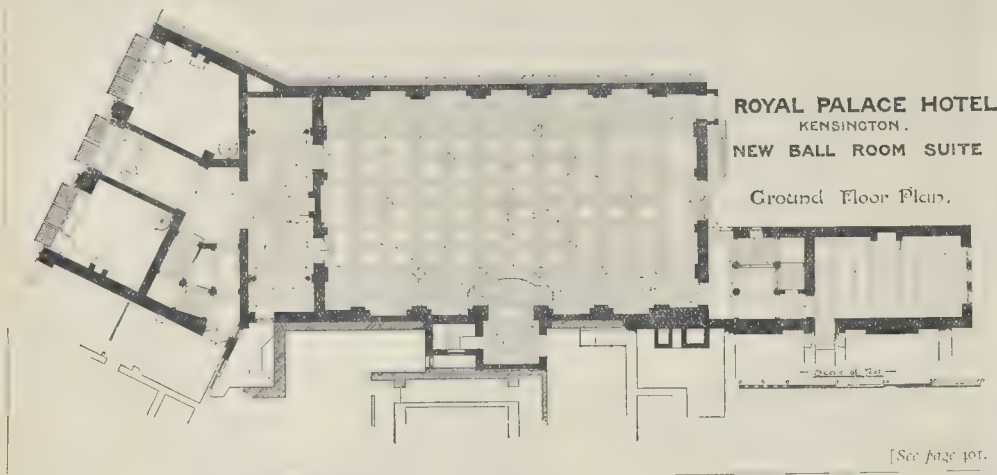
The illustration represents the architects' design for the ball-room erected at the above-named hotel, along with other additions. It is lighted by curved lights near the ceiling, being built in all round and having the large supper room over it carried in curved steel girders.

The decoration is chiefly in carton-pierre, with the lower part panelled in sycamore and satin wood. The floor is of oak constructed on steel springs. The cost of the building is about 32,000l. Messrs. Henry S. Legg & Son are the architects, and the contractors Messrs. Bywaters.

The drawing was exhibited at the last Royal Academy.

The tower shown in connexion with the stabling is built for the purpose of water supply, not only for the house and stabling, but also for the lodges and several cottages which have been erected on the estate in harmony with the design for the house.

The works throughout have been executed from the designs of Mr. Ravenscroft, F.S.A. of



INSTITUTION OF CIVIL ENGINEERS.

At the ordinary meeting of this Institution on the 9th inst., Sir John Wolfe Barry, K.C.B., F.R.S., the President, in the chair, four papers, by Sir E. Leader Williams, M.Inst.C.E., Mr. Whately Eliot, M.Inst.C.E., and Mr. W. O. E. Meade-King, M.Inst.C.E., dealing with the construction and working of the Manchester Ship Canal, were read. The first paper gave an historical account of the undertaking, with a general description of its construction and equipment. As early as 1721 the necessity for providing efficient water communication between Manchester and Liverpool had been recognised, and many schemes had since that time been propounded. The first company proposing to construct a ship canal to Manchester had been formed in 1825, with Mr. Telford, Past-President Inst.C.E., and Sir John Rennie, Past-President Inst.C.E., as Consulting Engineers. Docks were to be constructed at Dawpool, on the River Dee, for large vessels, the cargoes being lightered to Manchester, smaller vessels passing to Manchester, a distance of fifty-one miles. The depth of the canal was to be 15 ft., and the locks 110 ft. by 28 ft. In 1838 Sir John Rennie reported in favour of a ship-canal from Warrington to Runcorn; and in 1840, Mr. Henry R. Palmer, Vice-President Inst.C.E., made a report to the Mersey and Irwell Navigation Company on the improvement of their navigation, so as to adapt it for sea-going vessels. No action had, however, been taken on these reports, and it was not until 1882 that the question was revived. On June 27 of that year, a meeting of seventy leading merchants and manufacturers was held at the house of Mr. Daniel Adamson, when a provisional committee was formed, and the author and the late Mr. H. H. Fulton were instructed to make surveys and report on the "feasibility of constructing a navigation to Manchester available for ocean-going vessels." The late Mr. James Abernethy, Past-President Inst.C.E., was retained as Consulting Engineer. The author reported in favour of a canal with locks above Warrington, utilising the waters of the Mersey and Irwell, with large sluices to pass the floods. The bottom width of the canal was to be 100 ft., to allow of vessels passing at any point, but this width was afterwards increased to 120 ft. The depth was to be 26 ft. The Provisional Committee resolved to take action upon this report, and to make application to Parliament for powers to carry out the work. In 1885 the Ship Canal Bill was obtained, the plan being modified to meet the strong opposition to training walls in the Mersey, by substituting a semi-tidal canal along the Cheshire side of the estuary, commencing at Eastham, about six miles above Liverpool. The canal commenced at Eastham locks, which maintained the level at a depth of 26 ft., subject to increase on all tides which rise above 14 ft. 2 in. on the old dock-sill datum at Liverpool. The lower sill of the largest lock was 23 ft. below old dock sill, Liverpool, or 42 ft. below high water ordinary spring tides; the upper sill was 28 ft. below the

ordinary water-level of the canal. A channel had been dredged below the locks to deep water, giving 6 ft. at low water spring tides, and 33 ft. at high water. At neap tides there was 13 ft. at low water, and 26 ft. at high water. Between this point and Runcorn the canal followed the south bank of the estuary, being carried by embankments across the bays. It then passed inland to Latchford locks, in an almost straight course, where the tidal action ended. Thence a straight cutting, three miles long, connected the tidal portion of the canal with the River Mersey, which, from this point to its confluence with the River Irwell, was absorbed in the more direct course of the canal. The water-level was here nearly on a level with the adjoining land, which had been embanked with the spoil from the cutting; the drainage on the north side of the canal passing into the Mersey as heretofore, a 5-foot siphon under the canal providing for land drainage on the other side. The upper portion of the canal passed, in cutting 30 ft. or 40 ft. deep, through the valleys of the Mersey and Irwell, which, with their tributary streams, supplied it with water between Manchester and Latchford locks; even in the long drought of 1896 there was ample supply of water for lockage purposes. Floods in the canal were dealt with by Stoney sluices constructed parallel to the locks; they were each 30 ft. wide. At Mode Wheel and Barton there are four sluices each, at Irlam, five, and at Latchford three. The minimum width at the bottom of the canal was 120 ft., which enabled large vessels to pass each other at any point. The railway viaducts and the bridges afforded the same width of waterway, except at Runcorn Viaduct, which was 92 ft., and Barton Aqueduct, 90 ft. The swing bridge at Salford, which was above the largest docks, gave 75 ft. width of waterway. There were locks at Irlam, 7½ miles from Latchford, at Barton, 2 miles higher, and at Mode Wheel, 3½ miles above Barton. The Manchester Docks commenced at these locks, but the bottom width of the canal for 3 miles below them had been increased from 120 ft. to 170 ft., to enable vessels to lie and discharge cargoes without interfering with the passage of traffic on the canal. The total rise on the canal above the ordinary water-level below Latchford locks was 60 ft. 6 in., giving an average of about 15 ft. for each set of locks. The length of the canal to its termination is 35½ miles. The excavation had amounted to about 54 million cubic yards, including 12 million cubic yards of sandstone rock. The expenditure of the company to January 1, 1897, had been 15,168,795l. 15s. 11d.; and the traffic had increased from 925,650 tons in 1894 to 1,826,237 tons in 1896. The construction of the Eastham and Runcorn divisions of the canal, where it was found necessary to take the line across the bays by embankments between the canal and the estuary, was described in succeeding papers. Exceptional difficulties had been encountered with portions of the Pool Hall Bay embankment. At one point the line crossed the bed of an old stream filled with mud,

and when the rubble bank, forming the toe of the outer slope, had reached a height of 20 ft., it slipped forward, carrying the clay hearting with it. Sheet piling at the back of the toe and between the rubble and the clay had therefore to be resorted to. At another point the work had to be stopped for some months at a level which allowed the embankment to be completely submerged at every tide. When tipping recommenced, the soft clay was forced out above the tops of the rubble banks on each side, and the clay had to be cut back on the slopes and replaced with rubble. An account was also given of the use of the high-pressure water-jet in pile-driving through the sand, which had been adopted with much success at Ellesmere Port Bay. The last paper presented a description of the Irlam Division, where the nature of the work was rendered difficult by the frequent crossings of the Rivers Mersey and Irwell. The papers were illustrated by cartoons and by lantern views of the leading features of the canal during and after construction.

THE AUCTIONEERS' INSTITUTE.

The first general meeting of the new session of this Institute took place on Wednesday last at the rooms, Chancery-lane, when the inaugural address of the President, Mr. Field, was delivered. The address covered a great deal of ground, among the points considered being the improvements realised during the year in agricultural properties, freehold ground rents, and licensed properties, &c. In the sale of estates all kinds of properties had found a ready market, but building estates, after ground rents and licensed properties, had been the most keenly competed for. In every direction, in the vicinity of the metropolis and of every great and growing town, building estates and plots had sold readily. The latter part of the paper dealt with the attitude towards surveyors taken up by the London School Board, the question of betterment, and the eccentricity of some of the later developments of auctions. The expression used in notices by the School Board in taking property compulsorily, "Please note that the Board will not consent to pay the fees of agents or surveyors," was strongly condemned. The refusal by the Board to serve a "notice to treat" was not only evasive, but unjust, and its effect was to coerce small owners of property to part with their little all without discussion and without professional assistance, often for a price far below that which the unskilled vendor would have realised if he had enjoyed the advantage of professional advice. The principle of "betterment" had been at length allowed by Parliament in the cases of the northern approach to the Tower Bridge, and in the Strand and the Tottenham Court-road improvements, and as these and others proposed were likely to be shortly carried out, a busy time might be expected in the metropolis.

After a vote of thanks, Mr. Peck, Vice-President, vacated the chair for the President,

SURVEYORSHIPS.

OBITUARY.

MR. THOMSON PLEVINS.—The death of Mr. Thomson Plevins, architect and surveyor, Birmingham, took place recently at his residence, Eaton-road, Coventry, at the age of seventy-two. The deceased gentleman was the son of Mr. Plevins, of the firm of Messrs. Ashby & Plevins, builders, and was born in Birmingham on July 12, 1824. Mr. Plevins, sen., subsequently became a surveyor, and, when his son's education was completed, took him into his office, and taught him the profession of an architect and surveyor. When Mr. Thomson Plevins was little more than twenty-one years of age his father died and he then began his career as an architect and surveyor in his father's office. He was afterwards employed in the same street. His expert knowledge of the laws of building was invaluable to clients engaged in litigation, especially when questions relating to rights of ancient lights were involved. Mr. Plevins was also largely employed in negotiating sales of land and property to railway companies and corporate bodies. He was the architect of the new houses built by property owners. When the Birmingham Improvement Scheme was projected, Mr. Plevins was retained by nearly the whole of the owners of the property in the scheduled area. He was employed in a similar capacity by the owners of the property which was purchased for the enlargement of New-street Station and he further enlarged the Station, the present premises being by the Midland Railway Company in connexion with their enlargement scheme in Suffolk-street. For many years Mr. Plevins was the consulting architect employed by the late Mr. Isaac Horton, and was responsible for the erection of many of the largest blocks of offices and commercial buildings in Birmingham, and the group of buildings in the group of buildings, including the Midland Hotel, extending from the London and Midland Bank to Lower Temple-street; the block in Colmore-row, part of which was occupied as the Grand Hotel prior to the extensive scheme of reconstruction; Colmore Chambers, Newhall-street; Union Chambers, Temple-row; and groups of buildings in New-street, High-street, Corporation-street, Spicel-street, and other central thoroughfares.—*Birmingham Weekly Post*.

GENERAL BUILDING NEWS.

REOPENING OF CHURCH, BREAMORE, HANTS.—The Bishop of Winchester has just visited this parish for the purpose of consecrating an addition to the old churchyard, reopening the lately restored church, and dedicating a new organ. The church has been restored under the direction of Messrs. Christian and Purday, of Whitehall-place, the work being done by the workmen on the Breamore Estate, under the superintendence of Mr. Stanford. The church, it is stated, dates from Saxon times. Some indications of its early origin have always been visible, and more have been discovered in the course of the present restoration.

REOPENING OF NORTH CARLTON CHURCH, LINCOLNSHIRE.—The parish church of North Carlton has just been reopened after restoration. Messrs. W. Mortimer & Son, of Lincoln, were the architects, and Messrs. H. S. and W. Close were the contractors.

SIDE CHAPEL, ALL SAINTS' CHURCH, EDINBURGH.—The new side chapel which has just been erected in All Saints' Episcopal Church, Brougham-street, Edinburgh, in order to commemorate the thirty years' work there of Canon Murdoch, the incumbent, was dedicated to St. Mary on the 3rd inst. The side chapel, which cost about 1,300*l.*, has been erected from the designs of Dr. Rowand Anderson.

NEW AISLE, PARISH CHURCH, LEIGH, ESSEX.—The erection of the new aisle on the south side of the Parish Church at Leigh has just been commenced. The contract of Messrs. Hammond & Sons, of Romford, has been accepted at 1,400*l*. Mr. Smee, of Leigh, is the architect.

PARISH CHURCH, TOBERMORY, M'ILL, ARGYLL.—The new Established Church at Tobermory has just been opened. The church is arranged to accommodate 300 sitters, and cost about 2,000*l*. The

Open Spaces about Buildings.

COMPETITIONS.

LUNATIC ASYLUM, BIRMINGHAM. At a recent meeting of the Birmingham City Council a report of the Lunatic Asylums Committee, recommending that the plans of the proposed new Asylum at Holly Moor, Northfield, be entrusted to Messrs. Martin & Chamberlain, architects, Colmore-row, was referred back to the committee, with instructions that invitations should be issued to a number of architects to compete for the same. The committee have since invited the following six firms to send in competitive plans:—Messrs. Martin & Chamberlain, Messrs. Cossins, Crook, & Bewlay, Messrs. Mansell & Mansell, Mr. Frank B. Osborn, Messrs. Cross, Cooke, & Nichols, and Messrs. Ingall & Son. Accompanying the invitation was an intimation that, instead of offering the usual premiums for success, the committee had decided that each selected competitor should be awarded £100, and that the trouble of preparing plans and the plans will be adjudicated upon by the committee, in consultation with the medical officers of the present asylum and the City Engineer. It was desired that the competitors should give their full names and addresses.

BURY ART GALLERY AND PUBLIC LIBRARY. The designs of Messrs. Woodhouse & Illoughby, architects, of Manchester, have been accepted for the erection of the Bury Art Gallery and Public Library. The chief purpose of the building is to house the Thomas Digby collection of pictures and statues. The building will have frontages to Moss-lane and Silver-street. The cost of the buildings will be about 12,000*l.*—*Manchester Courier.*

Correspondence.

To the Editor of THE BUILDER.

THE INSTITUTE'S FELLOWSHIP AND EXAMINATIONS.

IR.—The address of the President of the Royal Institute of British Architects well deserves the copy you bestow upon it in your leader in last week's issue of the *Builder* on the Fellowship question.

Dr. Aitchison's historical argument for the establishment of a systematic course of theoretical training is a valuable contribution to this vexed question, and ought to weigh heavily against those arguments which have hitherto been put forward in opposition to the principle of examinations. They are, after all, a sufficient test of a student's grasp of a subject to effect their object, which is, as the student observes, "*To keep out those who came up without earnestness in or talent for architecture.*" But,

Names of applicants are given in brackets. Buildings new erections unless otherwise stated.

We, however, have proudly wrapped our mantle around us, and thought that by parading our differences as to whether architecture should be called a profession or an art, and such-like vain questionings, we should do great things for art! And is there any wonder that we remain much as we were?

The Institute cannot yet claim to be representative of the profession, and therefore its proceedings evoke scarcely any interest in the public Press, as a quarter-column report, in the *Times*, of Mr. Aitchison's learned, lucid, and eloquent address, contrasted with a column and a half of Sir J. Wolfe Barry's, conclusively proves.

The Royal Institute of British Architects will never be influential in stirring public opinion until it can speak authoritatively and is backed by those whose utterances command general attention.

Neither the establishment of a theoretical examination for Fellowship, nor any of the schemes recently passed to encourage that class of membership, nor medals, will, in my humble opinion, suffice to make the Institute's voice authoritative. Having established a test of adequate training as an essential protection of public interests and a qualification for admission to Associateship, the Institute must sooner or later apply this principle of the exclusion of unqualified men consistently and generally, or drop examination altogether.

It must, in short, as a mere act of justice to its students, promote an Act of Parliament compelling all who aspire to the title of "Architect" to qualify by examination.

It is obviously unfair to those who have studied so hard and at great expense to have to compete with Dick, Tom, and Harry, who, alas! have just as much chance as they of success in the present state of public ignorance on the subject.

Tennyson disliked his college work and examinations, but who will say that the art of poetry has not been a gainer by his discipline ?

I have never yet spoken to a young architect who has passed the R.I.B.A. examinations who did not acknowledge that the study they had entailed was of great value to him.

The curriculum and the examinations may need much modification, as the President suggests, and the Bill may possibly be one not obliging the registration of established architects against their will, but only in this way, and not by the present optional system, can we realise the aspiration of the President, to "drive away from the profession by a thorough examination all those who do not love architecture better than anything else."

W. H. SETH SMITH

* It does not appear to us that the English are trying to push a profession by getting royalties and great persons to patronise it is a very noble one. As to the discrepancy between the short report in the *Times* of Professor Aitchison's address and the long one of Sir Wolfe Barry's, that is only another manifestation of the general indifference of the English mind about architecture. The daily papers cater only for the public taste; they find the public care nothing about architecture, and therefore they do not report anything about it. The editors or writers in important daily papers might indeed have thought it beneath the public mind to write in this respect, but they themselves care even less for their readers. There is no class of man more utterly deaf to art than the average English "daily paper" man.—Ed.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Her Majesty the Queen has bestowed the Royal jubilee medal upon Professor Aitchison, A.R.A., the President of the Institute.—The festival dinner, in commemoration of the sixtieth anniversary of her Majesty's accession, and of the incorporation of the Royal Institute, will be held at the Whitehall Rooms, Hôtel Métropole, on Thursday, December 2, at 7.15 o'clock. The chair will be taken by the President, who will be supported by several distinguished guests.

building consists of a nave and sanctuary, with a tower and porch at the west end. The church was designed by Mr. John Robertson, Inverness, and the contractor for the whole work was Mr. Donald Fletcher, Tobermory.

ENLARGEMENT OF DOWLES CHURCH, SALOP.—A north transept has been added to this church. Here the organ has been placed, and a vestry provided for clergy and choir. The alterations have been carried out under the supervision of Mr. Gethin, architect, of Kidderminster, by Mr. P. Albert, of Rock.

MISSION ROOM, SOUTHAMPTON.—In connexion with the Church of St. Mark's, Fitzhugh, a mission-room has been erected in a new road opposite the new Southampton West station on the London and South-Western Railway. The mission-room has a frontage to it of 20 ft., and a clear width inside of 18 ft., the length of the room being 53 ft. The height of the walls, of red brickwork, is about 14 ft. to the wall plate; and the roof is open-timbered and boarded to the apex, the rafters showing. At the eastern end of the new building is a raised platform, with communion table, lectern, and the usual accessories. There is sitting accommodation for 150 persons. The mission room was designed by the honorary architect, Mr. A. F. Gutteridge, of the firm of Messrs. Mitchell, Son, & Gutteridge, and the erection was carried out by Mr. A. Warden.

WESLEYAN CHAPEL, BURTON-ON-TRENT.—The memorial stones of a new Wesleyan chapel, Sydney-street, Burton, have just been laid. The new building, which will be of the Gothic style, is to seat 400 people. It will be faced with pressed bricks, with Hollington stone dressing, and will have an open timbered roof. The windows will be of cathedral glass. There will also be heating-chamber and vestry. The dimensions of the chapel will be 56 ft. long by 38 ft. wide. Mr. C. F. Underhill is the architect, the contractor being Mr. J. Harlow.

PRESBYTERIAN CHURCH, BENWELL, NORTHUMBRIA.—The foundation stone of Benwell Presbyterian Church of England has just been laid. The church is being built on a block of land in Armstrong-road, bounded on the west by Hugh-gardens, and on the east by Frank-street. The hall occupies the eastern portion of the site, and between church and hall the classrooms and vestries are placed. The structure is planned with nave and aisles, the aisles and west end having galleries, and the whole provides sitting accommodation for 650 persons. The entrances are placed in the west front, giving access to porch and vestibule. To right and left are the gallery staircases, with doors for egress, to north and south. Two doorways at the east end give access to the vestries and classrooms, and also answer as a means of exit when required. The floor of the church has a fall of 9 in. in the length. Pulpit and Communion platform are at the east end, and the west gallery has been reserved as the organ chamber. The site being on the sloping banks rising from the Tyne, the architects have taken advantage of the fall of 16 ft. in the length of the site to get the caretaker's house, tea rooms, heating chamber, and coals under the hall and classrooms. On the same level as the church, and immediately behind, are placed the minister's vestry, a room for ladies, and a small hall for prayer meetings and infant classes, and a flight of short steps leads to the large hall, with accommodation for over 400 persons, the principal entrance to which is in Armstrong-road. The first floor over the vestries is occupied by three classrooms, and there are lavatories on all the floors. The block of buildings is designed in the Early English style. The walling is of local stone, in coursed rock facing, with chiselled stone dressings. The west front has two projecting porches with a mullioned and traceried window in the gable above, and to the north a small octagonal turret breaks the line between the gable and staircase roofs, a buttress marking the southern division. Internally the nave is divided from the aisles by an arcade of five bays on either side, and the east gable has a traceried rose window. The roof and internal fittings, gallery front, and pews are of pitch pine. Previous to letting the contract, the architects had trial holes dug on the site and found it would be necessary to go down about 16 ft. all along the west front to secure a suitable foundation. To overcome this difficulty, concrete piers were carried down to the necessary depth, the spaces between being bridged with concrete blocks about 4 ft. wide and 2 ft. thick, in which rolled steel girders were embedded to strengthen the material and tie the piers together. The whole of the foundations throughout are of Portland cement concrete, and are taken down to the clay. Messrs. Bradenoch & Bruce are the architects. The tender of Mr. Thomas Hunter, of Washington, was accepted for the building.

EPISCOPAL CHURCH, POSSILPARK, LANARKSHIRE.—The foundation stone of St. Matthew's Episcopal Church, Possilpark, was laid recently. The new church, which is situated in Ardchoe-street, is from designs by Mr. H. D. Walton, architect, Glasgow. The front block has a frontage to Ardchoe-street of 66 ft., and consists of two large rooms, capable of being thrown into one, on the ground floor, with an upper hall, chancel, and vestries above. Two entrance porches and lobbies will give access to the church. The front wall will be of red stone, the interior walls being

faced with brick, and the hall will have an open timber roof. The church, which will consist of nave and aisles, organ chamber, vestries, and chancel, will be seated for about 500. The contractors are—Mason and joiner work, Messrs. E. C. Morgan & Sons; plaster work, Messrs. Hamilton & Co.; plumber work, Mr. Sprout; painter, John Watson; and the total cost will be about 3,000.

BOARD SCHOOL, LINTHWAITE, YORKSHIRE.—Sir James Kitson, Bart., M.P., opened recently the first school built by the Lintwhaite (Huddersfield) School Board. The schools have accommodation for 437 children in the mixed, and 140 children in the infants' department. The site comprises 4,598 square yards. There are open and covered playgrounds, provision for cookery and manual instruction classes, as well as for the ordinary meetings of the board. Including furnishing, the cost has reached 5,419l. The architect was Mr. E. W. Lockwood, Huddersfield.

WESLEYAN SUNDAY SCHOOLS, TONBRIDGE.—The foundation stone, fifteen memorial stones, and twenty-four memorial bricks have just been laid in connexion with the new Wesleyan Sunday Schools now in course of erection at Tonbridge. The plans for the new schools were prepared by Mr. Charles Bell, and the contract was given to Mr. R. Langridge, builder, of Tonbridge.

NEW HALL, ELLESMERE COLLEGE, SHREWSBURY.—A new hall has just been erected in connexion with Ellesmere College, from the designs of the architects of the college, Messrs. Carpenter and Ingelow. It is 130 ft. long and 36 ft. wide, and the height inside is 45 ft. to the apex of the roof. The hammer-beam roof is of fir wood, with open trussing, and the class-rooms, which are designed to abut on the sides of the central room, will be added at some future time. The hall is built of brick, with stone dressings, and is paved with wood blocks. The total cost of the structure has been 5,202l.—*Shrewsbury Chronicle.*

PROPOSED TECHNICAL SCHOOLS, SWANSEA.—Col. W. R. Slake, R.E., one of the local gentlemen, has been appointed to the post of technical officer, and on the 20th ult., to enquire into an application by the Swansea Town Council for the sanction of the Board to borrow 9,000l. for the purposes of technical instruction. Mr. H. W. Wills (architect) produced the plans of the new buildings, and said tenders had been received, the lowest of which was 8,672l.

BOARD SCHOOL, EASTVILLE, BRISTOL.—A new Board School is being erected at Eastville. In the centre is a large rectangular assembly hall, with eleven class-rooms and a couple of cloak-rooms surrounding it. Some of the class-rooms are for fifty children, and others for sixty; and the total number for which the school is built is 600. There are entrances from each end, with a cloak-room and lavatory by the side of the corridor leading into the assembly hall, and into this central hall the class-rooms open. The architect is Mr. E. W. Barnes, of Bristol, and the contractor is Mr. J. Browning, of Fishponds.

WESLEYAN SCHOOLS, FELLING, DURHAM.—The foundation-stone laying ceremony in connexion with the proposed new Wesleyan Chapel Schools at Felling took place on the 3rd inst. The building is of local stone, and the arrangement of the rooms is as follows:—A central hall or school-room, 57 ft. by 30 ft., forms the main department, having at the sides of same entrance-halls, book-stores, cloak-rooms, and four class-rooms, each 12 ft. square, and two large class-rooms, each 18 ft. by 16 ft., the latter being divided from the school-room by movable partitions. At the west end of the school-room is placed a corridor 6 ft. wide, out of which opens each entrance, ladies' meeting-room, 15 ft. by 12 ft.; kitchen, 15 ft. by 10 ft. 6 in., and lavatory accommodation for both sexes. Adjoining these rooms and directly connected to school-room and corridor is an infants' room and vestry. The work is being carried out from the designs and under the supervision of Mr. James W. Frazer, architect, Newcastle; the contractor being Mr. Robert Davidson, of Felling.

GRAMMAR SCHOOL, NORMANTON, YORKSHIRE.—A new grammar school has just been opened at Normanton by the Earl of Crewe. There are two porches to the building—which is composed of Nostell pressed brick, with Huddersfield stone dressing—and the main entrance, on the south side, by a short flight of steps, is carried up into a central hall, 22 ft. high. The assembly hall is 40 ft. by 22 ft., class-room 26 ft. by 20 ft., laboratory 32 ft. 6 in. by 20 ft.; in addition to which are the master's room, cloak-room (large enough for future extension of another bay to the assembly hall and a class-room at the end of it, provided for in the competitive designs), caretaker's room, store-room, lavatories, &c. A corridor, with red light in coloured glass, connects the east to the south lobby, giving access to the various apartments. Only a third of the design is now executed for want of funds, and when the enlargement is accomplished the whole building will be duplicated at the west side as a higher grade school for girls. The erection has been superintended by Mr. C. W. Richardson, architect (Messrs. Richardson & Simpson, Wakefield, the designers), and Messrs. R. Leake & Sons, Normanton, are the contractors.

SUNDAY SCHOOLS, OLD HILL, STAFFORDSHIRE.—The foundation-stones of Sunday-schools in connexion with the Primitive Methodist Tabernacle,

Old Hill, have just been laid. The architect is Mr. A. Ramsell, of Dudley. The interior arrangements will consist of a central hall, 41 ft. square. There will be five class-rooms, two of which will be on the ground floor and three above. The upper class-rooms will be arranged in gallery form, and both the upper and lower rooms will be partitioned off by revolving and patent swivel-sliding partitions. The building will be erected by Messrs. Dorset & Son, Cradley Heath.

BOARD SCHOOL, ABERDEEN.—Aberdeen School Board has accepted from local contractors offers amounting in the aggregate to 11,373l. odd, for the erection at Kitty Brewster of a public school (mixed) for 1,000 pupils. The site, which, including playgrounds, measures two acres, has a frontage to Great Northern-road of 370 ft.; it is also bounded north and south by proposed new streets. The school is a three-story erection in the Italian Renaissance style, and will be built of granite, and surrounded by a stone cornice. The length of the building on the Great Northern-road front is 110 ft., the breadth 81 ft., and the height to the top of the parapet course 50 ft. Internally there will be a large corridor and staircases in the centre of the building, with class-rooms opening from both sides, and teachers' accommodation at each end. On the ground floor are gymnasium, and class-rooms for advanced subjects, the elementary departments being on the two upper floors. The architects are Messrs. Brown & Watt, Aberdeen.

SCHOOLS, WATFORD.—The new "Victory Schools" in Fearnley-street, Watford, were opened recently by the Hon. R. Capel, as Chairman of the School Board. The schools give accommodation for 1,000 children. The entrances for girls and infants are in Fearnley-street, and the boys' entrance is in the side road. The building is of two stories, the ground floor being devoted to the girls and infants, and the first floor to boys. The girls' school consists of four class-rooms, each for sixty children, and a central hall 35 ft. by 34 ft. The infants have a similar central hall adjoining and communicating with five class-rooms accommodating 300 children. The boys' central hall is 71 ft. by 34 ft., approached by two stone staircases, with eight class-rooms arranged on three sides of the same, each for sixty boys. Lavatory accommodation is provided for each school, and hat and coat rooms. There are four rooms for teachers, two store-rooms, and two for caretaker. The building is faced externally with grey bricks with dressings of red brick and stone, and all rooms are finished with a glazed brick dado in two tints, 4 ft. high, and above the same the walls are faced with white Arlsey and Fletton bricks. The floors are Moreland's fireproof laid with Rog's Lowe's pitch pine blocks. The roofs are covered with slates—a central feature being the bell cot. The heating has been executed by Messrs. Musgrave & Co., Limited. In addition to this the babies' room is provided with Shorland's Manchester gas, the ventilation being on Shorland's system. The latrines and urinals are detached and have been fitted up by Messrs. Bowes, Scott, & Western. The whole has been carried out by Mr. C. Brightman, at a cost of about 9,500l., from the designs of Mr. C. R. Ayres, which were selected in competition. Mr. R. T. Tongue acted as clerk of the works.

BOARD SCHOOL, BYKER, NORTHUMBRIA.—The Newcastle School Board's new Baby-school at Byker, has just been opened by the Mayor (Mr. John Goolden). The main block of the buildings is near the front boundary of the site, and within a few feet of Brinkburn-street, the junior pupils being accommodated on the ground floor and the senior pupils on the first floor. The design arrangement is on the central hall principle. The hall on each floor are 73 ft. by 30 ft. Large windows each end light these halls. Opening from the main hall on the ground floor seven class-rooms arranged—size, 26 ft. by 24 ft.—and, being separated from the main hall by glazed screens, every class-room can be viewed and controlled from the central hall. The first floor is similar to the ground floor. Each set of desks is lighted from the left hand of the pupil. Entrances are provided at each end of the central hall on the ground floor, and there is a similar arrangement on the first floor, reached by wide staircases. Between the entrance doors a central hall cloak-room is placed. Next to the senior entrance the main entrances are arranged at each end of three rooms for teachers (six in all) with lavatory accommodation. The infants' school is designed as a one-storied building at the north-east corner of the site, and arranged on the same principle as the main school, the central hall being 62 ft. by 32 ft. with desks for one class. Off this main hall seven class-rooms with glazed screens are in the school. Two entrances are provided, with cloak-rooms adjoining, and also two rooms for teachers. Three large playgrounds are provided for infants, juniors, and seniors, each with playsheds and accessories. All walls are lined throughout to a height of 4 ft. with glazed bricks. The schools are warmed throughout by hot water on a pressure system. The caretaker's house is arranged in the centre of the site. The cellar containing boilers requiring the attention of the caretaker is in communication with his house. The accommodation is as follows:—Seniors, 540; juniors, 540; infants, 480—total, 1,560. The total outlay on building will be about 12,950l. The contractor for the work is Mr. Thomas Hunter, of Washington. The heating

and ventilating is by Messrs. Dinning & Cooke, Newcastle. The clerk of the works was Mr. Woodcock, and the architect was Mr. W. Lister Newcombe, of Newcastle.

HOSPITAL, MOTHERWELL, LANARKSHIRE.—The new infectious diseases hospital, which has been erected near Motherwell by the District Committee of the Lower Ward of Lanarkshire, was opened on the 25th ult. The hospital has accommodation for 100 adult patients. The several blocks of the building have been kept as separate and distinct as possible. The administrative buildings are placed on a detached position at the front of the hospital. This block comprises, on the ground floor, resident physician's office, dispensary, sitting-room, and bedroom, matron's office, sitting-room, nurses' dining-room and sitting-room. The bedrooms for matron and nurses are on the upper floor, apart from the servants. The kitchen is centrally placed for the distribution of food to the wards. The kitchen floor is paved with red tiles, and the walls are lined with glazed tiles. To the rear of the kitchen are scullery, pantry, larders, and a laundry for the staff. There are four main ward pavilions, each being

ten-sided wards, and with two separate one-bed wards attached. The main wards are 10 ft. long by 26 ft. wide and 13 ft. high. All internal angles in wood and plaster work are rounded or followed. A window, 2 ft. 6 in. from the floor and ending to the ceiling, is placed between each bed. The roof is constructed of double-hung sashes to three feet of the height, with a hinged hopper fanlight at the top. The main wards are so arranged that patients to enjoy the sunshine, there is a verandah at the south end of each pavilion. Attached to each pavilion is a suite of undressing, bathing, and dressing rooms, through which the patients pass on arrival or on being discharged from the hospital. The wards are heated by means of open fireplaces and low-pressure radiators. The hygienic hot-water apparatus consists of cast-iron pipes under the floor, having water circulating from and to a steam heater in the basement. These pipes have branches rising to radiators in the wards. The radiators are placed against the external walls, under an alternate window, and two circular radiators, placed in the centre of each ward, secure equal distribution of temperature. Fresh air is admitted to the radiators by regulating valves, and after being tested is admitted into the wards. There are two means of exhaust ventilation in each ward—viz., vertical shafts in the end walls and ventilators in the ceilings. The isolation and observation pavilions are built in plan; each pavilion is divided into four sections, the first and two beds. These wards will be used for the isolation of concurrent infectious diseases which may occur, and for observation of cases of doubtful diagnosis. All these wards have their duty-rooms and other appurtenances, and are internally furnished, heating, and ventilation in plan. The laundry block is divided into four sections, the first, boiler and engine rooms, disinfecter, destructor and mortuary, and undry. There are two systems of drains, one for the roof and surface water, and the other for sewage. The sewage is purified before leaving the hospital grounds. For this purpose two tanks and a pump have been constructed, and can be worked continuously with or without the aid of electricity. The use of chemicals, and in such a way as secure circulation of the filters. All the walls are faced with one and lined on the inside with brick, having a hollow space between for ventilation. The passages, lavatories, bath-rooms, and water-closets, have the walls and white tiles. The lathing is of steel instead of wood. The complete system of drains always connecting the various buildings. In these steam and water mains, &c., are placed, and access can also be had through them to the several buildings. The hospital is lighted throughout by electricity. The cost of the building, including fittings, apparatus, machinery, furniture, &c., is estimated at about 37,000l. The architect is Mr. Alex. Cullen, of Hamilton and Motherwell.

NEW PAVILION, EDINBURGH ROYAL INFIRMARY.—The plans for the new pavilion which was resolved to erect in connexion with Edinburgh Royal Infirmary, in order to commemorate the Queen's Diamond Jubilee, came before the Dean of Guild Court on the 28th ult., and were passed. The new pavilion is placed at the southern end of the Royal Infirmary grounds, with its longer axis running north and south, immediately to the west of the existing medical pavilions. It consists of a basement (entirely above ground), three floors of wards, and an attic floor. The basement contains the building establishment, which includes a Turkish bath, with three hot rooms, a needle bath, douche of various kinds, a vapour bath, and sulphur and other medicated baths. A cooling-room is provided, and there is also accommodation in the way of dressing-rooms, hot linen rooms, attendants' rooms, lavatories, &c. In the basement, two four-bedded houses for resident officials are also provided. The three floors above the basement contain five wards. At the southern end of the pavilion is situated on each floor a ward for twenty-two beds, and access to this is gained from the main entrance, which is at the northern end, by a corridor. This corridor is, on one side, an operating room, two special wards, two beds each, a sitting-room, a demonstration room, and a physician's room; and, on the other, a kitchen, a

bath-room (with three baths), a lavatory and other conveniences, an isolation ward, a linen room, and a parlour and bedroom for the nurse in charge.

Besides these rooms, stores for palls, brushes, &c., separate lifts for food and patients, and a store for patients' clothes are provided of a cross corridor. The baths, &c., in connexion with the large ward are placed in circular towers at its southern end. The operating room is lighted from both the north and west. The windows are set in steel frames of large size. The waiting-room and demonstration room can, when not in use, be thrown into one by means of a movable partition, and they then serve as a convalescent-room for patients. The attic floor contains fourteen separate rooms for nurses and nine separate rooms for servants, besides bath-rooms, lavatories, &c. The pavilion altogether provides accommodation for about ninety-seven persons, excluding the two houses in the basement floor. The walls are lined with brick, with a hollow space between it and the main wall. Glazed tiles are freely used, both in walls and floors, in corridors, bath-rooms, lavatories, kitchens, operating-rooms, staircases, &c. The floors are constructed of iron and concrete, without wood, and the ward floors are laid with hardwood planks, but there are laid into a thick coat of specially prepared asphalt, laid above the concrete. All corners are rounded, and cornices, door mouldings, &c., are almost entirely absent. The pavilion is warmed by steam in pipes and coils. Fresh air is admitted at numerous points, and the foul air is to be removed by electric fans, placed in a tower at the northern corner. The lighting is to be by electricity. On the south front, between two of the upper floors, and forming a balcony, are panels, which will contain inscriptions. The total cost of the pavilion is expected to be about 40,000l. The architects are Messrs. Sydney Mitchell & Wilson.

BULTH COTTAGE HOSPITAL, BRECONSHIRE.—This institution was opened on the 27th ult., by Miss Thomas, of Llywmmadoc. The building was erected from designs by Mr. Telfer Smith, Bulth, who has supervised the work. It is of rectangular shape, with about 73 ft. frontage, facing due south. The external walls on the front and two sides are of red Ruabon bricks, with dressings of Victoria stone. On the ground floor, a committee-room and matron's private room flank the entrance hall on each side, while the men's day-room is on the left beyond, and the women's day-room on the right. Behind each of these is a single ward for accident cases or of any requiring isolation. The kitchen and various offices, including laundry and drying room, are at the rear. The first floor is reached from the lower corridor by a staircase. On the right-hand side there is a ward for women with five beds, and on the left there is similar accommodation for men. There is also bedroom accommodation for the officials. There are bath-rooms and lavatories for the wards on each floor. The building is covered with Bangor slates and red dressings. The contract for the building has been carried out by Messrs. T. Jones and J. Price for 1,650l.

SANATORIUM, HASTINGS.—The memorial stone was laid recently of the new Sanatorium buildings just approaching completion at Ore and adjoining the building at present in use at Cackle-street. The building is a red brick structure, 120 ft. long, and over accessories about another 2,000l. The plans were prepared by the Borough Engineer (Mr. P. H. Palmer). Mr. Peter Jenkins (of St. Leonards) is the contractor, and Mr. Bouley clerk of the works. Altogether there are eight buildings; four buildings furnish the hospital accommodation, two being isolation wards. Altogether there is accommodation for forty-six inmates.

HOSPITAL, KETERING.—A new General Hospital was opened at Kettering recently. The building is situated a short distance west of the Midland Railway, and has a frontage to the Rothwell-road. The material used has been the local brown stone, the greyed white Weldon stone, the roof being of red tile. It is two stories in height, and the caretaker's cottage is at the Rothwell end of the site. The men's wing is on the west side, and the women's wing on the east side, with the administrative block in the centre, direct communication being obtained between the different parts by a straight corridor. Access is obtained at two points—the main one (for the admission of patients) and one lower down (for friends of patients). Opposite the vestibule, which is to be fitted up as a waiting-room, is the matron's room, with a small private ward adjacent. Adjoining the operating room is a small drug store. The men's ward is 40 ft. by 20 ft. Accommodation is provided for ten patients exclusive of two extra for younger patients. Close by is a scullery, and near to that is a room for storing linen. The sanitary block consists of a bath-room and lavatory. The women's wards correspond with the men's, and this side of the building also contains the dining-room for the staff, and a kitchen, as well as a store and a utility. Upstairs is a board-room overlooking the Rothwell-road, the matron's bedroom, six bedrooms for the staff, a bath-room and lavatory. The attic floor contains four more dormitories. In the basement are the heating chambers, a washhouse, cold-water, and a mortuary. The architects were Messrs. Gatch & Saunders, of Kettering, and Mr. A. Barlow was the contractor.

HOSPITAL, BELFAST.—Several new wards and an operating-room have just been added to the Ulster Eye, Ear, and Throat Hospital. The extension comprises new bath-rooms and water-closets. The floors are tiled and the walls cemented. New day-rooms are provided for the male and female patients, and eight new private wards are added. The operating-room is constructed at the top of the hospital. The contract was carried out by the late Mr. Isaac Hewitt, builder, under the superintendence of Mr. Henry Seaver, architect, Belfast.

SHEFFIELD CITY HOSPITALS.—Mr. R. Deane Sweeting, one of the Inspectors of the Local Government Board, held an inquiry at the Sheffield Town Hall, on the 5th inst., in reference to an application by the City Council for power to borrow 21,800l. for the provision of additional accommodation at the Lodge Moor Hospital, and 2,000l. for the purchase of a site for a smallpox hospital. Amongst those present were the Town Clerk, Mr. H. Sayer; Mr. C. F. Wike, City Surveyor; and Mr. E. M. Gibbs, architect for the new buildings. The Town Clerk explained that the accommodation which was intended to be provided was an administrative block of a permanent nature, which would be so arranged that it would be available however much the accommodation at the hospital should be extended.

EXTENSIONS, PONTEFRAC WORKHOUSE.—Alterations and improvements are to be carried out in connexion with Pontefract Workhouse. These consist of developments of the accommodation for vagrants, and extensions of the laundry arrangements. Mr. W. H. Greaves, of Pontefract, is the architect.

LIBERAL CLUB, HALIFAX.—The new Liberal Club has just been opened. On the ground floor is the billiard-room, allowing space for two tables; and on the first floor is the reading or assembly room, furnishing accommodation for 400 persons. The plans have been prepared by Mr. Medley Hall, architect, Northgate, Halifax.

CO-OPERATIVE BUILDING, ALEXANDRIA, DUNDEE.—The new building erected in Bank-street, Alexandria, at a cost of about 7,000l. for the Vale of Leven Co-operative Society, was opened recently by Mr. James Grey. The building, which was designed by Messrs. Boston, Menzies, & Morton, of Greenock and Alexandria, has a frontage of 90 ft., is three stories high, and built of red sandstone. The ground floor consists of shops, the mid floor of a lesser hall to seat 200 persons, and office accommodation, and the top flat of a main hall, capable of holding 900 persons. There is a gallery at one end, and the platform is in a recess at the other. The building is lighted by the electric light.

BANKING PREMISES, KNIGHTON, RADNORSHIRE.—The "North and South Wales" Banking Company are now erecting a block of offices at Knighton. The new buildings, which have a frontage to Broad-street of about 60 ft., and to George-lane of 50 ft., consist of two wings for offices, the centre space being for the private house for the manager. The right wing is to be occupied by the bank proper. The left wing is two stories high, with an attic above, and is built of terra-cotta, from the works of Mr. Dennis, at Ruabon. There are gables to both wings, with ornamental finials. The warming apparatus will be supplied by Mr. W. B. Stedman, of Knighton. The architect is Mr. Joseph Bratton, of Birkenhead; and the contractors Messrs. McLachlan & Batkin.

NURSES' HOME, SUNDERLAND.—An additional wing to be utilised as a nurses' home, is being added to the Sunderland Infirmary, in commemoration of the Queen's Diamond Jubilee. When completed, the new wing will contain a sitting-room and fourteen bedrooms, with bathroom and lavatory accommodation. The new portion, which will be detached from the main building, is to be L-shaped, and corridors will extend the whole length of the erection. The contractors are Messrs. Walter Scott & Son, of Sunderland, and the architects are Messrs. Joseph Potts & Son, of Newcastle and Sunderland.

NURSES' HOME, SWANSEA.—The foundation-stone of the Nurses' Home, which is to be erected adjoining Swansea Hospital, in commemoration of the Queen's Jubilee, was laid recently. The plans for the work were prepared by Messrs. Wilson & Moxham, architects; and Mr. Thomas Davies is the contractor.

DRILL HALL, HEATHFIELD, SUSSEX.—A new Drill Hall is to be erected at Heathfield, and the foundation-stone has just been laid. The hall is to be built by Mr. Weston, a local builder, the architect being Mr. F. A. Stevenson, of Messrs. Stevenson & Earp, Eastbourne.

HOTEL ALTERATIONS, LUDGATE-HILL.—The "Blue Last" in the Broadway, Ludgate-hill, has just been altered and improved. On the ground floor is a new luncheon bar, and the second and third floors have also been altered. Two entirely new staircases provide access to the upper portions of the house. On the first floor is the public dining-room, which has been enlarged. Here a grill has been fitted. Close by there is a smoking-room, with lavatory accommodation. On the second floor are a private dining-room and a remodelled and enlarged kitchen, whilst on the third floor several additional bedrooms have been fitted up. The new staircase is of Stuart's granolithic concrete, and the lobbies as well as principal landing are paved with mosaic. The whole of the works have been carried out from the designs and under the superintendence of Messrs. G. Elkington & Son; whilst Mr. James Carmichael, of Wandsworth, was the building contractor.

MEMORIAL INSTITUTE, CAMBRIDGE.—The St. Barnabas Memorial Institute, St. Barnabas-road, Mill-road, was opened by the Vice-Chancellor (Dr. A. Hill) recently. The building is at the corner of St. Barnabas-road. The Institute comprises downstairs a central hall for Sunday-school and evangelistic services, with a classroom and reading-room, and boys' carpentering shop and kitchen; and upstairs three classrooms, young women's reading-room, &c., and a parish room, having a frontage of 30 ft. Mr. W. M. Fawcett was the architect, and Mr. W. Saint the builder.

NEW VICTORIA HALL, HAMPTON HILL, MIDDLESEX.—A new hall has just been erected at Hampton Hill. The builder was Mr. L. Redgrove, and Mr. R. M. Roe was the honorary architect.

PUBLIC BUILDINGS, ABERDARE.—The new buildings for Aberdare Urban District Council have just been opened. Another floor has been added to the old structure. The Surveyor (Mr. Owen Williams) prepared the plans. The contract for the work was taken by Mr. Evan Jones. On the upper story are the Council Chamber, the School Board Committee-room, the School Board clerk and his assistants' offices, and a paper room. The old Board-room on the second story is divided into the Surveyor's office, a private room for the clerk, and a committee room. On this floor, too, are the surveyor's private room, and the clerk's assistants' room. On the ground floor are the collector's and the road foreman's room and pay office.

BUSINESS PREMISES, NORTHAMPTON.—New premises for Mr. T. C. Palmer have just been opened at the corner of Bridge-street and Gold-street, Northampton. The frontage is about 30 ft., and the building consists of three stories. Messrs. Dorman & Son were the architects, and Mr. Daniel Sherman was the builder.

GRAND LYRIC HALL, DUBLIN.—The Grand Lyric Hall, Burgh-quay, is shortly to be opened, the building, formerly a corn store, having been converted into a music hall. The work has been executed by Messrs. Meade & Son, working from the plans of Mr. W. H. Byrne. The verandah was supplied by Mr. M'Loughlin. Seating accommodation is provided for 1,500 people.

BUSINESS PREMISES, HALIFAX.—A block of business premises is about to be erected in Rawson-street, adjoining the Lancashire and Yorkshire Bank, for use as a drapery warehouse by Mr. J. H. Waddington. The architects are Messrs. Jackson & Fox, and contracts have been entered into by the following:—Mason, T. C. Dawson, Lightcliffe; joiner, Fielding & Bottomley, Halifax; plumber, G. Fawley & Son, Halifax; slater, A. Firth, Halifax; ironfounder, James Mackrell, Elland.

RAILWAY STATION BUILDINGS, LISBURN, IRELAND.—New station buildings are being erected at Lisburn. The total length of the buildings will be 142 ft. Mr. David MacHenry, Lisburn, is carrying out the contract. The sub-contractors for the works are Messrs. Manisty, Dundalk; Mr. Bullick, Lisburn; Mr. Knox, Lisburn; and Mr. Adams, Belfast. The buildings were designed by Mr. W. H. Mills, engineer-in-chief of the Great Northern Railway, Dublin, and the works are being carried out under the superintendence of Mr. R. B. Belfrage, C.E., Belfast.

SANITARY AND ENGINEERING NEWS.

CASTLEFORD MAIN SEWERS.—At the request of the Council, Mr. Malcolm Paterson, C.E., has recently reported on the present condition and working of the main drainage system, including the pump well and tank sewer. After a detailed examination and certain tests his conclusions are (a) that the stability of the works, which were constructed from his designs in 1877, is intact in all respects, the work being as good as when it left the contractor's hands; (b) that the permanent influx of subsoil water by leakage is insignificant, but that certain open lands are drained direct into the system; (c) that flushing of a systematic kind has not been used, although each manhole was designed as a flushing shaft, and that the whole of the main outfall and branch sewers, and parts of other sewers are in urgent need of flushing; (d) that the storm water off streets and large yard surfaces should not be taken into the sewers, which were not designed to receive more than the storm water from roofs and small yards, &c. Besides temporary measures, such as cleansing the sewer from the accumulation of solids, Mr. Paterson recommends certain automatic flushing-tanks, self-acting flushes in the tank sewer, storm overflows, revolving screen, &c., at a cost of 1,200l. This outlay he considers, with proper management, will render the Castleford drainage system thoroughly efficient. The River Aire at Castleford is only 28 ft. 6 in. above sea level, and the town lies so low as to be subject to surface floods in certain places. Hence the existence of flat gradients and the need of constant flushing. Also the sewerage being pumped 45 ft. renders it essential to keep out the subsoil water and the bulk of the storm water. Since the scheme was carried out, at a cost of about 30,000l., Castleford has doubled its population, and is still increasing at a rapid rate.

WATER SUPPLY, WOODBURN, NORTHUMBERLAND.—The Bellingham Rural District Council have instructed Mr. D. Balicor, M.Inst.C.E., Newcastle-

on-Tyne, to prepare a scheme of water supply for East and West Woodburn, and also for the drainage of property at Stannersburn.

DRAINAGE WORKS, FRINTON, ESSEX.—Messrs. Parry & Co., contractors, of London, have commenced the works for the extension of the drainage of Frinton. The contract in the first instance is for 4,280l., and the construction of the main drain right along the front will involve a considerable amount of tunnelling. Messrs. Beasley & Son, of London, are the engineers for the scheme.

VICTORIA BRIDGE, BRISBANE.—The new Victoria Bridge, Brisbane, which has just been completed, crosses the Brisbane River where it is 1,020 ft. wide. Victoria Bridge was one of several important works destroyed by the great Queensland flood of February, 1893. To keep the traffic going while the new work was in progress a temporary wooden bridge was built in the gap left by the old bridge. The new bridge was built in two longitudinal sections. One half was completed first, and the traffic turned on to it. The part of the temporary bridge it did away with was then removed, and the second half of the new bridge built. The bridge was designed by Mr. A. B. Brady, Government architect and engineer for bridges. It consists of six spans, each 170 ft. in length by 20 ft. height of girders, supported on cylinder piers and masonry abutments. The two roadways are each 24 ft. wide, giving a total width for vehicles of 48 ft. These roadways are carried on the lower booms, and are composed of Lindsay's steel troughing, filled in with concrete, on which is laid hardwood paving-blocks. Two footways, carried on cantilevers, are provided. The ironwork was manufactured by Mr. M'Cormick, South Brisbane. The total dimensions of the bridge are 1,020 ft. in length by 72 ft. in width, including footways. There are 3,481 tons of iron and steel, and 5,200 yards of concrete in it. The work was contracted for and carried out by Mr. John M'Cormick, his price for the work being 93,500l. A separate contract was let to Mr. A. Midson for the masonry abutments. It contained 27,658 cubic feet of stone, and the price was 16,300l.

DRAINAGE WORKS, ECCLES.—On the 20th ult., Mr. Herbert H. Law, Inspector to the Local Government Board, opened an inquiry at the Town Hall, Eccles, into the application of the Town Council to borrow 4,928l. for works of sewerage and storm-water drainage in the borough. The Town Clerk (Mr. G. W. Bailey) explained that the proposed works of sewerage to be constructed in Liverpool-road, and the drains for storm-water, were additional works, and were not to supersede any previous ones. The Council asked for a period of thirty years in which to repay the loans.—The Borough Engineer (Mr. A. C. Turley) explained the nature of the works to be carried out, and said that the whole of the sewage of the borough had to be pumped on to the sewage farm, but as the main outfall sewers at the farm were only capable of taking 3,000 cubic feet of water per minute, and as in times of storm the flow was as large as 10,000 cubic feet, the pumps at the sewage farm were incapable of taking the additional storm-water, which it was not at all desirable should be dealt with on the farm, and there was a backing up of the sewage in the main sewers. The available area for irrigation on the farm was sixty-one acres. Arrangements had been made with Mr. Hunter, Engineer to the Ship Canal, to turn the storm-water direct into the waterway. It is proposed to construct nine storm outlets. There was no opposition to the works.

FOLKESTONE WATER SUPPLY.—The Folkestone Town Council have adopted the following recommendation of the whole authority in committee:—"That, the Folkestone Waterworks Company having failed, and not being able and willing to supply water proper and sufficient for all reasonable purposes for which it is required by the Council acting as the Local Authority, the Council be recommended to provide their district, at a cost not exceeding 100,000l., with a constant or other supply of water proper and sufficient for public and private purposes, and that the necessary steps be taken incident or in relation thereto."—*Kentish Observer.*

EXTENSION OF GLASGOW SEWAGE PURIFICATION WORKS.—An extension of the Glasgow Sewage Purification Works was inaugurated recently by Lord Provost Richmond. The works, which are situated at Parkhead, in the east end of the city, were opened in May, 1894, and have consequently been nearly three years and a half in operation. Since then additional sewers have been connected with the works, bringing the aggregate daily inflow up to about ten million gallons. To cope with the treatment of this greatly increased volume of sewage, extensions were entered upon last March at an estimated cost of about 11,000l. The extension consist of eighteen precipitation tanks, built of brick with concrete floors, each 100 ft. by 40 ft., with a water-holding depth of 7 ft. The extensions were designed by Mr. A. B. McDonald, the City Engineer, on the lines of the scheme originally carried out by the late Mr. Aising, the first Engineer of the works, but with improvements which suggested themselves in the course of three years' working; and they bring up the total storage capacity from two to five million gallons.

NEW LINE BETWEEN MIRFIELD AND LEEDS.—The London and North-Western Railway Company

is now carrying out an extension in the West Riding, and the engineers hope to see the work completed before the end of next year. The services between Liverpool, Manchester, Huddersfield, and Leeds have for a long time been hampered and delayed, because the company has only a double set of lines between Mirfield and Wortley, Leeds. Four sets of lines are now being provided on this section, but instead of the additional lines being laid alongside the old track, a detour is being made so as to embrace Heckmondwike, Liversedge, Cleckheaton, Birstall, and Gildersome. The new line, although only a comparatively short one (thirteen and a half miles long), is estimated to cost, including the price of the land, close upon one million sterling. After branching off from the present London and North-Western line at Colne Bridge, near Bradley Station, the new line goes by a sharp decline underneath the Lancashire and Yorkshire Railway at Heaton Lodge, and then crosses the River Calder by means of a very large steel girder bridge, into Mirfield, where a new station is being erected at Battyford, on the top side of the town. After leaving Battyford, the line makes a considerable detour, so as to embrace Heckmondwike, Liversedge, Cleckheaton, Gomersal, Birstall, and Gildersome. It crosses the Elland and Dewsbury road by a viaduct 108 yards long, the rails being 6 ft. above that of the valley; and then, after passing over another viaduct 200 yards long, it enters a heavy cutting through the hill on which Mirfield Church stands. In passing through the Spence Valley some heavy bridge and other masonry work has been found necessary. There will be a station at High-street, Heckmondwike, and after passing this station, the line passes over the Huddersfield and Leeds road, near Liversedge, and skirts the slope of the hill till Spen Bank is reached. A tunnel 800 yards long has been made through Gomersal Hill, and another tunnel 2,200 yards long has been cut through the Gildersome and Morley range of hills. The work of constructing the new railway has been let in three contracts, to Messrs. J. Wilson & Sons, of Huddersfield; Messrs. Monk & Newell, of Liverpool; and Messrs. Baldry & Yerborough, of Westminster. Messrs. Wilson & Son, who were entrusted with the work between Heaton Lodge (Mirfield) and Northorpe, have now completed their contract, with the exception of the station buildings at Mirfield and Northorpe, and these buildings are now in course of erection. Messrs. Baldry & Yerborough are carrying out the construction of the line between Gomersal and Wortley. The other part of the work—carrying the line from Northorpe, through Heckmondwike, Liversedge, and Cleckheaton, where stations will be built—was not let to Messrs. Monk & Newell until a more recent date, and it is possible that this section will be the last to be completed. The different contracts are being carried out under the supervision of Mr. L. Trench, Mr. A. A. Macgregor, resident engineers, and their assistants Mr. R. C. Bullock and Mr. Prebble.—*Leeds Mercury.*

ELECTRIC LIGHTING NEWS.

ELECTRIC LIGHTING, MARYLEBONE.—At a recent meeting of the Marylebone Vestry it was unanimously decided, on the motion of the Chairman of the Electric Light Committee, Mr. Brooke-Hitching to give formal intimation to the Board of Trade and the Metropolitan Supply Company, Limited, of the Vestry's intention to apply for a provisional order for supplying electric energy for public and private purposes in the parish of Marylebone.

LIGHTING OF ABERDEEN HARBOUR.—Aberdeen Harbour Commissioners have resolved that the quays and public sheds at the Upper Dock, Victoria Dock, and Graving Dock be lighted by electricity, and that electric beacons be placed at the entrances to the docks.

STAINED GLASS AND DECORATION.

CHANCEL SCREEN, &c., CHRIST CHURCH, WEST GREEN, TOTTENHAM.—The Bishop of London dedicated recently the wrought iron chancel screen, stained east window, and lectern, which have just been placed in Christ Church, West Green. The window, which has been designed and executed by Messrs. Jones & Willis, of London, has five lights. The screen also was designed and is being executed by Messrs. Jones & Willis. It is in the early Gothic style, and is of light wrought iron work, decorated in black and gold. A figure of Christ is in the centre. Figures of the apostles flank the central portion of the design, two on either side. The whole is surmounted by a cross in open ironwork.

JUBILEE MEMORIAL WINDOW, HARLESTON, NORTHAMPTON.—As a memorial of her Majesty Queen Victoria, the inhabitants of Harlestone have erected an east window in the Parish Church of St. Andrew. The window is the work of Messrs. Burlison & Grylls, of London.

WINDOW, ST. NICHOLAS CHURCH, BRIGHTON.—A new window was dedicated in this church recently in memory of Dr. Durnford, as well as a screen of carved oak for the tower arch, in commemoration of the Diamond Jubilee. The window, which is in the west wall of the tower, and represents St. Augustine and St. Richard of Chichester, is by Mr. C. E. Kempe.

NEW WINDOW, DOWNSHAM MARKET CHURCH.—Another Munich stained glass window has just been

ded to the many already put up in the Parish church of Downham Market. The present one contains three lights, and illustrates the text, "Mary is chosen that good part which shall not be taken from her." The window is by Messrs. Mayer & Co.

FOREIGN.

FRANCE.—In the civil chamber of the Cour de Cassation in the Palais de Justice, at Paris, which already contains a fine ceiling by Paul Baudry, two paintings by M. Jules Lefebvre have just been placed, "La Justice Punissant le Crime," and "La Justice se Dégageant de la Justice." This last includes a noticeable figure—Justinian, Charlemagne, Louis, and Napoleon I. —The Municipal Council of Paris have recently decided upon the partial demolition of the St. Germain market on the site thus obtained a large building, the plans of which have been prepared by M. Dupré, is to be erected. —At the Ecole des Beaux-Arts there is to be an exhibition of the works which obtained the Prix de Rome at the 1897 competition. —It seems that there are the remains of a Temple of Diana at Aix-les-Bains; the local archaeologists have been excavating the site. —M. L. Liberge has been elected President of the Société des Architectes de Nantes for 1898. —The annual exhibition of M. Lachenal's céramiques, announced as being held in the Georges Petit gallery. —Large barracks for infantry and cavalry, for officers and a military prison, are all to be erected on the site of the old barracks, the plans estimated at 2,045,000 francs. —M. Courty, a painter, who had a paralytic stroke last June, has just died at the age of forty-nine. He was born in Paris and was a pupil of his father. He received medals at the 1868, 1874, and 1875 Salons, and at the Exhibition of 1889. He was also a member of the Académie des Beaux-Arts, and received the medal of honour for engraving in 1878. Among his principal works we may mention "Deux Foscaris," after Delacroix; the "Condamné à Mort," after Munkacsy; the "Mort de Marceau," after J. P. Laurens; the "Femme et les Enfants de Golben," from the celebrated picture in the Bible of Lyons, and of M. Echternier. He carried out, in collaboration with M. Rognier, the Hôtel Continental at Cannes, as well as the Winslow Villa, that of Lady Vincent in the same town, and that of the Princess Rothschild at Grasse. M. Nouveau had, since 1880 a member of the Société Centrale des Architectes.

GERMANY.—Among the memorials to the late Emperor William unveiled during the past month is an excellent equestrian statue at Karlsruhe, which was unveiled with considerable ceremony. The sculptor is Professor Adolf Huet, of Karlsruhe; the cost was about 11,000. The statue is in bronze, and stands on a high pedestal. —Of minor but very interesting monuments recently completed, there is the Emperor William monument at Nordert, which is being erected from the design of Professor Allot, of Dresden, and takes the form of an obelisk. —There have been various alterations in the conditions under which students of architecture, engineering, and other technical professions can receive their diplomas from the German Government. It appears that henceforth candidates are required to have attended at least for one year the courses of a technical college. At Berlin there will be now fourteen National and eighteen Government studentships, and there will also be a number of others at the disposal of the Technical Colleges of Aix-la-Chapelle and Hanover. —The contemporary, *Blätter für Architektur*, has just issued some excellent photographs of Brühl's castle on the Rhine. This interesting building is generally overlooked by the tourist who passes Cologne, and also by many architects. It would be well to again call attention to this building, which has been reproduced in the same journal. Its tower number reproduced some particularly good photographs of Milan Cathedral, details of which are generally so difficult to obtain from the old photographs.

PEKIN.—Plans for the proposed International Exhibition at Peking have been prepared in Shanghai by the joint architects, Messrs. Morrison & Gratton, and John Medley. It is intended to place something before the Chinese that will break down old prejudices, and is especially meant to reach the official and upper classes. The institute is to take the form of a lecture hall, museum, library, with rooms for the exhibition of working machinery and the products of Western skill and civilisation.—*St. James's Palace.*

STEEL PULLEY WHEELS.—The Westminster Manufacturing Company send us description and illustrations of their patent "All Steel" sash-pulley wheel, with wrought steel cheeks and steel axle. The wheel is of polished brass; the whole appears to make an exceedingly good and reliable pulley-wheel.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The Imperial Stone Company, Limited, East Greenwich, have opened City offices and show-rooms at 4 and 5, Aldgate-street, E.C.—Messrs. H. Binko & Co., electric telegraph and light engineers, have combined their own business with that of Messrs. Ridsdale & Co., as the firm of Binko, Ridsdale, & Co., under which style the business will be carried on at 34, Leadenhall-street and 54 and 120, Minorities, E.

ARCHAEOLOGICAL DISCOVERY NEAR RUTHIN.

In the course of the past summer, in consequence of a careful sifting of certain traditions found among the residents on the Ruthin side of the Hirtheg Mountains, Mr. R. O. Jones, of Ruthin, has carried out a search over this almost uninhabited region for archaeological remains, and has succeeded in finding nine stone circles that were hitherto unknown. Some of the circles are perfect and some imperfect; the latter having probably been deprived of stone for building purposes. The outside of each circle is composed of large stones, and in those circles that have not been tampered with the other stones are twelve in number. The diameter of the circles ranges from 18 ft. to 48 ft. Mr. Jones has been in communication with the local authorities, and the latter having probably been deprived of stone for building purposes. The outside of each circle is composed of large stones, and in those circles that have not been tampered with the other stones are twelve in number. The diameter of the circles ranges from 18 ft. to 48 ft. Mr. Jones has been in communication with the local authorities, and the latter having probably been deprived of stone for building purposes.

VENTILATION AND WARMING.—Mr. W. H. Casmeys

delivered a lecture before the members of the Yorkshire College Engineering Society, on the subject of "Warming and Ventilation." He said that wherever a number of people were gathered together in a building there should be a constant flow of fresh air. There was reason to believe that the time would come when every building throughout the kingdom would have a mechanical method of warming and ventilation, and the cooperation of the facts on record led him to form the opinion that the contagiousness and the non-contagiousness of pulmonary consumption varied in direct ratio to the amount of air space and of free ventilation of air in the dwellings of the people. Previous to the Army Sanitary Commission, nearly forty years ago, the cubic space per soldier in the barracks of the Guards was 337 cubic feet, and the mortality from lung disease was nearly 14 per 1,000. In the Horse Guards, on the other hand, with now space per man equal to 572 cubic feet, the death rate was 7 per 1,000 from the same disease. The air space had been increased to 600 cubic feet per man, and the death rate from lung disease was 3 per 1,000. In ventilating a building care must be taken that the air introduced was properly warmed. It was impossible to either study or work to the best advantage in a low temperature, the reason being that the corporeal heat or energy, instead of being devoted to its work, was taken away by the cold. Schools, mills, and works should be properly warmed before the scholars or workpeople were allowed to enter them. If this were done a very short time would prove that the step taken was a right one. Mr. Casmeys proceeded to describe the installation recently applied by the Blackman Ventilating Company to the Royal Technical Institute at Pool Park, Bedford. He dealt at length with the subject of the ventilation of industrial buildings, more especially in the cotton and woollen trades, and urged that in the engineering works there was great need of mechanical ventilation. He contended that warming and ventilation played a most important part in the health of our workers. Fresh air, he thought, which we lived, and it should be given without restriction. Whether the people were in banks, theatres, mills, engineering works, or coal mines, they could and should be supplied with this life-giving element. Once its true value was understood, many of the diseases common to-day would die out, and the pale, wan faces, of which they saw such a number in mills and factories, would assume the bloom of health natural to them.

NEW BUILDING BY-LAWS FOR LEEDS.—The Building Clauses Committee of the Leeds Corporation are engaged in revising the building regulations for the city. A draft, numbering 117 by-laws, has been prepared, and copies sent to the Leeds Master Builders' Association and the Leeds and Yorkshire Architectural Society, in order that those bodies may review the list, and make what suggestions they think proper. Many of the old by-laws have been retained, a considerable number have been materially modified, and there are some new regulations. With regard to the laying out of new streets, hitherto the minimum width has been 36 ft. Now it is proposed that main thoroughfares shall not be less than 42 ft. There is a proviso, however, that a street may be 36 ft., on condition that at each side there is an area of 6 ft., making 48 ft. from house front to house front. A new by-law stipulates that in the case of dwelling-houses to be erected in damp situations there shall be a layer of concrete 6 in. thick or a covering of asphalt. Another provision of a like character is to the effect that in every new building a damp course shall be inserted at a height of not less than 3 in. above the surface of the ground. In order to restrict the use of old bricks in the erection of new dwellings, it is provided that no such material shall form part of an external wall or of an internal half-brick wall,

but that good old whole bricks shall be allowed in an internal 9-in. wall on condition that "not more than two-thirds of the same are mixed with one-third of new bricks." Special regulations are introduced with reference to the quality of other materials. For example, mortar, and the proportion of good lime and sand, in the proportion of one-third lime and two-thirds sand. There are likewise provisions as to the strength of timbers supporting roofs, floor joists, beams, and girders, both in the case of dwelling-houses and business premises. The necessity of providing ventilation, not only in dwellings, but also in places of entertainment and places of worship, has received attention, and further effort has been made to secure efficient sewerage and to provide for the ventilation of drains. The Architectural Society, whilst cordially approving of many of the provisions, have suggested the alteration of a number. We understand that surprise is expressed by some who have perused the draft that no alterations are proposed with regard to the thickness of party walls in business premises. At present such walls have to be of the same thickness as the external walls, and it is suggested that they should not be more than two-thirds as thick. This and other points, however, will no doubt be carefully considered.—*Leeds Mercury.*

PROFESSOR BALDWIN BROWN ON ITALIAN ART.—On the 2nd inst. Professor Baldwin Brown delivered in the hall of Free St. Andrew's Church, Drumsheugh-gardens, the first of a course of twenty lectures on Italian art, arranged for by the Committee of the Edinburgh Social Union. Italian sculpture and painting, the lecturer said, were one phase of the art that from its subject and tone had been called Christian. The expression of Christian ideas in art varied from age to age. In the earliest mosaic designs these ideas were treated with reserve, while in the Middle Ages that reserve gave place to an over-insistence on theological doctrines, and to an almost morbid delight in depicting the sufferings and pains or the terrors of the world to come. The didactic element in art became in this way too prominent. In the present day it was often denied that art could exercise any legitimate ethical influence. There was a certain truth in that doctrine, but in the crude form it took sometimes it was belied by the whole history of the arts. Sculpture and painting could, however, most effectively exercise their ethical influence by presenting pure and elevated types and actions that might be left to work an ennobling influence on the spectator. This truth was recognised in the later Middle Ages, though it was not the Italians who first discerned it, but the French. The sculpture on the French Gothic cathedrals presented types of purity and sweetness and heroism, and the work was all pervaded with a fine sense of beauty. In many of the qualities most admirable in the works of the early Italians they had been preceded by the sculptors of Northern France nearly a century earlier. If we asked the reason why the Italians, beginning later, advanced so much further in art than the French, the answer would be found in the development among the former of the individual genius. Without the action and reaction on each other of strong and original personalities, sculpture and painting never advanced to their highest forms. In Italy the circumstances of the time favoured the development of the individual of genius. The life of the Italian cities was stimulating and called forth the powers, while there was every encouragement for those powers to expand themselves in one form or another of artistic activity. A sketch of the political and social life of the Italian cities, with limelight illustrations of their characteristic features and monuments, concluded the lecture.—*Scotsman.*

NEW BOARD SCHOOLS, LONDON.—The School Board for London have just drawn up their annual list of fresh sites for the provision of additional public elementary schools in their district. The total of scheduled sites amounts to thirty, but since some of them are "alternative sites," the actual number to be taken is twenty-five, which cover an aggregate area, calculated upon the mean of each set of coupled sites, of 20½ acres. The proposed sites are distributed in the various electoral divisions as follows:—Chelsea—three (alternative), consisting of twelve houses in Walton-street, nineteen in Denyer, Rawlings, and Wood-streets, and nineteen in Harker and Ovington-streets. Finsbury—two (alternative), being ten houses in Buckingham-street, and gardens and premises behind Nos. 7-8, Barnsbury Park, abutting on Offord-road, Islington. Greenwich—some market garden and vacant land by Tunnel Approach-road, and land in Horn-lane; two sites. Lands in Bradgate-road, in Woolstone-road, and adjoining Ladywell recreation ground, Lewisham; three sites. Land in Wickham-lane, Plumstead, and Parkside Hill Chapel, Woolwich; two sites. Hackney—two (alternative) sites, consisting of nineteen houses, with forecourts, yards, &c., in Bradstock, Cassland, and Brampton roads, and eighteen similar premises in Brampton and Bradstock-roads. East Lambeth—ten houses and gardens in Cuthill-road and Love-walk, seven in Ash-lane-road, two in Beck-ham-road, Camberwell, and No. 64, Grosvenor-terrace, Camberwell Gate,*; four sites. West Lambeth—two (alternative), being land in Bonneville-road, and an area of about 137,570 square feet

* For enlargement of existing Board School premises.

in Deauville-road, Clapham; a vacant plot on the western side of Altenburg-gardens, Clapham; and three parcels of ground in Broomhill-road, Wandsworth, at Totterdown, Tooting, and in Tennyson-street,* Battersea. Marylebone—two houses and gardens in Rhyl-street, St. Pancras. Southwark—the block of ten houses, yards, mission-hall, stabling, &c., bounded by Parliament-street, Butcher-row, and Dantzic-street, the site of Parliament-street, with seven houses therein, and the roadway leading from that street to St. George's Market, in St. George's Parish; one site. Tower Hamlets—No. 208, Cable-street,* eight houses and land in Batty's-gardens and Berner-street, sixteen premises in Rutland-street* and Newark-street, Mile End Old Town, and three houses, with forecourts, &c., in Upper North-street, Poplar; four sites. The average area of the thirty sites is 36,582 square feet.

BUILDING CONSTRUCTION.—A meeting of the Glasgow Master Wrights Association was held recently at the Building Trades Exchange, when Mr. Peter Fyfe, Chief Sanitary Inspector, Glasgow, delivered an address on "Building Construction in Relation to the Public Health." There were two main principles in building construction on which all were agreed—that every structure intended to be occupied permanently by human beings ought to be as healthy as it was possible to make it, and that every such structure should, as far as practicable, be able to resist the destructive influence of fire. There was a third canon which lay on the surface, but, unfortunately, it could only be observed truly in the higher class structures: that every building and house should be so arranged as to permit of the tenants thereof living in comfort. A healthy house must be dry in every part, must be able to be thoroughly cleaned throughout, and should have facilities within its four walls for the harbouring of infective or other dust. He had seen many substantial-looking walls saturated with moisture, particularly in new buildings. In such cases, and in the case of old walls which damp had entered, the services of the joiner were, he regretted, too often employed to disguise the sore and not to heal it. Again, and again, in that city he had come across soaking walls covered 3 ft., 4 ft., or 6 ft. high with wood lining by joiners, at the instance of proprietors. He thought that was most objectionable—in fact, just as heinous a sanitary sin on the part of both as was the hidden unjointed or badly jointed drain of the mason or plumber. No joiner should obey such an order or perform such a piece of nefarious work. The wetness of such walls should be cured, not covered up. Lulled by the apparent dryness of the wood lining, ignorant tenants took basement or ground floor houses, little reckoning what it covered, little knowing the abominations, animal and vegetable, which lurked behind, not dreaming that the catarrhs, rheums, bronchial affections, and respiratory troubles generally, nay, even diphtheria, might be caused by living and sleeping within such wood-lined habitations. He trusted that some day work of that kind would be punishable by law. In even the best kept houses he felt sure the tenants would be astonished to see what they were dwelling above, if necessity occasioned the lifting of the flooring boards. In houses inhabited by the humbler classes in the city he had witnessed again and again the dreadful mass of festering miscellaneous filth bred by the present insanitary method of floor-making.

RESTORATION OF LONGFORD CHURCHYARD CROSS, DERBYSHIRE.—This work has just been carried out under the direction of Messrs. Naylor & Sale, architects, Derby. Messrs. Harry Hems & Sons, of Exeter, carried out the work.

GLASGOW BUILDING EXCHANGE.—The annual meeting of the members of the Building Exchange was held on the 20th ult. at the offices, 30, Gordon-street. Sir Wm. Arrol presided. The report, which was submitted by the secretary, Mr. David Cook, showed that for the year ended September 30 the income amounted to 850l. 6s. 10d. and the expenditure to 668l. 8s. 7d. The executive resolved to recommend that a dividend of 5 per cent. be declared on paid-up capital. In view of the recognised fact that the by-laws under the Glasgow Building Regulations Act, 1892, are in many cases ambiguous and harassing, the executive, first by deputation and again by memorial, approached the Corporation with a view to obtaining a revision of these by-laws, and although they were not immediately successful, they believed that they succeeded in bringing forcibly under the Corporation's notice the more glaring defects in the regulations, and that their efforts will not be without effect in the near future. The report was adopted on the motion of the chairman, seconded by Mr. John Paterson. A vote of thanks to the chairman brought the proceedings to a close.

LYCH GATE, HOOTON PAGNELL CHURCHYARD, YORKSHIRE.—The new lych gate at Hooton Pagnell Churchyard has been erected under the direction of Mr. E. Bernard Wilson, architect to the Frickley Estate, and is constructed of English oak resting upon dwarf walls of local masonry, and covered in by red tiles. The ridge is surmounted by a metal cross. The floor beneath the lych gate is flagged with stone. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

STREET IMPROVEMENTS, CARDIFF.—Mr. W. O. E. Meade-King, C.E., one of the inspectors of the

* For enlargement of existing Board School premises.

Local Government Board, held an inquiry at the Town Hall, Cardiff, recently, into the application of the Cardiff Corporation for sanction to borrow 45,500l. for works of street improvements; 3,400l. for the purchase of land as a site for the erection of common lodging-houses, and 850l. for the provision of a depot in Railway-street. Alderman Daniel Lewis said that of the 45,500l. now asked for, it was proposed to spend 32,000l. in paving Newport-road (from Queen-street to Clifton-street), The Hayes, Working-street, Cowbridge-road, and Castle-street (from Market-road to Duke-street), with Australian hard wood blocks, and Trinity-street, Wharton-street, and Victoria-place with compound asphalt; and 9,000l. was required for paving the footways of the streets named. Another sum of 4,400l. was required for paving Bute-street and Custom House-street with wood blocks instead of granite setts, as originally intended. Mr. W. Harpur, Borough Engineer, gave evidence in support. Macadamised roads were no longer capable of standing the severe traffic of the district, especially during the winter months, when the streets became practically a sea of mud. The inspector subsequently inspected the streets and premises in respect of which the applications were made.

"FIRST PRINCIPLES OF ELECTRICITY AND MAGNETISM."—In noticing this book last week we said that "Footnotes sometimes contradict the text." The author writes that this cannot be true, as there is only one footnote in the book. There are in fact two, but there is only one to which the remark could refer; and the expression was so far inaccurate; it should have been in the singular and not in the plural.

SOCIETY OF ARTS.—The Society of Arts will commence its session (the 171st from its foundation in 1754) on the 17th inst. with an address on "The Colonies: their Arts, Manufactures, and Commerce," by Major-General Sir Owen Tudor Burne, G.C.I.E., K.C.S.I., the Chairman of the Society's Council. There will be four meetings on successive Wednesdays before Christmas, at which papers will be read by Professor James Douglas, on "The Progress of Metallurgy and Metal Mining in America during the last Half Century," by Professor Leonard Waldo, D.Sc., on "The American Bicycle—the Theory and Practice of its Making," by Bennett H. Brough, on "The Stockholm Exhibition of 1897," by Samuel Rideal, D.Sc., on "The Purification of Sewage by Bacteria." The first course of Cantor lectures will consist of three lectures, to be given on Monday evenings, commencing on the 20th inst., by Dr. Eugene F. A. Obach, F.C.S., on "Gutta Percha."

THE CITY LUNATIC ASYLUM.—The Visiting Committee of the City of London Lunatic Asylum recently submitted to the Corporation plans for proposed improvements to the asylum building at Stone, near Dartford, at a cost of 46,770l., and these plans were adopted. The Visiting Justices afterwards invited tenders for the work from eighteen well-known firms of builders. Three declined, and the remaining fifteen sent in tenders ranging from 59,000l. to upwards of 80,000l. Those tenders were for the erection of the fabric of the building only, and did not include any machinery, internal fittings, or furnishing. The Visiting Justices consider that a further sum of 20,000l. beyond the amount of the lowest tender will have to be expended on those items and on certain works which have recently become necessary. A very considerable increase has taken place in the price of builders' materials, more particularly in the price of bricks, and owing to the disturbed state of the engineering trade difficulty has been experienced in the part of the firms tendering in obtaining quotations for the ironwork required. Those causes have largely tended to increase the estimate originally formed, and as it is considered of the utmost importance that the works should be at once proceeded with, the Visiting Justices are seeking to obtain an increase of the grant from the Corporation to 79,000l. instead of 46,770l.—*Times*.

PROPOSED MANX NATIONAL MUSEUM.—A deputation waited upon Lord Henniker, Governor of the Isle of Man, on the 8th inst., with reference to providing a Manx National Museum. The Monuments Trustees recommended that a museum should be built at a cost of 3,000l., and maintained out of revenue. His Excellency said that, while willing to recommend a substantial sum towards the building, he thought the municipal authorities should pay part, and defray the annual charge. It was stated that many valuable antiquities were being taken from the island. The proposition will now come before the ratepayers.

CAPITAL AND LABOUR.

LEEDS BUILDING TRADE.—An official intimation has been given to the Leeds Master Builders' Association on behalf of the Masons' and Joiners' Unions in Leeds that the men have resolved to ask for an increase in the present rate of wages. In accordance with the arrangement which has for some time existed between employers and workmen in the building trade, six months' notice is required on either side of any proposed alteration in the existing conditions of working, so that the notice in question will not, in any event, take effect until May next. The joiners and masons are paid at present at the rate of 8½d. per hour, which is a halfpenny an hour less than is received by the bricklayers, whose wages

were increased to 9d. after the prolonged dispute of over a year ago. The claim of the latter, however, was regarded by the employers as differing somewhat from any that might be put forward on behalf of the other branches of the building trade, it being recognised that the bricklayers had more frequently to follow their occupation exposed to bad weather than either the joiners or masons, who often worked under cover. The number of men concerned in the proposal is calculated at about 1,000, of whom about 600 are masons.—*Leeds Daily News*.

STONEMASONS' WAGES, NORTHWICH.—On 1st inst. the Northwich and District Branch of the Co-operative Society of Stonemasons gave the usual trade union notice to their employers of a demand for an increase of 1½d. per hour in the rate of wages. The men now receive 7½d.

THE STAFFORDSHIRE BUILDING TRADES.—The building trade in the Potteries continues in a flourishing condition for the time of the year. Bricklayers are well employed, with 1 per cent. out of work. Joiners and carpenters are moderately busy. Plumbers and painters for the time of the year are working well. At Leek business is moderate in all branches. At Crewe all branches are busy. At Stafford business is good. There is a moderate demand for both plasterers and stonemasons. Joiners are fully employed, and bricklayers have a small percentage out of work.—*Staffordshire Sentinel*.

BOLTON PAINTERS AND THEIR WAGES.—3 Bolton operative painters have sent in a demerous is stated, for an advance in their wages from 8d. to 9d. per hour. They also ask for a reduction of hours in order that they may commence operations at seven in the morning instead of six as heretofore.

WIMBORNE AND DISTRICT PLUMBERS.—The Wimborne and District Branch of the Operative Bricklayers' Society have given notice to their employers of a demand for an increase of 1½d. per hour. At present the men only receive 6½d., which they claim is 2d. per hour less than the average of other towns. The Northwich, Altrincham, and other bricklayers receive 8d. to 9d., while in Manchester and suburbs the prices range from 9d. to 10d.—*Liverpool Mercury*.

PLYMOUTH AND DISTRICT PLUMBERS.—The master plumbers of Plymouth and district have avoided a strike by granting their operatives an advance of a penny an hour in their wages. The new by-laws of the Operatives' Association provide that from March to October, inclusive, the hours of labour shall be fifty-three per week, and from November to February, inclusive, forty-seven, the week to finish at noon on Saturday, and the minimum rate of wages to be 8d. per hour. The first two hours' overtime are to be at the ordinary rate, then on to midnight to be counted as time and half, and from midnight to starting next morning double time; from noon on Saturday to six o'clock time, and half, and after that double time; and Sundays, Christmas-days, and Good Fridays to count as double time. When any member has to work three miles from the boundary of the Three Towns for the entire day he is to be paid an additional penny per hour, walking time to be allowed at the rate of three miles an hour. Any employed member jobbing at his trade systematically after the ordinary hours subjects himself to a fine according to the decision of the committee. No apprentices are to be taken under the age of fourteen or over sixteen years; no apprentice to serve for a shorter period than five years, so that his indentures shall not expire before the age of twenty-one. An annual conference is to be held in the first week of November in each year, and labour is not to be withdrawn from any shop without a conference of the Masters' and Operatives' Associations. In the event of a dispute or grievance in any shop which cannot be settled by the employers and workmen provision is made for the dispute to be settled by the Executive Committee on each side. Six months' notice in writing must be given of any alterations in the by-laws, and should employers and operatives be unable to come to an understanding, a court of arbitration, with an umpire, may be formed to decide the matter in dispute.—*Western Morning News*.

THE PORTSMOUTH BUILDING TRADE.—The members of the Portsmouth Branch of the Amalgamated Society of House Decorators and Painters have made an application to the Employers' Committee for an increase of wages, from 6½d. to 7½d. per hour. They also propose the establishment of a Conciliation Board.—A meeting of the Portsmouth Master Builders' Association was held on Tuesday evening at the "Sussex Hotel," when communications were received from the Bricklayers, Plasterers, and Painters' Societies giving six months' notice of demands for fresh concessions in the matter of work and wages. The plasterers, who are now getting 8d. an hour, applied for an increase of 1d. per hour, and a reduction in the number of hours of labour. The bricklayers will ask 1d. per hour to be added to their wages, and the painters will demand the raising of wages from 6½d. to 7½d. per hour, and an alteration in their working hours to allow of the formation of a Conciliation Board. The notices will not expire until May 1, 1898, and no decision was made by the master builders, the matter being left in the hands of the committee to deal with. At present we understand the employers do not seem inclined to grant the demands of the workmen.—*Hampshire Telegraph*.

BRICKLAYERS' WAGES, NEWPORT, ISLE OF GILT.—The members of the Newport Branch of Bricklayers' Society, between forty and fifty in number, have resolved to apply to their employers increased pay of 1d. an hour. The present local rate of pay is stated to be 6d. per hour.

LEGAL.
THE BUILDING OF THE EAST GRINSTEAD ISOLATION HOSPITALS.

In the Lord Mayor's Court recently, before the recorder (Sir Charles Hall), an action was tried in which Messrs. Geary, Walker & Co., of Queen Victoria-street, London, sought to recover from Mr. Henry Young, builder, of the East Grinstead Urban Council, Mr. Glynn appeared for the plaintiffs and Mr. Hodges (instructed by Messrs. Hastie, Hughes & Dayrell) for the defendant.

The action was opened by the case to the jury, said the original claim was for 812. 1s. 11d. for 205 superficial yards of wood block flooring laid down at the East Grinstead Isolation Hospital. Two sums had been paid on account, leaving 157. 1s. 11d. now sued for. The defendant claimed to be entitled to a deduction of 5 per cent. from the full amount in discharge with the terms of the order, but the plaintiffs contended that he was not allowed this as a cash payment and as he had not yet paid he is not entitled to any discount. The work was done in June and the account was rendered on July 28. The defendant claimed that he was not bound to pay until the architect had approved of the work and such approval had not been expressed in the account. When the order was issued it was originally given the plaintiffs wrote to Mr. Young on May 6 suggesting the form of an official order and it was accordingly sent the following day these terms:—"Please proceed at once with 2 in. of floor boarding at 53. 3d. per yard, less 5 per cent., the same to be paid to the satisfaction of the architect."

Accordingly the work was done and the bill sent in, but the defendant never did anything to secure the doing of the work by the architect and the plaintiffs contended that the architect's doing so was not a condition of the contract. The defendant should have paid the money and then, if the architect expressed disapproval of the work, he should have put in an action against the plaintiffs to recover the money he had paid. Otherwise the defendant might never have taken the trouble to get the architect to come and look at the work. As to the 5 per cent. discount, it was simply ridiculous, and was so explained in the letters. Mr. Hodges: The work was to be done to the satisfaction of the architect, and as soon as he was satisfied we were ready to pay. We have always paid so.

The Recorder: Then the question is whether you led in the architect within a proper time. Mr. Glynn said it had never been suggested until after that that was a condition precedent to the doing. On August 6 the plaintiffs wrote to Mr. Glynn: "Our contract is with you and not with the architect."

The Recorder: When was the work completed? Mr. Glynn said he believed it was finished by July 6. Mr. Young answered the last letter by saying, "I am surprised at your action, as you undertook to do the work to the satisfaction of Mr. Glynn, and as soon as his certificate is forthcoming I am prepared to pay."

The Recorder: Has there been any suggestion in these letters that a discount of 5 per cent. was expected? Mr. Hodges: Yes, I adhered to it all through, but I do not mention it in every letter.

The Recorder said he must decide that both the payment and the architect's approval should be within a reasonable period. The defendant was liable to pay until the certificate was given, if it is given within a reasonable time, and he was entitled to deduct his cash discount if he paid this a reasonable time.

Mr. Glynn: Your Lordship will give me leave to appeal on that point?

The Recorder: No, certainly I shan't.

Mr. Glynn: My clients are desirous of getting an opinion from the Divisional Court, as a large number of contracts are similar to this and it is a most important point.

The Recorder: I can't give leave to appeal in a case in which I entertain no doubt whatever. It would be a farce to send a case to the Divisional Court on a document which, to my mind, is absolutely clear. I don't believe there has ever been a doubt expressed by any Judge on a similar point. The point is the point very important to them, but I don't follow that it is an important point generally.

Mr. Glynn: There remains, then, the question whether the certificate was given within a reasonable time, and there is the point with regard to the per cent.

The Recorder: The latter point holds good with both sides, having held, as I do, that the work must be done to the satisfaction of the architect. The defendant seems to have taken ordinary means to get

the architect there. He could not be expected to go down the very next day, for architects have other works to go to generally.

Mr. Glynn: You say then that two months is a reasonable time.

The Recorder: Yes, I say that.

Mr. Glynn: I must take the opinion of the jury on the question of reasonable time.

Mr. Hodges: We have no control over the architect. If the architect won't certify we cannot compel him to.

The Recorder: Suppose he withheld his certificate for ten years, do you say you would not have to pay until then?

Mr. Hodges: Certainly I do, and I will give you authority.

The Recorder, having read the case handed up to him, said it clearly took away from the plaintiffs all right to argue as to reasonable time. The defendant was not bound to pay until the architect was satisfied at the way in which the work had been done. He could not construe the order or the law in any other way without doing damage to the ordinary meaning of the English language.

Mr. Glynn: Will you give me leave to appeal?

The Recorder: Certainly not; the whole thing is as plain as a plackart. There will be a verdict for the defendant, with costs.

A SHIPLEY ANCIENT LIGHTS CASE.

The case of Hall v. Ogden came before Mr. Justice Kekewich in the Chancery Division on the 5th and 6th inst., it being an action brought by the plaintiff as the owner in fee of a dwelling-house and shop and other premises situated in Leeds-road, Windhill, Shipley, to restrain the defendant from building in such a manner as to obstruct the plaintiff's ancient lights.

Mr. Renshaw, Q.C., for the plaintiff, said that the fact was not disputed that the lights were ancient. The plaintiff not only asked for an injunction to restrain the obstruction, but also for a mandatory order to pull down a piece of wall which had been erected by the defendant. His lordship had previously granted an interim order restraining the defendant from doing what was complained of, but declined to make a mandatory order to pull down the wall. Since then the defendant had done nothing but pull down a few bricks, and had done nothing to abate the interference. The plaintiff complained that the access of light to two of his windows in particular had been interfered with. The learned counsel said that down to 1804 there was near the new wall of the defendant a public pathway. In that year an arrangement was come to with the Local Authority by the defendant by which another public footpath was substituted for it, and defendant was allowed to take possession of the ancient footpath. The property of the plaintiff was divided from the defendant's by a wall 3 ft. 6 in. high, and it was on the further side of that from the plaintiff's house that the public footpath ran. On October 14, 1806, the defendant began to build a wall close up to the boundary of the plaintiff's wall. On October 17 plaintiff consulted his architect, Mr. Crawshaw, as to the plans, but these had not been deposited at the office of the Local Authority when he went to see them. On November 16 Mr. Crawshaw found the plans had been deposited, and defendant was told that he would not be allowed to interfere with the plaintiff's access of light. However the defendant did erect the wall and hence these proceedings.

The defence was that the wall in question would not materially affect the access of light to the plaintiff's premises.

After hearing evidence his lordship, in giving judgment, said that the defendant at his own risk had built this wall without leave and injured his neighbour's rights, and he thought he must remove what he had put up. The injunction would be granted in the ordinary form—both prohibitive and mandatory—so as not to interfere with the access of light to the two windows, and defendant must pay the costs of the action.

Judgment for the plaintiff accordingly.

MEETINGS.

SATURDAY, NOVEMBER 13.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture, from Anglo-Saxon Times to the end of the Eighteenth Century." 11. 3 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage and Destructor Works, Baling. 2.15 p.m.

MONDAY, NOVEMBER 15.

Royal Institute of British Architects.—Mr. Arthur S. Flower, M.A., F.S.A., on "Renaissance Architecture in Malta, with Special Reference to the Buildings of the Order of St. John." 8 p.m.

Carpenters' Hall, London Wall (Lectures on Building and Sanitary Construction).—Mr. James Bartlett on "Setting Out Work and By-Laws." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. G. Reid on "Sanitary Appliances." 8 p.m.

Borough Polytechnic Institute.—Distribution of Prizes and Certificates by Professor J. Stuart. 8 p.m. The workshops and laboratories will be open for inspection from 7 to 7.45 p.m.

Local Architectural Society.—Professor Simpson on

"The Use of Books." Meeting to be held in the Pictorial Library, William Brown-street. 6.30 p.m.

Leeds and Yorkshire Architectural Society.—(1) Address by the President, Mr. George Corson; (2) Distribution of Prizes. 7.30 p.m.

TUESDAY, NOVEMBER 16.

Institution of Civil Engineers.—Paper to be discussed: "The Manchester Ship Canal," by Sir E. Leader Williams, with papers descriptive of "The Eastham Division," by Mr. Whately Elliot, "The Runcorn Division," by Sir E. Leader Williams, and "The Irish Division," by Mr. W. O. E. Mende-King. 8 p.m.

WEDNESDAY, NOVEMBER 17.

Architectural Association Discussion Section.—Mr. J. Hunt on "Ecclesiastical Vestments."

Sanitary Institute.—A discussion on "The Pollution of Water Supplies by Encampments of Hop-Pickers, Casual Workers, Tramps, &c." To be opened by Professor W. H. Corfield in reference to the dangers of pollution of Municipal water supplies, and by Miss M. A. Cheiman in reference to the sanitary control of hop-pickers, &c. 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection in the Parish of St. George's, Hanover-square. 2 p.m.

Society of Arts.—Major-General Sir Owen Tudor Burne on "The Colonies: Their Arts, Manufactures, and Commerce." 8 p.m.

British Archaeological Association.—Mr. Thos. Blashill on "Some Illustrations of Domestic Spinning." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Edinburgh Architectural Society.—Mr. J. F. Matthew on "Italy." 8 p.m.

Northern Architectural Association.—The President, Mr. Frank W. Rich, will deliver his inaugural address. 7.30 p.m.

THURSDAY, NOVEMBER 18.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. W. C. Tyndale on "House Drainage." 8 p.m.

SATURDAY, NOVEMBER 20.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture from Anglo-Saxon Times to the end of the Eighteenth Century." 11. 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

23,967.—CLAY PRESSES AND BRICKS FORMED THEREBY: A. E. Nicholl.—Inventor describes improvements which relate particularly to dry press brick-making machinery, as described in Amended Specification No. 2,071, A.D. 1891; but also suitable for other press brickmaking. The present claim is for stamper dies or moulds, with relief holes in cover plates operated by springs, the construction of hopper, the sanding of bricks or blocks, construction of scrapers and frog plate, with inclined frog in press. 27,383.—SOLDERING BIRTS: A. Shirley.—Invention relates to soldering-birts heated by oil, gas, or electricity, and consists in the form and arrangement of the internal chamber, reservoir, passages, &c. 26,322.—LEAD PIGMENTS: J. Fairlie.—Relates to red lead, which is very apt to settle and dry up. To counteract this inventor adds to dry red lead a small percentage of chloride of soda, sulphate of magnesia, sulphate of soda, muriate of magnesia, muriate of lime, and salts of iodine and bromide, not more than 1 per cent. in all. These are mixed together and dried. 26,697.—DOVETAILING: R. Robinson.—Invention consists in mitring the adjacent edges at box corners, &c., by forming therein a dovetailed or undercut slot and fitting therein a correspondingly dovetailed key. 27,420.—WINDOW FASTENERS: J. A. Longue.—In French windows invention consists in a fastener with sliding and pivoted latches, working in curved parts of window frames, which engage rollers. 27,461.—ROOFING TILES: C. Watson.—In order to render tile roofs more waterproof, inventor constructs tiles with their upper faces or sides fluted or channelled, with sinking or outstanding parts, either arranged longitudinally, transversely, or diagonally. 4,658.—PLUMBERS', &c., POT: J. Hussey.—Inventor claims, in a melting-pot, the combination of three legs with a rim formed integrally with the pot, the said rim being adapted to receive upper ends of legs. 5,531.—EARTH CLOSETS: C. A. Jensen.—Invention consists in a closet cover constructed so as to form a reservoir for disinfecting substances, such as earth, ashes, &c., which are strewn out by portions whenever the cover is closed.

NEW APPLICATIONS FOR LETTERS PATENT.

OCTOBER 25.—24,617, J. Dean, Water-closets.—24,648, W. Webb, Combined Latch and Bolt for Doors and Gates.—24,650, E. Ridges, Window Frames.—24,650, T. Drew, Bolts for Fastening Doors, Gates, &c.

OCTOBER 26.—24,731, J. Goulson, Water Tap.—24,750, T. Turner, Tipping Waggon.—24,765, A. Tyler, Window Sash Fasteners.—24,788, E. Guyson, Skylight Frames, &c.

OCTOBER 27.—24,862, F. Le Potier, System of Hot Water Circulation for Greenhouses, &c.—24,871, F. Grosvenor, Apparatus for Shaping Clayware.—24,876, J. Turner, Wood-planing Machines.—24,910, W. Pearce, Joints for Stone and Earthenware Pipes.

OCTOBER 28.—24,929, W. Johnson, Floor Hinges for Doors.—24,933, J. Webb, Mica Flap Air-Inlet Valve.—24,955, W. Harris, Ventilators of Horticultural Buildings.—24,959, W. Dalton, Sanitary Water-closet.—24,994, W. Suggs, Ventilating Cowls.

OCTOBER 29.—25,079, J. & H. Crankshaw, Hanging Curtains for Hinged or Swinging Doors and Apparatus therefor.—25,093, W. Osbaldeston, Fastenings for Windows.—25,103, J. Hoggett, Connection with Gully Traps or Drains.—25,126, E. Collier, Brick Cutting Tables.—25,126, J. Cooke, Sliding Window Sashes.

OCTOBER 30.—25,180, T. Flynn, Window Sashes.—25,189, T. C. Fawcett, Limited, and J. Fawcett, Presses for Brick-making Machines.—25,197, E. Marr, Cement Tiles.—25,206, W. Dingle and others, Smoke Ejector, Chimney, and Ventilating Shaft.

PROVISIONAL SPECIFICATIONS ACCEPTED.

26,306, G. Scott, Concrete Building Apparatus.—21,169, E. Ashcroft, Ball Gully for the Prevention of Back Pressure in Drains.—21,589, J. Elphinstone

CONTRACTS—Continued.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Prize.	Design to be delivered.
Fire Station, Dwellings, &c.	Boyle Corp.	50 guineas, 25 guineas (under conditions)	Dec. 31
*Public Library, Port Elizabeth, South Africa.	Committee	100 guineas and 60 guineas	Feb. 15
*Scheme for Sewage Disposal.	Helper U.D.C.	50 guineas and 25 guineas	May

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. as Supplied by	Tenders to be delivered.
Reservoir, Nettendon	Chesterford R.D.C.	J. C. Smith, Surv. Tindal-square	Nov. 15
"Hopper Barge"	Plymouth Corp.	J. Paton, Navy Surveyor's Office	do.
Four Houses, & Helderhorpe, Bridlington Quay.....	J. Atkinson	J. Earnshaw, Archt. Bridlington	Nov. 16
Water Works, Wakes, Roundwood	Ramsway U.D.C.	J. Platt, Archt. Old Bank-buildings, Rotherham	do.
Alterations at Workhouse	Rotherham Union	J. Platt, Archt. High-street	do.
Pipe Sewers, &c. Richmond Park District	Rotherham Corp.	H. Blackstock, Council Hall	do.
Private Street Works	Bottle (Lancs) Corp.	Berogill, Engineer, Tewkesbury	do.
House, Loose Wynd, Elgin, N.E. ....	.....	A. & W. Reid & Wittet, Elgin	Nov. 17
"Paving New Ground"	Camberwell Vestry	O.S. Brown, Vestry Hall, Camberwell	do.
Sewering, &c. Clarke-street-trail	Stockport Corp.	J. Atkinson, St. Petergate	do.
Sewer, Hirst	Ashton U.D.C.	A. Wood, Burv. Council Office	do.
Additions to Workhouse	Market Bosworth Union	E. J. & A. Goodacre, Archt. Old Leicestershire	do.
Eight Houses, Fountain-street, Morley, Yorkshire	W. R. Slater	G. C. Clieg, Archt. 2, Foulstree, Morley	do.
Laying Right Mains Gashan Pipes	Edinburgh Water Trustees	E. H. Chalmers, & Co., George-street, Edinburgh	do.
Stoneware Pipes, &c. High-street, Swindon	Braintree R.P.C.	Stratton, Archt. High-street, Kelvedon	do.
Pipe Sower, Rais-laune, Hillingworth	Halifax Corporation	E. R. S. Escott, O.E. Town	do.
Road Works, Croasley-street, Askham	Dalton - In Furness U.D.C.	Rev. Council Offices	do.
Additions to Bon Marche, King-street, Bridlington Quay	Messrs. Marshall & Sons, Grocers &c. & Son, Ltd.	J. Earnshaw, Archt. Wellington	Nov. 18
Shops, Broadhead, & Keighley .....	.....	W. R. Buller, Archt. Keighley	do.
Shop, & Cafe, Skinner-street, Wakefield .....	.....	E. H. Chalmers, Archt. 5, Foulstree, Whitby	do.
House, Heysham, Bradford, Yorks. ....	.....	Ryegate & Pirith, Archt. 8, Great Buildings, Manchester-road, Bradford	do.
Police Station, Port Talbot, Wales	Glamorgan C.C.	County Surveyor, Bridgend	Nov. 19
Sewerage Works, Woolley Colliery, Durham	Durham R.D.C.	G. West, Surv. County Surveyor, Hull, Durham	do.
"Seven Dwelling Houses, Burnham School, Cwmllyn, Wales	Admiralty Works Department - Ystradgynlais Sch. B.	W. P. Watkins, Engnr. Trevelyan, & Old Breconshire	Nov. 20
Roads and Sewers, Paignton, South Devon	P. E. Ringier	W. Wyatt, Engr. "Old-way, Paignton	do.
Bridge over Watneters Water	Nelson (Lancs) Corp.	B. Ball, C.E. Tox Hall	do.
Road Works, &c. Joint-n-road .....	.....	Challinor, Chief Surveyor, City of Birmingham	do.
Road Works, Kirkstead-road, &c.	Blackwell (Derbyshire) U.D.C.	B. Block, Regr. 20, West Hill	do.
Alterations, Workhouse	Llanekana (Ireland) Union	J. O'Keefe, Hon. Union Officer, Llanekana	do.
School, House, &c. Llansydryn, Anglesey .....	.....	J. Owen, Manual Bridge, North Wales	do.
School Ward, &c. ... ..	.....	A. E. Griffin, Almshouse, Redruth	Nov. 22
"170 Dais Deaks and other School Furniture	Watford School B.	Beckwith Turner, Watford-places, Watford	do.

[illegible]

PUBLIC APPOINTMENT.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*Assistant Surveyor	N. Riding of Yorks. County Council ...	200l. per ann. Travelling Expenses, &c.	Dec.

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & xix. Public Appointments, pp. xvi. & xix.

Screw. — 21,558, J. Elphinstone, Bolt. — 21,660, R. Gregory, Ventilating Sewers, &c. — 23,323, J. Benson, Cast-iron Tank and Connections. — 23,712, M. Plutzer, Fastenings for Swinging Window Sashes. — 23,217, B. Puri, Urinal Attachments for Water-closets. — 23,265, J. Milne, Window Casement Fastener. — 23,515, W. Smith, Plaster Putty. — 23,544, R. Sykes, Fastenings for Operating the Supply of Cisterns. — Water-closets and for other suitable purposes. — 23,500, J. Russell, Register Stoves. — 23,648, T. Walton and R. Parkinson, Holding at any height the Movable Sashes in Windows and Doors. — 23,649, T. Walton and R. Parkinson, Fastenings for Operating the Supply of Cisterns. — 23,650, T. Walton and R. Parkinson, Holding at any height the Movable Sashes in Windows and Doors. — 23,924, A. Twanley, Sink Pedestals.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

23,888, G. Stephen, Ventilating Buildings, &c.—2,407, J. Chaplin, Sliding Bolts for Doors.—27,528, W. Allen, Chimney Cows.—28,089, O. Elphick, Waste Water Preventer.—28,888, E. Homan, Walls, &c.—29,429, B. Mills, Brick Kilns.—29,490, G. Döllner, Drying Kilns.—22,417, A. Mitchell and J. Bolger, Sewer Traps.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT

October 22. — By CHARLES HALL.	
Brixton—24, Barrington-rd., ut. 253 yrs. 8, 6 <i>l</i> , r. 5 <i>6d</i>	£400 320
8, Sudbourne-rd., ut. 70 yrs. 8, 7 <i>l</i> 7 <i>h</i> , r. 3 <i>6d</i> .	
By JAMES LEWIS & CO.	
Willesden.—Roundwood Pk., "Knolws Tower" and 1 a. or 18 p. <i>l</i> , f.....	2,000
By OSWALD R. GREEN & CO.	
Bermodesey—4, 4 <i>l</i> and 50, Chapel-pi., f, r. 13 <i>0d</i>	1,850
Dulwich.—Thurlo Pk.-rd., "Cleveland Lodge," ut. 61 yrs. 8, r. 12 <i>l</i> , 2 <i>s</i> , c <i>o</i> . 9 <i>0d</i>	750
October 23. — By BLACKFORD & SON (at Southmolton).	
West Anstey, Devon.—"Guphill Farm," 204 a.	

By NOKES & NOKES.

Calendonian rd.—20 and 31, North-rd., ut. 63 yrs.,
g.f. 1234, r. 681.

Talloway.—39, Devonshire-rd., ut. 55 yrs., g.f.
54, 58, r. 361.

Barnsbury.—37, Devonshire-rd., ut. 55 yrs., g.f.
54, 58, r. 361.

October 25.—By J. H. BETHELL.

East Ham.—Shrewsbury-rd., "Bickley House,"
r. f. 341.

Shrewsbury-rd., five freehold residences
112, Stafford-rd.,
3, 4, 5, and 6, Stafford-rd.,
112, Stafford-rd.,
7, 8, 9, 10, 11, 12, and 29, Walpole-rd., f.
Whitfield-rd., &c., g.f. 804, 805, reversion in
80 yrs.

Romford.—London-rd., "The Slaters' Arms"
b-h, g.f. 451, reversion in 45 yrs.

London-rd., g.f. 221, 8, reversion in 44 yrs.

London-rd., g.f. 351, 758, 6d., reversion in 47
yrs.

London-rd., "Blanc Close Meadow," 6a. o.f.

By J. J. TOWERS, Newcastle-upon-Tyne.
Devensy Bay, Sussex.—Two enclosures of land,
20 a. 3 s. f.
Castbourne, Sussex.—16, Devonshire-pl., f.
By GRIFFITHS & CHENNELL (at Newport).
1. "The Grove," 2 a. 3 r. 19 p. f., Exning-rd., f.
Exning-rd., cottage, loose boxes, and paddock,
1 r. 4 p. f.
2. "THE HAY" (at Newport).
Newport, Isle of Wight.—Watergate-rd., "St.
John's Vicarage" f.
By M. DE ROMÉ & SON (at Windermere).
Hawkshead, Lancashire.—"Sawm Hotel" and
3 a. r. 22 p. f.
"Bryer's Cottage," f.
"Pate Crag Coppice," 20 a. r. 18 p. f.
FRANK CROFT & SONS, York-shire.
Cernev, Deming.—1 acre of land and two cot-
tages, area 1,225 yds. f.
"Boat House Farm Cottages," area 2,770 yds. f.

October 26.—By BROAD & WILTSHIRE.

Belgriana,—8 and 60, Eaton-st., ut. 23^d yrs,
f.g. 66*i*, 166, g.r. 124*i*.

Kenington,—Addition-gdns, f.g. 112*i*, 102, re-
version in 97 yrs.

Addition Park Mansions, f.g. 70*i*, reversion in
98 yrs.

By "The Duke & Duchess of Devonshire"
City of London,—13 and 13, Poultrey, ut. 37 yrs,
f.g. 484*i*, f. 1312*i*, including mortgages —

By "Robertson & Sons"
Mitcham, Surrey,—the Eight Belles,"
b-h., with house and shop and two cottages
adjoining, f. f. 60*i*.

By E. W. H. Tuckwell Esq.
t 104, Laburnum-cottages, f. r. 65*i*, 62.

Tottenham,—20, Northumberland Pk., r. 64*i*; ;
and also two building sites adjoining, f. 64*i*;
New Southgate.—Springfield-ra., ecc., eight plots
of building land, f. 64*i*.

Highgate, N.W.,—two plots of bldg. lnd., f. 64*i*.
Tottenham,—45, 47, 49, and 57, Aspin's-ard, f. e.e.
104*i*.

Westbourne Pk., N.W.,—64, Southgate, f. 66
yrs. g.r. 24, c.f. 129*i*.

By DEBENHAM, TEWSON, & CO.
Frensham, Surrey.—Three enclosures of land, 15 a,
r. 19 p. f. r. 16*i*, 108.

A Block of building land, f. 184, 184, 184, 184, 184,
An enclosure of land, 3 a 1 p. 25 p. f.

By ORGILL, MARKS, & ORGILL at Masons' Hall
Tavern).

City of London.—Bucklersbury, "The Green
Man" P.h., ut. 44 and 35 yrs, r. 65*i*, with
goodwill —

"The King's Head Hotel" and
a acre, f. with goodwill —

By ROBERTSON & SONS
Notting Hill.—Ladbroke-grove, "The Earl
Percy" p.h., ut. 56*i* yrs, r. 120*i*, with good-
will —

Walthamstow—Havant-rd., 4 plots of building
land, f.

100

BRITH.—For erecting new offices, &c. for Messrs. Cannon & Gaze, High-street, Brith. Mr. W. L. Knight, architect. £1,570 0 0
 Stokland & Chaud. £1,570 0 0
 land. £1,570 0 0
 Erik & Kaufall. £1,570 0 0
 G. H. Gunning. £1,570 0 0
 land (accepted). £1,570 0 0

FEATHERSTONE (Works).—Accepted for the erection of a villa residence, for Dr. Steven. Messrs. Garside & Keyworth, architects, Roperidge, Featherstone. £250 0 0
 Bricklaying—A. Sutton, North Featherstone. £250 0 0
 Joinery—T. G. Wright, North Featherstone. 67 7
 Plumbering—H. Foster, Castleford. 42 0
 Slating—G. Stewart & Son, Featherstone. 6 15
 Painting—H. Butler & Son, Featherstone. 6 15

GOSPORT.—For the erection of "Old Northumberland" public-house, High-street. Mr. A. H. Bonn, architect, Cambridge Junction, Portsmouth. Quantities by architect. £2,050 0 0
 Chas. Jobbins. £2,050 0 0
 Jno. Cread. £2,050 0 0
 C. Harding. £2,050 0 0
 W. E. Lane & Son. £2,050 0 0
 * Accepted.

HEMEL HEMPSTEAD.—For the erection of the new manse, for the Congregational Church, Hemel Hempstead, Herts. Mr. W. A. Fisher, architect, Hemel Hempstead, and 10, Finsbury-circus, E.C. 1.—
 Darville. £1,120 0 0
 Smith. £1,120 0 0
 stand (accepted). £1,120 0 0

HORNCHURCH.—For the erection of a mixed school for 150 children, and teacher's residence, with offices, &c., South Hornchurch, for the School Board. Mr. E. M. Whittaker, architect, Gresham-buildings, Basinghall-street, E.C. 1.—
 J. Jackson. £2,850 0 0
 J. J. Liffie. £2,850 0 0
 General Builders. £2,850 0 0
 H. J. Carter. £2,850 0 0
 Church (accepted). £2,850 0 0
 T. Bruty, Hornchurch. £2,850 0 0
 F. J. Coxhead. £2,850 0 0
 John Gordon. £2,850 0 0

ILKESTON.—For making a new street (Haddon-street), for the Corporation. Mr. H. J. Kilford, Surveyor, Town Hall, Ilkeston. Quantities by Mr. H. O. Townner, assistant surveyor, Ilkeston.—
 J. Ford. £2,355 17 6
 Holmes & Co. £2,355 17 6
 Cox & Son, Ilkeston. £2,355 17 6
 * Accepted.

LONDON.—For the erection of four semi-detached houses, to be erected in Wiverton-road, Sydenham, for Mr. Harry Francis Messrs. Douglas Young & Co., architects, 51, Coleman-street, City.—
 James Smith & Sons. £3,650 0 0
 W. V. Goad. £3,650 0 0
 T. R. Roberts & Co. £3,650 0 0
 * Accepted at £1,825.

LONDON.—For the supply of about 550 tons of broken flints, for the Vestry of the Parish of St. Mary Magdalen, Hermandy, Mr. Frank Sumner, Surveyor, Town Hall, Spa-road, S.E. 1.—
 Murrell & Co. £5,500 0 0
 Sonnet, Dean & Co., Sittingbourne (accepted) do. do. £5,500 0 0

MARKET HARBOUROUGH.—For erecting butcher's shop and Co-operative Hall, Coventry-street, for the Market Harborough Industrial Co-operative Society, Limited. Messrs. Conies & Johnson, architects, Corn Exchange, Market Harborough.—
 G. Henson. £1,450 0 0
 W. Pettefer. £1,450 0 0
 H. Martin. £1,450 0 0
 J. Holford. £1,450 0 0
 G. L. Martin. £1,450 0 0
 G. Jarman. £1,450 0 0
 T. Hickman, Harborough. £1,450 0 0
 * Accepted.

[Architects' estimate, £1,975.]
 MIDDLEWICH.—Accepted for paving and asphaltizing Queen-street, for the Urban District Council. Mr. Reginald T. Worth, Surveyor, Town Hall Chambers, Middleswich.—
 S. Hutton, Altrincham. Asphaltizing, per sup. yard. s. d.
 Paving do. s. d.
 [At schedule of price.]

C.B.N. SNEWIN
 MAHOGANY, WAINSCOT, WALNUT,
 TEAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
 HATTON GARDEN, and 29, RAY STREET,
 FARRINGTON ROAD, E.C.
 HE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
 THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
 Telephone, 65, 774 Holborn. Tele. Address: "SNEWIN, London."

MORECAMBE.—Accepted for alterations and additions to No. 9 The Crescent. Mr. J. Parkinson, architect, 67, Church-street, Lancaster.—
 Mainwaring—R. L. Dilworth, Lancaster. £750 0 0
 Joinery—J. Hartley, Lancaster. 100 0 0
 Staining and Floor-laying—W. J. Cross, Morecambe. 35 0
 Landscaping—R. B. Abbott, Morecambe. 50 0

RADLETT (Herts).—For the erection of village hall, for the Committee. Mr. A. G. Bond, architect, 51, Corn-street, Bristol. Quantities by Mr. W. L. Bernard. £1,650 0 0
 J. G. Gwilt. £1,650 0 0
 Clifford & Gough. £1,650 0 0
 Gough & Gough. £1,650 0 0
 C. H. Taylor. £1,650 0 0
 J. P. White. £1,650 0 0
 J. Davell. £1,650 0 0
 Hoff Bros. £1,650 0 0
 W. B. Neal. £1,650 0 0
 * Accepted, subject to modifications.

ROYTON.—Accepted for the construction of about 900 lineal yards of sewers, &c. (Contract 19), for the Urban District Council. Mr. T. S. McCallum, Engineer, 4, Chapel-walks, Manchester.—
 Geo. Freeman & Sons, Oldham. £1,430

WALSALL.—For the construction of about six miles of earthenware pipe sewers, &c., in connection with the sewerage of Pelsall and Rushall, for Walsall Rural District Council. Mr. J. B. Wilcox, engineer, Union-chambers, 60, Temple-row, Birmingham.—
 Henry Roberts. £1,500 0 0
 C. B. Williamson. £1,500 0 0
 Co. £1,500 0 0
 J. White. £1,500 0 0
 J. Read & Sons. £1,500 0 0
 Jacob Biggs. £1,500 0 0
 Curral, Lewis & Co. £1,500 0 0
 Martin. £1,500 0 0
 * Accepted.

WARRINGHAM (Surrey).—Accepted for building residence. Mr. G. Gordon Stanham, architect, 100, Queen Victoria-street, Speechley & Smith, Richmond. £3,834

TO CORRESPONDENTS.

A. P.—(Below our limit). G. S.—(Amounts should have been stated).
 NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the author.
 We cannot undertake to return rejected communications.
 Letters or communications (beyond news items) which have been duplicated for other journals are NOT DESIRED.
 We are compelled to decline pointing out books and giving addresses.
 Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.
 All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

J. J. ETRIDGE, Jr.
 SLATE MERCHANT,
 SLATER AND TILER.

ESTIMATES GIVEN FOR
SLATING AND TILING,
 To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
 Oakeley - Portmadoc,
 And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
 BETHNAL GREEN, LONDON, E.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at a rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 25s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (prepaying at the Publishing Office, 19s. per annum at 4s. 6d. per quarter), can ensure receiving "The Builder" by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.
 BATH,
 FOR ALL THE PROVED KINDS OF
 BATH STONE.
 FLUATE, for Hardening, Waterproofing,
 and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
 The Ham Hill and Doulting Stone Co.
 (Incorporating The Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
 Chief Office:—Norton, Stoke-under-Ham, Somerset.
 London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 41, Poultry, E.C. 1.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADV7]

SPRAGUE & CO.,
 PHOTOLITHOGRAPHERS,
 4 & 5, East Harding-street,
 Fetter-lane, E.C. [ADV7]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.
METCHIM & SON (8 PRINCES STREET, 47, GEORGE STREET, WESTMINSTER).
 "QUANTITY SURVEYORS' TABLES,"
 For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADV7]

THE
French Asphalte
 COMPANY.

Suffolk House, Cannon-street, E.C.
 SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOFS, WASHHOUSE AND DAIRY FLOORS, &c., &c.

This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.
COPPER AND ZINC ROOFING.
F. BRABY & CO.

LONDON. LIVERPOOL. GLASGOW. BRISTOL.

352 to 364, Euston-rd., N.W. - 6 & 8, Hatton Garden. 47 & 49, St. Enoch-square. Ashton Gate Works, Coronation-rd.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.
NO SOLDER. NO EXTERNAL FASTENINGS.
 Particulars on Application. Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.

The Builder.

VOL. LXXIII. No. 2899

NOV. 7, 1899.

ILLUSTRATIONS.

Renaissance Architecture in Malta :	
Monument of Grand Master Carnia, Chapel of St. Catherine, St. John's Cathedral, Valletta	} Double-Page Ink-Photo.
Silver Screen in Chapel of the Blessed Sacrament, St. John's Cathedral, Valletta	
Chapel of the Blessed Sacrament, St. John's Cathedral, Valletta	
Monuments to Grand Masters, Chapel of St. Michael, St. John's Cathedral, Valletta	} Double-Page Ink-Photo.
Gate, Fort St. Angelo	
Gate, Fort Ricasoli	
Zahbar Gate, Cottonera Lines	} Double-Page Ink-Photo.
Porte des Bombes, Floriana Lines	
St. Anne's Gate, Floriana Lines	
A Font in Cast and Decorated Lead.—By Mr. G. Christopher Carter	} Single-Page Photo-Litho.
Convalescent Home, Epping Forest.—Mr. T. W. Cutler, F.R.I.B.A., Architect	
House, Wentley Wood, Yorkshire.—Mr. Horace C. Fris, Architect	
Vicarage, Epping Forest.—Mr. T. W. Cutler, F.R.I.B.A., Architect	

Blocks in Text.

The Black Bear and Bridge, Tewkesbury	Page 416	Vicarage, High Beech, Essex.—Plan	Page 474
Window Boards, &c., in St. Edmund's Church			Page 425

CONTENTS.

Fletton Brick Industry	413	Applications under the 1894 London Building Act	423	General Building News	427
18th Kensington Prize Studies	414	Renaissance Architecture in Malta	423	Sanitary and Engineering News	429
18th Kensington Prize Studies	415	Design for Lead Font	424	Stained Glass and Decoration	429
Review of Newcastle Architecture	418	Convalescent Home for Forty Children, Epping Forest	424	Foreign	429
18th Architectural Association	419	"Wentley Wood," Yorkshire	424	Miscellaneous	429
London County Council	421	Vicarage, High Beech, Epping Forest	424	Legal	431
Architectural Societies	422	Student's Column: Quantities and Quantity Taking—XVI	424	Masonry	431
Engineering Societies	423	The Institute and Examinations	425	Recent Patents	431
		St. Michael's, St. Albans New Tower	426	Some Recent Sales of Property	432
		At Geary Walker & Co. v. Henry Young	427	Tenders	432

The Fletton Brick Industry.



THE manufacture of bricks in the neighbourhood of Peterborough is so much on the increase, and bids fair to become so important, that a short account of the works may be of interest to our readers. The employment of such a large number of men as are now required in the various brickfields will, no doubt, give a fresh impetus to the trade of the old Northamptonshire town.

Travelling from London to Peterborough by the Great Northern Railway, just before arriving at the latter station the line passes through an area which is covered with brickworks, the tall chimneys of which cannot fail to attract the attention of any traveller, each with the name of the firm or company to which the works belong displayed in very old characters: so we come to learn that in this comparatively small area there are the works of the following companies:—The Fletton Brickworks, Messrs. Hicks, Gardiner & Co., Messrs. Plowman, the London Brick Company, the New Peterborough Brick Company, the Farcet Brick Company, the Yaxley Brick Company, and the Stilwell Brick Company, all in full swing trying to keep pace with the ever-increasing demand.

It seems curious to think that the men who tried to make money out of the land by agricultural pursuits should have come to regret their attempt, while all that wealth of clay underneath was only waiting to be changed into money when the necessary knowledge required for its proper treatment was forthcoming; and later, that a great portion of the top brick clay should have been used, leaving the lower bed from which the bricks are now principally made untouched. A short account of the present method of manufacture and the locality may explain this.

The district south of Peterborough, through

which the railway runs, and which is called "Fletton" or "Old Fletton" (hence the name of the bricks), has an underlying bed of clay many feet in depth; at a very small distance below the surface is the top bed, which varies from 6 ft. to 10 ft. in depth. This top bed is the plastic clay, and its under surface approximates to the horizontal: the varying contour of the ground gives the difference in thickness. Underlying this is the lower bed of shale or "knots," as it is locally termed, from which all the pressed bricks are made. This bed varies from 25 ft. to 40 ft. in depth, and is quite clean and free from sand, stones, or other matter which would injuriously affect the manufacture. Below this bed there is a layer of clay mixed in a greater or less proportion with small boulders, shells, and other debris of a like nature. As all the lime, stones, or shells have to be picked out of it for the good bricks, this lower bed has not been much used as yet. Below this it is understood there is another bed of good "knots."

However, it is with the main bed of knots that the brickmaker of the present time deals, and in this manner:—The men "bar the stuff down," that is, with a long crowbar work vertical holes in the clay in ledges all down the face of the pit, knocking the detached portions into small trucks, which are placed close to the face at the bottom. These trucks are run on tramway lines, and are connected with suitable winding gear, by means of which each truck is hauled up into the grinding shed, which is usually on the first floor of the works, the presses being underneath. The grinding shed has in it one or more grinding pans, a machine something like a large mortar mill, having the outer portion of the bottom perforated. The clay is tipped from the truck into, or near the grinding pan, which is fed by a man, and as the clay is turned from large lumps into small, about the size of coarse oatmeal, it falls through the perforated portion of the pan on to the floor; thence it is distributed by elevators, &c., to the various parts of the floor required to serve the presses below, the holes in the floor being connected with the presses,

which are directly underneath, by means of coarse canvas chutes. The presses are arranged on each side of a long building, if there are many; and, of course, in front of one side of this building should be the kiln, or kilns—or on both sides, if the works be large—as the bricks must be wheeled from the presses to the kiln, and the less the amount of manual labour the cheaper the output. The press has a hole in the iron table the size of a brick, with a bottom working up and down, and also a ram with a square head worked by an eccentric motion; the bottom is depressed, the square cavity filled with powdered clay (just sticky enough to adhere together when pressed tightly between the fingers), the square head comes down, presses the clay, and rises; at the same time, the bottom rises, pushes the brick forward on the table, from which it is lifted by a boy and placed on the barrow, ready to be wheeled to the kiln, square, hard, with clean arrises, and fairly dry. Herein lies the secret as to how these bricks can be turned out at such a rapid rate and moderate cost; it is not ten minutes from the time the clay is "barred down" until it is in the kiln, if there is not a great accumulation of clay ready ground. No time is wasted in drying the bricks on the hacks, as is usual with the plastic clay, and, of course, the long process of weathering and tempering which is in use in the preparation of many of the brick earths is not required.

Many of the old Scotch or Dutch kilns are to be seen about the works at Fletton, but they are being superseded by some form of kiln similar to "Hoffman's," the general arrangement being a large oblong building in several compartments, eighteen being a common number; these compartments are arched over, and communicate by means of flues with a chimney shaft. Each compartment has a doorway or opening at the ground level large enough to wheel the barrow in, the bricks are stacked up to the top, leaving spaces between each, and when the compartment is full the doorway is roughly bricked up and plastered over with clay, except a small opening at the bottom of

the doorway or wicket, at which a small fire is made to help to dry and heat the bricks before the regular firing is commenced, when this hole is stopped up; then the fire is fed with small coal from a hole in the top or roof, about 4 in. in diameter, the amount of fuel used being, for these bricks, about 1 to 1½ cwt. of coal per 1,000 bricks burned. With a kiln of eighteen compartments one can be filled each day and one drawn, the intermediate compartments being in the various stages of heating, burning, and cooling down.

It seems probable that the shale or "knots" possess some natural oil or gas which assists in the burning operation; this may be equivalent to the coal or cinders mixed with the clay in the case of stock bricks, as the amount of coal used appears very small.

The above is a general description of the methods adopted in dealing with the bed of shale or knots, and the bricks from it may be known by having some description of frog.

The top bed or plastic clay is ground, but in a plastic state—not dry, as in the case of the knots, water being added to bring it to the proper consistency, to allow of its being forced out of the orifice at the end of the machine in a stick or band the size of a brick on edge, about 9 in. by 4½ in. This stick or band is cut into sections by means of wires arranged in a frame, each section being a brick without any frog, and may be distinguished by the marks of the wires on each bedding face. The bricks are then dried on the hacks or in a drying-shed, or may be pressed in a machine, which gives them a better face, and also forms a frog. It is from this top bed, by the plastic process, that the white Fletton bricks are made.

The bricks, when well made, are good, being particularly well formed and hard; they have a clear ring when struck together, and are dense and compact when broken across. At the same time it is evident that unless care is taken in the manufacture they will not possess these qualities; if the shale is too dry, or if the supply to the machine be insufficient, or the pressure not enough, a poor brick with the particles not adhering to each other will be the result, having neither strength nor power to withstand the weather, particularly frost; and it appears that it would be to the advantage of the manufacturers if they took pains to turn out first-class goods, as there is no doubt that opinions vary as to the weathering qualities of the bricks, particularly as to the effect of frost combined with damp upon them. The outer skin of all machine-made bricks coming in contact with the oil or grease used in the machine no doubt helps to make a fine surface, but probably does not improve the weathering qualities. An object-lesson in this respect may be seen in some portions of the brick facing of St. Pancras Station, where the coal wharfs are, parts of the original face of the bricks having entirely disappeared within the comparatively few years the station has been built.

As regards the strength of Fletton bricks, some accurate information is given in the second report of the brickwork tests carried out by the Science Committee of the Royal Institute of British Architects, published in December last. On page 100 of the report it is stated that Professor Unwin tested two samples of Fletton bricks, one marked

"Plowman," the other without a mark, the crushing load of the first being equal to 202·7 tons per square foot, and of the second 239·0 tons per square foot. This stress is slightly higher than that given in the first report for Gault bricks, and lower than that of Leicester red bricks from Elliston. For further information on this particular point we would refer our readers to those Reports, but it seems important for the architect, engineer, and builder in general to bear in mind that single bricks, the crushing load of which will reach, say, 210 tons, will only carry from twenty to thirty tons before crushing when built in piers, or approximately one-eighth of the load carried by the single brick, the actual figures being below this for work in mortar and above it for work in cement. No doubt we shall have accurate information given as to the strength of Fletton bricks when built at the meeting of the Royal Institute of British Architects fixed for December 13 next, when the Report on the third series of tests will be laid before the meeting.

SOUTH KENSINGTON PRIZE STUDIES.

THE best practical argument in favour of the work of the Science and Art Department that has been put forth for some time is the volume of illustrations of prize designs published under the editorship of Mr. Fisher, the head master of the school at Bristol in connexion with the Department.* The object of the publication is to preserve in a permanent form the principal examples for which gold and silver medals have been awarded during the past eleven years, and "to visibly demonstrate the growth of and progress of our art schools and English practical art in general." At the annual exhibitions of prize designs the best work is rather swamped amid a great deal that is of very mediocre character; but when the best designs, to the number of more than one hundred and fifty, are collected together, the result is certainly very encouraging.

The illustrations are arranged under different classes of subject, and commence with designs for lace, which in some respects are not the most favourable examples; many of them are good designs in themselves, but are not emphatically lace designs; they are too formal and symmetrical, the lace curtain in the first plate especially, which looks more like a design for marble inlay or something of that kind; at all events, it suggests a rigid rather than a textile material. Lace should look like something thrown by a happy carelessness into a decorative form, rather than be characterised by formal lines and set design on either side of a centre. The most lace-like of those illustrated is the right hand one of the two by Miss Winsor on Plate 10, and those by Miss Jacob on Plates 15 and 16. These have a sufficiency of decorative form without stiffness or formality. The cut linen lace by Mr. Pegg, of Nottingham (Plate 22), though not what can properly be called lace, secures a decorative effect in an economical manner.

In the textiles the larger designs for printed cotton hangings, Plates 24 and 25, attempt too much, and the last-named is wanting in

motive. Miss Lomax's two designs on Plate 27 are exceedingly good, the upper one especially, which is just what a cotton print design should be, a play of floral forms with a happy irregularity of effect, which is what the character of the material will best bear. Another very good one of the same class is Miss Ashton's on Plate 31. These may be compared usefully with those on Plate 29, which are too formal for the material. Among designs for silk hangings those by Mr. Kerr and Mr. Goodwin, both of Macclesfield, (Plates 30 and 35) are good and suitable to the material. These textile designs ought to receive the attention of manufacturers who will find good hints in them, even if they do not adopt the designs. To furnish types or examples for manufacture is indeed one of the avowed objects of the publication.

The designs for carpets are nearly all suitable for the manufacture and the class of materials of which carpets are made, though presenting nothing strikingly original. Designs for wall papers follow, among which the best is the larger one by Mr. Appleyard (Scarborough) on Plate 58. The *crux* of wall-paper design is to procure the effect of freedom with a design which has to be mechanically repeated, and in this one the result is best obtained with the most originality, and it is a design which is not likely to make lines across the wall when hung; another defect sometimes not avoided by even the most experienced designers for wall paper.

Among the designs for mosaics that by Miss Caldwell, Plate 66, contains some excellent detail in the grouping of figures with foliage in that half-suggested manner which is best suited to mosaic; the twisted lines of the marble inlay (as it apparently is) which divides the design up into sections are not quite happy and rather too prominent, but the mosaic portion is really good. We observe that there has been a mistake in the naming of this and the following section, the title "Stained Glass, Figure Composition, Metal Work, &c.," being applied to the mosaic section, and *vice versa*. The section of which the title has just been quoted is perhaps the weakest; the designs for wrought iron especially are but poor and wanting in idea: some of the silver work is good. In the following section are two or three plates of studies of birds, fish, &c., with a view to decorative treatment, which may stand in the light of suggestions to be worked out further.

The life studies of the figure are perhaps the best things in the book, and the women students seem to divide honours with the men in this department, for perhaps the best is Miss Fisher's full-length study on Plate 107, unless that of a man with one knee off a seat, in the previous plate, by Mr. Gaskin may be considered to rival it. A chalk study of drapery by Mr. W. L. Partridge (Plate 122) is quite a poetic little picture, the model having taken such a graceful and expressive pose. This, and the powerful clay study (Plate 131) of a man sawing, by Mr. Watson, and the exceedingly pretty decorative modelled figure in bas-relief (Plate 129) by Miss Margaret Giles, are good examples of the degree of expression and character which may be imparted to a figure study done for practice.

Altogether, the book is one which forms a most creditable record of South Kensington work, and which ought to be procured by those who are interested in design, whether

* "An Illustrated Record of the Retrospective Exhibition at South Kensington, 1896." Compiled and Edited by John Fisher, Head Master Kensington School of Science and Art, Berkeley-square, Bristol. London: Chapman & Hall, 1897.

students or as manufacturers. We observe, however, that the book does not contain a single architectural study or drawing of any kind, although this is one of the subjects taught in the Department. We have always considered the architectural work the poorest that is produced by the University students, but whether the omission of any architectural designs is due to a perception of this fact, or to a belief that they will not be of interest to the public, is not apparent.

NOTES.

The California University Extension. THE new University for California is about to be the subject of an architectural competition of the grandest and most ambitious scale, to be open to the whole world. The object is to have a plan to which all the buildings that are to be needed by the University in future shall conform. All the buildings that have been constructed up to the present time are to be ignored, and the grounds are to be treated as a blank space, "to be filled with a single beautiful and harmonious picture as a painter fills in his canvas." The site has a superb outlook over the bay and city of San Francisco, over the neighbouring plains and mountains and the sea, and the intention is to treat the grounds and buildings together, landscape gardening and architecture forming one composition, which will never need to be structurally changed in all the future history of the University. It is thought that the architect who can seize the opportunity thus offered will immortalise himself. There will be at least twenty-eight buildings, all mutually related and, at the same time, entirely cut off from anything that could mar the effect of the picture. In fact, it is a new type that is to be created, on one design. There are to be no definite limitations of style, materials, or style; all is to be left to the unfettered discretion of the designer. There are to be two international competitions, and maps, casts, and photographs of the ground will be placed at various accessible points in Europe and America, for the convenience of architects desiring to compete. The programme, prepared by Professor Guadet, of the Ecole des Beaux-Arts, is now in preparation. It is certainly a grand affair, and we hope the result will be commensurate with the noble ambition of the promoters.

Egypt Exploration Fund. THE annual general meeting of the Egypt Exploration Fund was held last week, on the 14th inst., under the presidency of Sir Edward Maunde Thompson, in the hall of the Zoological Society. In his opening statement, the Chairman explained the circumstances which had led to a re-organisation of the American branches of the Fund, which were to be henceforth administered in direct connexion with the London office. The Treasurer reported that, though there was no surplus, the financial position of the Fund was very satisfactory. The new Honorary Secretary, Mr. James S. Cotton, read an abstract of the *Archæological Report*, 1896-1897 (published under the editorship of Mr. F. Ll. Griffith), dwelling especially on Messrs. Grenfell & Unt's remarkable discovery of Greek papyri at Oxyrynchus, and on Professor Petrie's excavations at Dêshâsh. It was mentioned that 30,000 copies of the "Logia"

had already been printed, and the demand was still continuing. Professor Petrie and Mr. Grenfell also addressed the meeting, the former stating that a statue of the period of the fifth dynasty, which is to be presented to the British Museum, was the best piece of Egyptian sculpture yet brought to England. To carry on the search for later papyri, as well as to print those already secured, a "Græco-Roman Branch" has been established "for the discovery and publication of the remains of classical antiquity and early Christianity in Egypt," of which Mr. H. A. Grueber is Honorary Treasurer, and a special appeal was made by the Chairman on behalf of the General Committee for support to this new and highly important development of the work of the Fund, from which striking literary discoveries may almost certainly be anticipated.

A new point in Greek Archaeology.

DR. WOLFGANG REICHEL, whose work on Homeric armour is familiar to all classical archaeologists and Homeric scholars, has just published a tract on "The Cults of the Gods in pre-Hellenic days" (Ueber Vorhellenische Götterculte), which opens up a new chapter in Mycæan and Homeric archaeology. From a careful scrutiny of Mycæan "finds" he has come to the conclusion that in Mycæan days the object of worship was, in the main, not the *image* of the god but his throne on which, invisible to mortal eyes, he took his seat. Schliemann himself long ago drew attention to a number of little empty terra-cotta seats or thrones found in graves at Tiryns, Mycæa, Menidi, Nauplia. A similar empty throne appears on a gold ring found at Mycæa, and is approached by three female figures with gestures of adoration. These seats, or thrones, Dr. Reichel believes, were originally altars, and it will interest biblical scholars to learn that the "ark of the covenant" is supposed to have been such a movable throne. Just such a portable throne is described by Herodotus (vii., 40), as accompanying Xerxes on his military expeditions. Again and again in his account of antiquities, preserved in very primitive sanctuaries, Pausanias notes these imageless thrones. The famous peplos of Athene was, Dr. Reichel thinks, laid on such a throne on the knees of the invisible goddess. In a word, he holds that Mycæan worship was aneiconic. His theory is supported by a mass of carefully-collected evidence, and, whatever may finally be thought of it, deserves attention.

Surbiton Municipal Buildings Competition.

THE competition for the Surbiton Municipal buildings presents one of those cases in which the clients, while accepting the assessor's choice of the three best designs, do not wish to select the one which he places first of the three. They have awarded the premiums in the order given by the assessor, but they prefer to carry out the design which he placed second. One or two very sensible speeches in opposition to this course were made in the Council, and common sense appears to be on the side of the minority; but at the same time, as we have always said, it can hardly be reasonably expected that those who are to pay for a building should give up their judgment entirely and unreservedly to that of a professional

assessor, who after all is an adviser and not a judge. The Surbiton Council have not done anything flagrantly unfair—they have not bestowed a premium on a man who was not in the running at all (as is sometimes done)—but of the three designs which the assessor considers best they prefer the one he places second; and unless the instructions included any special undertaking to abide by the assessor's judgment implicitly, we cannot say that they are going beyond their rights. They would probably have been wiser, in their own interests, if they had followed the assessor's opinion entirely, but we do not see that they have done anything that can justly be censured.

The Paris Salons finally Accommodated. EACH announcement as to the future place of exhibition of the new Paris Salons till after the year 1900 has claimed to be definitive, but we are assured that now at last the matter is settled. The appointment of M. Formigé to design the proposed new palace for the Champ de Mars Salon, though a better appointment certainly could not have been made, gave dire offence to the small knot of architects who are members of the "Société Nationale," who demanded the right to have their own design made by one of their own body. We must say that the general character of the architectural exhibits at the New Salon has not been such as to lead one to expect the best results from such an arrangement. However, in the face of this new difficulty, M. Boucher, the Minister of Commerce and Industry, has set himself to get the rival societies to come to an amicable arrangement, and it appears with unexpected success. It is now given out that the two Salons will both be held in the Galerie des Machines, but with separate entrances. This is announced as final, but whether it really is so time will show. The "Galerie" will no doubt afford an excellent light for pictures, but we should think that the space will be found very circumscribed compared with what the two exhibitions have been accustomed to fill. This, however, may have a salutary effect in restricting the admission of inferior works, and raising the artistic standard in both exhibitions.

The Millbank Estate. THE last agenda paper of the London County Council gave particulars for the guidance of architects selected to submit designs for a specimen block of dwellings for the working classes, to be erected on the Millbank Estate. We are not sure that architects will not be placed in some difficulties by these particulars, for after the assessor has forwarded to the Council such designs as he considers suitable, the officers of the Council will prepare an estimate of the cost of erecting buildings according to such designs. To this actual cost will, it appears, be added the estimated cost of the trial holes and so forth. Then an estimate will be prepared of the net receipts, which must be sufficient to pay interest at 3 per cent. on the total capital expenditure, and to provide a sinking fund of 2½ per cent., capable of redeeming the capital expenditure in sixty years. Apparently, therefore, architects will largely be affected by estimates of receipts and expenditure of which they can form little or no idea, and they must, to a considerable extent, work in the dark. The choice of the design,

in effect, will depend on many other circumstances than its actual fitness.

Accumulator Traction.

THE paper read by Mr. Epstein on "Accumulator Traction on Rails and Ordinary Roads" at the opening meeting of the session of the Institution of Electrical Engineers last week is a valuable and timely one. He takes no exaggerated views of the possibilities of accumulator traction, but gives sufficient data to show that signs are now appearing which promise a long-deferred success to the method. The two large and interesting installations of accumulators on tramcars at Paris and Hanover were described. At both these places the necessity for pulling out and pushing in heavy trays of accumulators is obviated by charging them whilst on the car. On the Puteaux line in Paris this is done during each stoppage at a terminus, the time taken being from ten to twenty minutes. The cost of working this line, which is twelve miles long, is practically the same as that of horse traction. On the Hanover line a combined system of trolley-wire and accumulators is used, nearly thirteen miles of the track being worked from overhead wires and eleven miles by accumulators. Each car carries 208 cells, which are charged whilst on the trolley part of the line, the extra cost of the accumulator traction, as compared with the trolley system at Hanover, being only one-tenth of a penny per mile. The objection to this method is that the dead weight of the batteries has to be carried on the trolley section of the track. There is plenty of room for electrical invention in this direction, the object in view being to approach as near as possible to the overhead or conduit system, and yet leave the streets as free as with horse tramways, the special method depending on local circumstances. Mr. Epstein also mentioned the uses of accumulators for electric launches, omnibuses, cabs, &c., and pointed out that the cell of the future for rough work would probably be of the solid plate or Planté type, which, in some cases, has shown no deterioration after twelve years' working.

It is satisfactory to find that some practical steps appear likely to be taken to remedy

the present unsatisfactory state of things at Dover Pier. The railway authorities have, it is stated, had an interview during the last few days with the Harbour Authorities, with a view to arrangements for a new station and we presume better landing accommodation. The Dover and Calais route, by reason of the short sea passage, must always be the best way between France and England, but, on the other hand, by reason of their cheapness and better accommodation many passengers follow other routes. It is desirable, therefore, even from the point of view of the railway companies whose systems touch Dover and also Calais, that the greatest facilities should be given to passengers. In a sense, also, it is an international duty that the accommodation at Dover should be improved so that people may pass between Paris and London with as little personal discomfort as possible.

The annual Report of the Birmingham Architectural Association records the regret of the Council that the meetings have not

been better attended and the discussions better carried on; a difficulty which seems to be felt both in London and the provinces in regard to architectural meetings. The work done at Mr. Bidlake's class at the School of Art is reported to be satisfactory, though the Council would have wished more members of the Association to have availed themselves of it. Among other things the Association has had under consideration a communication from the Town Clerk with regard to the advisability of some suggested alterations to the existing instructions to the Committees of the City Council, with regard to the payment of wages under contracts executed for the Council. The points under discussion were (1) the construction within the district (where possible) of all works included in the contract; (2) the execution of the whole of the work in the contract by the contractor direct, any work he could not undertake to be contracted for separately. The Association, however, did not see the desirability of making the alterations, and were of opinion that they would tend to create difficulties in the execution of work. The Report is accompanied by some sketches of old work by members, one of which we reproduce.

THE collection of water-colour drawings of Jerusalem and the Holy Land by Mr. Harper, now on view at the Society of Fine Arts Gallery, is not only of great topographical interest, but also (which is not always the case in such collections) contains many drawings of very fine artistic quality, and valuable on this account alone. Among these may be mentioned the view in the Valley of Hinnom (36), with its fine treatment of the sky; the sketch of a "Storm Passing over the Mountains of Moab and the Dead Sea" (39); "Sunset in the Olive Groves of Bethlehem" (46); "In the Via Dolorosa, Jerusalem" (14); "A Bit of Old Jerusalem" (16) seen in bright light from under a dark archway; and the view of the "Straits of the Dardanelles" (86), a fine broadly executed drawing with a grand sky.

THIS house, formerly occupied by the late Sir Andrew Clark, Bart., and standing at the west end of the square's north side, will be offered for sale at the Mart on the 29th instant. It marks the site of one that had been tenanted in turn by the Princess Amelia (George II.'s daughter); the Earl of



(From one of the sketches attached to the Annual Report of the Birmingham Architectural Association.)

Hopetoun; the Hopes of Amsterdam; Watson Taylor, who there gathered his famous collection of paintings; and Viscount Beresford, the victor of Albuera. The sister-house at the corner of Chandos-street was pulled down in 1892-3 for a block of flats; it is depicted in T. Malton's aquatint of the square, published on July 28, 1801. The two houses, both of red brick, and the same handsome elevation, formed the wing of a mansion which the "Grand" Duke of Chandos intended to erect on the north side of the square, where are now the two stone houses, since subdivided as Nos. 11-14 designed, some say, by John James, of Greenwich. The design of the two brick wings is attributed variously to James and Edward Shepherd. In the King's Library British Museum, is a print by H. Hulsbergh inscribed to the Duchess, and lettered thus:—

The elevation of a new house intended for His Grace the Duke of Chandos, in Marybone Fields. Designed by John Price, architect, 1720.

Price's elevation does not include the two wings we mention. It shows a mansion of two floors and an attic story carrying urns and four statues; the two narrow wings stand upon rusticated basements. A range of steps extends between the wings, giving access to the shallow portico. The whole elevation, with columns and pilasters, and eleven windows in a row (four being in the two wings), is somewhat similar to that of the second Powis house in Great Ormond-street, built, it is said, at the charges of Louis XIV., and pulled down in 1773, as it appears in H. Terason's print of 1714.

THE landscapes are the best portion of the contents of the New English Art Club Exhibition at the Dudley Gallery. Some of the best of them are only to be called sketches, but very effective as such; Mr. Brabazon's "Murcia" and "Canal near Amiens," for instance (7 and 13); and Miss Hogarth's sketch of Lincoln Cathedral (21), a much better architectural sketch than one usually sees from the hands of lady artists, who do not generally take kindly to architectural subjects. Mr. Bertram Priestman's "Autumn Cloud" (89) and "Under the Chestnuts" (93) are also fine studies of effect, the former especially, and Mr. Wilson Steer has got the effect of light through the foliage of "An Oak Avenue" (105) very well. Among more finished works Mr. F. Brown's "A Coming Storm" (75) is noticeable for the powerful manner in

which he has realised that effect of glint high light on the trees which one often sees before a thunderstorm, in contrast with the blackness of the sky behind. Mr. Francis Bate's "An Oat Field" (42) is a work with a great deal of feeling and originality. Some of the larger works may be described as ghosts of landscape pictures, such as Mr. Conder's "Sea View" (33), a ghost of a dream sea; one cannot help thinking that it is rather easy to produce a kind of suggestion of landscape when so much is left to the imagination of the spectator. The most preposterous thing in the gallery (and there are some very preposterous ones) is "Church of the Barefoot Friars" (10) by Walter Sickert, a kind of scrawl which is astonishing that any one should venture to hang up in an exhibition. To call such a thing a drawing is fooling the public to the detriment of their bent.

MM. Albert and Henry Guillaume, sons of the former architect to the Louvre, have compared two new "projets" for the 1900 exhibition at Paris, which have received official approval. One is a plan for a large auditorium on novel lines, which is to be an architectural entrance decorated with a figure of "Amphitrite" by M. Lhuillier. The other is a marionette theatre to reproduce in miniature scenes in modern Parisian life; the auditorium to be designed by M. Henri Guillaume and decorated by M. Albert Guillaume and Georges Picard.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of this Institute was held on Monday, at No. 9, Conduit-street, Regent-street, Messrs. Aitchison, A.R.A., President, occupying the chair.

The minutes of the previous meeting having been taken as read, Mr. Arthur S. Flower, M.A., A.R.A., read a paper entitled "Notes on Renaissance Architecture in Malta, with Special Reference to the Buildings of the Order of St. John."

In introducing his subject, Mr. Flower alluded to the ignorance and erroneous impressions that generally prevailed about Malta among English people, and to the scant regard for the island by architectural writers. Small as was, Malta teemed with huge buildings, product of centuries of activity and ambition. Churches, palaces, castles, possessed a character unusual, striking, commanding, which drew it to the lecturer's mind once of the most interesting spots in Europe. The island was composed of one solid block of almost perfect dry stone. A house might be built from stone cut out from its own cellars, a fortress in its own moats, a cathedral from its crypts. It was the one material employed in buildings, and was extensively used for other many novel purposes. It might be described as a mason's earthly paradise. The inhabitants seemed to be born masons.

No higher testimony could be given to the duty and interest of the buildings than the enthusiasm they aroused in the cultivated and critical mind of the late Dean Church, who thought Valletta one of the most striking specimens of architecture he had ever seen. Some interesting passages from the Dean's published letters were quoted, describing his first view of the capital, and of the general aspect of the prior of the island.

Besides the ethnological and geological conditions, the politico-religious influence exerted by the Knights Hospitallers had been an important factor in the architectural development of the city. Its architectural splendours were chiefly due to them. Relics of former rulers—so-called Phœnician remains, fragments of Greek and Roman structures, various beautiful designs of Sicilian-Norman influence—the lecturer passed over as belonging more to the history than to architecture. His purpose was to deal with buildings still in regular occupation and use, belonging to a style most conveniently to be described as Renaissance.

These were erected during the palmy days of the Knights of St. John, from the beginning of the sixteenth to the beginning of the eighteenth century. In explanation of how they came into existence, the lecturer briefly sketched the history of the Order, and the various vicissitudes it passed through from its foundation in Jerusalem early in the eleventh century till its establishment in Malta. This happened in 1530, when the Maltese islands, at that time little better than desolate barren rocks, were ceded to the Hospitallers in perpetual sovereignty. Fear of Turkish attacks compelled them to devote their first years to necessary fortifications, nearly all to be reconstructed after the great siege of 1565, when the Turks were finally repulsed. The creation of Valletta, a city which suddenly sprang up on a very unpromising site, never before occupied by buildings, was entirely the work of the Grand Master, La Vallette. The first stone was laid on March 28, 1566, at the corner of St. John's bastion, La Vallette taking up his abode in a wooden hut on the spot, and directing operations day by day until his death in 1586. Del Monte, the new Grand Master, took equally great interest in the work, beginning his term by announcing that no one should enjoy his favour who did not promote the building of the city. At La Vallette's death nothing had been built except the outer fortifications. The first house, interesting as forming the nucleus of the present Governor's Palace, was built by the Grand Master's nephew, Eustachio del Monte, in the centre of the high ground, on the place occupied by one of the Turkish batteries during the siege. In the next year, 1570, the designing of all the works, military, civil, and even ecclesiastical, was entrusted to Gerolamo Cassar, a very remarkable man whom a document, dated May 18, 1581, refers to as the "ordinary Architect and Engineer of the Order. . . from 1565 to 1581." The most notable of his numerous works was the Church of St. John. In 1571 the headquarters of the Order were transferred to the unfinished city.

The lecturer then gave a detailed description, illustrated by numerous photographs and specially drawn plans, of St. John's, Valletta, and other buildings and architectural features of note in the capital and other parts of Malta. The Great Hospital was one of the first buildings erected by the Knights, and always maintained on a lavish scale of expenditure. It is noteworthy as containing the largest ward ever built, 503 ft. long by 35 ft. wide, with a shorter ward of the same width leading out of it. Valletta alone has twenty-four churches, many of them splendid buildings, besides chapels and oratories. Outside Valletta, in the suburbs and country villages, there are still greater number of churches, together with almost innumerable detached chapels. The latter are mostly octagonal on plan, and domed, with very graceful outlines. The larger village churches have usually two western towers and a dome at the crossing. The dimensions of two typical churches, both dating from the seventeenth century, are:—Zeitun Church, 153 ft. long and 111 ft. broad, including side chapels, with a nave 31 ft. wide; and Zebbug Church, 165 ft. by 122 ft., and 32 ft. across the nave.

Città Vecchia, or Notabile, originally the chief city of the island, and the scene of St. Paul's sojourn there, is exceedingly picturesque. Its Romanesque cathedral was destroyed by an earthquake about 200 years ago, and the present building, of which Lorenzo Gafà, a Maltese, was architect, was consecrated in 1702. Noteworthy are the nave, upwards of 36 ft. in span; the carved and inlaid choir-stalls, said to date from 1480; and the gorgeous altar ornaments and other treasures which escaped pillage by the French in 1798.

The lecturer concluded with a few remarks on the characteristics of the architecture of the Order. The term Palladian applied to it by Dean Church he considered inappropriate; it was more akin to early Florentine Renaissance than to any other type. With regard to a suggestion made by Mr. Ingress Bell in "An Architect's Notes in Malta" (*Builder*, March 28, 1885), that Spanish architects in great numbers were employed upon the city of Valletta, which he thought accounted for the similarity between the architecture of Malta and that of some of the Belgian towns, the lecturer, while granting the resemblance to Spanish work, particularly in ornament, could find no evidence of the actual presence of Spanish architects. Whence-

soever derived, all the buildings of what might be called the heroic age of the Order were exclusively Doric.

Colonel Prendergast, in proposing a vote of thanks to Mr. Flower, said that the material which the builders had had at their disposal could be almost manipulated like chalk, and it lent itself to decoration not merely in the soft, but it hardened with exposure, and became a most charming decorative material to deal with. The church of St. John was out of proportion, but it had been skilfully dealt with, and it was magnificent in appearance. The Maltese architects deserved the greatest credit for having dealt with the matter so skilfully. Look at what the church was. The building was not erected in order to be a pretty church; it was built for a specific purpose, viz., that there were half-a-dozen or more *langues*, which were lodgings of the Order, whose business it was to deal with the work from the different countries. The church was merely a series of chapels; the *langue* of each country had its chapel, and it had a barrel vault put over it, and the *raison d'être* of the whole thing was this series of chapels. The architect being a local man, had not very far to go, for at St. Elmo there was an Early Renaissance building, and of considerable character in its way, without the heavy cornice which Mr. Flower seemed to think necessary. The architect simply carried out that idea on a larger scale.

The Rev. W. K. R. Bedford, in seconding the vote of thanks, said that, knowing Malta as well as any Englishman could possibly know it, he could endorse most heartily, and very highly appreciate, the admirable remarks contained in the paper. In regard to the roof of the church of St. John, it was, of course, original. A great deal of the church of St. John was much more modern than Cassar's day, because an architect of the time of Charles II. lavished a very great amount of trouble on that church, and they would find signs of that all over it. Most of the ornamentation dated only from 1660 or thereabout, but the roof, and the construction of the roof, was due to the original architect, and was part of the original plan. He ventured to suggest that the genesis of that came in this way. Close by the photograph exhibited of the little chapel in the foss of St. Elmo there was a photograph of another small church, and that small church was older still; it was the small church at the top of St. Angelo, dating from 1530 or thereabouts. There they saw a much more decided Gothic pointed arch feeling, but nevertheless the two buildings still preserved a certain family likeness. Whether the church at the top of St. Angelo was later or not he could not tell, but he thought they might take that as the first building of the Knights in the island. The little chapel in the foss of St. Elmo, in its lines was just as it was originally built. It was decorated in 1636. As seen in the photograph, it appeared after the redecorations in 1636. As to the church of St. John, the same principle actuated the architect, and there Cassar was no doubt influenced by what he already found there. Subsequently to the first production of Valletta, when Italian influence prevailed to a great extent, there were two great waves of reconstruction which passed over the fortunes of the Order. The Spanish Grand Masters, and there were several of them in succession, brought in Spanish ways, and they could find Spanish balconies affixed to Italian buildings. There were one or two very interesting examples of that in the hotels (some of those buildings erected by individuals were called hotels) and there would be seen very plainly the Spanish influence. In these cases the houses were Italian buildings with a Spanish balcony attached to them. Another century elapsed, and the last Grand Masters, Spinto and De Rohan, erected some very handsome buildings, more in the French style, and so they had the various nationalities one after the other impressing in some degree their artistic feeling upon the buildings of the Order. He would ask all Englishmen who cared about architecture to take note that, most undoubtedly, there was now another wave of reconstruction. He was sorry to say that as the cases of the fine old courtyard buildings fall in—not those used as public offices, but those let as dwellings—they were being turned into flats; the courtyard was being filled up with bad stone (for there was bad stone in Malta), and he was sorry to say that the era of jerry-building had set in in Malta, and he hoped that influence would

be brought to bear in order to stop that if possible.

Colonel Hogg, Commanding Engineer for some years in Malta, said that during the time he was in the island his corps supervised the construction of a range of barracks out in the country about a mile to the northward of Città Vecchia. The great difficulty which arose in the minds of the officials in London seemed to be to agree upon the designs which his corps were to work at in Malta. His corps wished them to agree to projects which would really and truly stand the test of time, and harmonise with the splendid examples they found. The proportions of barracks, of course, would have little or no relation to the proportions of churches, or palaces, or the habitations of Knights, but the external appearance, not only in the outline and general form, but also largely in detail, of ornamentation and general appearance, was a matter of deep concern. The view held in London, which they had to carry out, was not so much to follow the antiquity of the thing, but to try and get something carried out which would harmonise more with buildings which were perhaps more in favour in London.

Mr. Thomas Blashill said there was a book which was very popular some thirty or forty years ago, by Elliot Warburton, which contained a description of an old town outside Valletta. Perhaps Mr. Flower, or some other gentleman who has seen Malta, could tell him something about it. His recollection of it was that the town was very ancient, containing fine old buildings, but quite deserted.

The Rev. W. K. R. Bedford said the words in the work were, "It reminded me of a city of the dead." There were a great many fine houses in the town, which was Città Vecchia. A great part of it was Sicilian-Norman architecture, but the houses were all in courtyards, and they had no windows looking to the outside, so that when one walked along the lanes the whole place appeared to be deserted and dead. There was that peculiar little cornice about halfway up, with little corbels all along, and there was also always that Sicilian-Norman arch. It was a walled town, and he should imagine that there were six or seven streets of this character.

The President, in putting the vote of thanks, said he had never been to Malta, but the whole of this subject, as treated by Mr. Flower, was excessively interesting, both from being a city in Europe which was partly cut out of its own stone, and partly built from that which was cut out, like some of the Egyptian buildings, and also from the particular style. There was also another point which was certainly interesting—viz., that all the ornamental work that had been done was done by the masons themselves from the mere pride of showing the skill and knowledge they had. The masons even to this day prided themselves on their skill, and did not look to be paid for that, but merely exercised it as showing the great skill they had in doing ornamental work. It was a kind of skill and a kind of pride that he was afraid must be almost extinct in any other part of Europe. He thought it was Théophile Gautier who said that if they saw a beautiful basket, or a beautiful mat, or a beautiful drinking cup, they might be almost sure it was made by savages who were probably cannibals, and if they saw anything that was extremely ugly, hideous, and repulsive, then it came probably from the most highly-civilised nation in the world. The so-called savages had been more in the company of Nature, and had taken more lessons from it than the more highly-civilised people do. The plan of the church of St. John reminded him very much of San Francesco at Rimini, which Alberti turned from a Gothic church into a temple of the fifteenth century. There it was, a large nave with chapels, only the division between the chapels was wider, because on one side it was made into arches which nearly rivalled the Roman ones in magnificence and simplicity. The plan was merely a nave with the chapels in place of aisles, only that there was a transept to it, and over the crossing transept and nave there was a dome. Of course the character of most of the work, which was late sixteenth century, was not unusual in Italy of that time, but this particular chapel of St. Elmo was a remarkably splendid example of the Early Renaissance. There was a delicacy of treatment and a peculiar character which marked these early sculptors, who turned architects and gave us the benefit of their original conceptions and the slight tinge of classical skill that they had, and which of course struck us as

being perhaps the most beautiful things that were ever done since the Greek day, because there was a kind of freshness about it that, together with the consummate skill which they showed, had never been repeated since. The Early Renaissance men were certainly men of such extraordinary power that we did not come across persons like them in the present day, and the only man he ever knew that one could compare with some of the great Early Renaissance artists was the late Lord Leighton, who was, like them, equally good all round. These men had become accomplished sculptors when they were almost boys, and it was mostly after that time that they took up architecture; so that if anybody ever expected to see architecture in a certain way that had the merits that the Early Renaissance architecture had, of course he must expect to go through the same training. First he should be apprenticed to a goldsmith, and after he had learned all that he could teach him he would turn a painter probably, or turn sculptor; and after he had mastered all these arts, then he would turn architect, and all this skill, this deftness of hand and this extreme knowledge and delicacy of treatment, he would put into the architecture that he manufactured. Of course it was not our idea of architecture at all, but still, as far as beauty went, if they could shut their eyes to the utter want of anything that they called architectural skill, that was meeting the wants with the exact amount of materials that were required, and putting them in the exact place. Here was a specimen that, as far as he knew, had never been seen in Europe before—the wonderful treatment of the chapel at St. Elmo. The others were very fine, but of a much later date. The vote of thanks was then put and carried unanimously, Mr. Flower briefly replied, and the meeting terminated.

The next meeting (Business) will be held on the 20th inst., for the election of candidates for membership.

A REVIEW OF NEWCASTLE ARCHITECTURE.

THE following short but interesting review of the progress of architecture in Newcastle-upon-Tyne during the present reign is from the inaugural address of the President of the Northern Architectural Association, Mr. Frank W. Rich, at the meeting on the 17th inst.:

"It may be interesting to glance hurriedly with an architectural eye over the famous sixty years, and see how Newcastle-upon-Tyne comes through the ordeal; to see whether our architecture has anything to say for itself over this period. There may be possibly none of us here who can recall Newcastle sixty years ago. We must therefore go back to records for a few years.

In the year of her Majesty's accession Newcastle would wear an entirely different aspect to Newcastle of the present day. The boundaries of the town at that time might roughly be taken to extend on the west to the west-end of Thornton-street; on the north to Leazes-terrace; on the east to Ellison-place; and on the south to the River Tyne. It is easy to compare this with its present dimensions. It is, however, quite outside the intention of this address to give any statistics as to population, number of houses, length of streets, &c., but merely to glance at its architectural quality. The growth of the city is not due to architecture, but to the great commercial spirit that is now upon us. Architecture is the handmaid who attends upon all great epochs, marking down in granite, marble, or stone the aspirations of the people who at that particular time guided the destinies. It was so in Egypt of old, India, Assyria, Greece, Rome, and of that great cathedral-building age from Constantine to the fourteenth century, and others, with many modifications; and so it is with our city, but in a modest way. True, we have no enormous temples, triumphal arches, forums, colosseums, and the like, but we have evidence of a determined individual energy, which has wakened up the old place into being one of the busiest and most prosperous cities of the kingdom.

There are two broad circumstances which may account for this prosperity: (1) The district is celebrated for its great mineral wealth; (2) the birth of the railway system, this latter circumstance being most intimately associated with this district; and here we have the starting-point of my remarks.

Newcastle, a little previous to the time we start (1837), was but a moderate sort of place,

sleepy in a way, something like the keels that used to glide down the Tyne at high tide with their heaped-up cargoes of coals as compared with the present craft. There was the castle, the older churches, All Saints, St. Thomas, the Assembly Rooms, and a quaint old place it must have been, and crammed full of history. But at this anterior period to the great epoch under review there was born a man who was destined to work a transformation of the old place, one of those men of indomitable will, one of those great captains of industry for which Newcastle is so justly celebrated—I allude to Richard Grainger, sometimes called the architect of modern Newcastle, a position to which I don't think he ever aspired, but to which I don't think he ever aspired, but who had the good sense to call to his aid the architects of his native town, and to imbue them with the enthusiasm of which he possessed so large a store. He must have been a bold man, and a shrewd one. His plans were most ambitious and gigantic, and his architects responded to the call, as, indeed, all men of art have done at all times when not beset with hampering circumstances.

Grainger was well on with some of his schemes at the time of her Majesty's accession, and the making of the great railways may be said to synchronise with this.

After these preliminary remarks we may now look at some of the architecture of modern Newcastle, of that coming within the famous sixty years, and see what account our friends, living and dead, can give of themselves.

As a means of better realising what I am about to say, we may imagine ourselves arriving by train at our Central Station. Here we are at once confronted by a famous building, the work of our first President—a building designed in the very beginning of the railway system, when no one could foretell its gigantic growth; yet to-day this building is as useful as on the day it was built, while other stations in Britain have become obsolete, and swept away to give place to modern structures. Coming out into Neville-street, we obtain a fine view of the station, a building, from the Clock Tower to the west end, full of dignity. It is a matter of regret to us all that the original majestic design for the portico (which now hangs in the vestibule of the Museum of Natural History) was not carried out instead of the existing portico, and an equal matter of regret that the eastern extension of the station should not have been carried out on the lines of the original design, instead of the sort of coal depot roof lately erected. For these matters the directors must be blamed, and ought to be heartily ashamed of themselves. I make this remark because I believe it echoes the view of all architects, and also in defence of the able man who designed the original building.

The view from this spot as a 'townscape' is somewhat unique. In looking to the east, we bring in the view Collingwood-street and Mosley-street, up to the Arcade, and in which the famous tower and spire of the Cathedral groups well.

Looking in a more northerly direction, a similar view is obtained of Grainger-street, with the domes of the Exchange and equally admirable monument to Earl Grey, closing the vista.

We may now walk down Neville-street, and in doing so, one cannot forget the change that has been effected in so short a time. One can remember Neville-street so well before Grainger-street was cut through, when all the buildings round about were old-time buildings, and now nearly every one of them is new. The street, as we all know, is a very spacious one, broadening out very considerably at the monument to George Stephenson, and, with the modern buildings now erected here, forms a fine entrance to a city, which will be difficult to beat. The entrance into London from King's Cross is shabby compared to it, as is the case in many of our principal cities. The buildings from the Douglas Hotel to the offices of the Standard Insurance Company are all modern business premises save one, and on the other side of the street is the very large hotel lately erected by the North-Eastern Railway Company. The Union Club faces us as we proceed, forming a fine group with the offices of the *Newcastle Chronicle*, and the offices of the Union Insurance Company. The mention of the offices of the *Chronicle* reminds me of my younger office days, about thirty years ago, when this building was designed by my old master, Mr. Parnell, a member of our Association. Before that time it was the town house of Dixon

ixon, of Unthank. To the south, where once stood the picturesque old Westmorland House, we have the offices of the Coal Trade, a very fine design by our ex-President.

We now enter Collingwood-street, which, then I knew it first, was entirely residential. It is now something like the City of London, a street of residents. The building that chiefly attracts our attention is the very fine Bank, lately erected by Messrs. Hodgkin & Co. It is a stately and thoroughly gentlemanly building, and reflects the greatest credit on a lamented colleague (Mr. Robert Johnson), and the liberal-minded directors who allowed him 'rope.' A fine block opposite, the offices of the Northern Assurance Company, is by the same artist. Must not forget a small building to the east of the Bank, which was designed by Mr. Parnell, and was the first break into the residential quality of this street, and for many years stood high above the rest of the buildings. We now come to St. Nicholas-square, where the 'townscape' again is very fine, and we are tempted to describe it; but we must confine ourselves to buildings coming within the limits we have allowed ourselves. On the one hand, we have the Town Hall buildings, stretching from the square up to the Bigg Market, occupying the site of some very quaint old houses, which I remember very well; and, on the other, the street called the High Level Approach, a very extensive range, the High Level buildings (the work of Mr. Parnell), and opposite, a picturesque block of offices by a past President (Mr. John Johnston).

Coming into Mosley-street, and proceeding half way, we come to a famous corner, one that would be difficult to equal in any provincial city.

At this particular spot, the meeting of Mosley-street, Dean-street, and Grey-street, is a good for contemplation, as each corner presents something worth seeing. At one, the National and Provincial Bank, by the late John Gibson; at another, the new building of the Prudential Assurance Company, by Mr. Waterhouse; and at the corner of Grey-street we have the start of what we call the Grainger buildings, which we will notice further on. At the head of Mosley-street stands the Arcade, one of Grainger's ambitious projects, and a stately termination to the street.

Passing down Dean-street and under the very fine arch which carries the North-Eastern railway, a credit to engineers; one wonders why they did not carry the railway on one of the terrible utilitarian structures they delight in, floating like a spider's web and proportionately ephemeral; but this is a good honest arch. Passing under this, one sees on all sides new buildings by colleagues yet amongst us, and many by others gone to their long home. At the angle of the Sandhill stands the very fine offices of the Royal Insurance Company, designed by Parnell, and further on the huge commercial buildings of Lombard-street, Green-street, King-street, the Sandhill, &c. While we are at the riverside, we might from the quay look for a moment at the High Level bridge, one of the most architectural engineering bridges in the country; its design may be obsolete, but it far and away excels the terrible wrought-iron bridge a few hundred yards further west, which may be said to be entirely devoid of the faintest æsthetic design, and an insult to our time. Coming back to the foot of Grey-street, we now tackle by far the greater portion of our task, for we now start with the noble buildings of Grainger and his architects. One might write a volume in describing the numerous and varied buildings in this range, but we must content ourselves with a very cursory glance. Taken altogether they form one of the most extraordinary instances of any building ever conceived and carried out by one man. Within a year or two, they all practically fall within our period.

The buildings in Grey-street, Shakespeare-street, Market-street, Hood-street, Grainger-street, Nelson-street, Nun-street, and Clayton-street yield a quantity and quality that should satisfy the most exacting.

As I said before, Grainger had the good sense to be guided by experienced architects: hence we have the buildings well designed, which means both in detail, grouping, and in being useful. There are, especially in Grey-street, buildings of the finest Renaissance design, where students will find a wealth of material, and it must not be forgotten all these buildings are of genuine stone, not stuccoed and painted, and when newly built, clean as they came from the

hands of the mason, and seen in a brilliant sunshine, they would, indeed, resemble a veritable palace of architecture—a rebuilding of Rome.

To describe them all is out of the question, but we may just glance again at Grey-street, and the best view is to be obtained at the junction with Mosley-street. Here the full and graceful proportion of the whole is taken in, but not quite at one view, a circumstance which adds to the charm, for Grey-street not only ascends with a gentle gradient, but bends proudly away to the right with a noble sweep, passing on the way the Bank of England, the Theatre Royal, the group of the Exchange, with its finely designed domes, Lambton's Bank, and terminating with the monumental column in memory of Earl Grey. They are familiar to us, but possibly, like the prophet in his own country, not sufficiently appreciated. So subtle is the design of this street that while rising and curving no harsh or abrupt treatment can be observed: each building, though separately designed, falls into one harmonious group.

We may now leave this mass of modern buildings, and may safely say they stand a lasting monument to the genius of Richard Grainger and his architects, Dobson, Green, Wardle, and Walker.

Grainger-street West has not yet been mentioned: it is a comparatively new street built since Grainger's days, and entirely by individual owners, the buildings being designed in every case by local architects, the result being a great diversity of design from the tail end of the Gothic revival down to date. I might also mention the new offices of the Water Company and of the Gas Company.

I should weary you were I to name every important building in Newcastle that has been erected during the famous sixty years. My list, I am afraid, is but half complete; but I think I have enumerated enough to show the enormous mass of commercial buildings that have been erected here in this period from the designs of our colleagues.

PERTH ARCHITECTURAL ASSOCIATION

The following is a portion of the inaugural address which, as mentioned in another column, was delivered at the opening meeting of the new Architectural Association of Perth, on the 9th inst., by Mr. Hippolyte Blanc, of Edinburgh, who had been invited by the Perth Association to deliver the first address given there.

After some remarks on the special occasion which had called them together, and on the objects of such an Association, Mr. Blanc continued:—

"In these days of stirring and rapidly succeeding events, when medieval quiet is unknown, when commerce—the necessary forerunner of all art—almost overwhelms it, we find the artistic pale crowded up to by hosts of youths, whose education is very far short of the requirements for an architectural career. As an open profession it is entered by many whose sole introduction is from an artificer's workshop, where a knowledge of the divisions of a plan is all they have acquired. The commercial spirit unfortunately is strongest in them. Love and devoted study are mostly unknown to them. In time we may find them advancing to public notice by some eccentric piece of composition. But eccentricity (often mistaken for originality) is not art. They lack the first essentials—a sufficient preparatory training—and are in consequence deficient all their lives in their efforts, which are full of academic defects. All the knowledge that can be acquired will, of course, never make an artist, but it will at least prevent the errors and anachronisms which betray the untutored hand.

What is therefore required is that before a youth proceeds far on an office career he should have his mind directed to the theory of architecture, from the study of which he might soon be expected to form a correct judgment of beauty, and to those fundamental laws, the observance of which may prevent his falling into many offensive errors against good taste. There are some rules which may be disregarded without rendering a work defective, but which, if applied, will not fail to make a work more beautiful. The essential rules are those which guide to regularity, symmetry, and order in composition; without which attributes a design can never be pleasing. The possession

of these alone, however, is not sufficient, for the work can only be made beautiful by a justness of proportion of appropriate subordinate decoration of parts to a whole. Theory teaches this law of harmony, the guiding rules for which are unalterable. Study and hard work are the only routes by which these qualities are reached.

To Ruskin's mind there are two leading qualities which distinguish great artists—imagination and industry—and he tells us he never knew a great man who was not industrious. Imagination is a high gift, though it cannot be boasted that many artists possess it. But industry has promised to it great rewards, and its exercise is within the power of all.

Artistic feeling must not be confounded with imagination. Where the one is found the other may be entirely wanting. But we must not venture further on this branch of our thoughts.

What more concerns us, having formed this Association, is the manner in which it can be made helpful primarily to young members to the architectural profession; and, secondly, to the public who interest themselves in art matters.

In a survey of this inquiry, the fact at once confronts us how varied are the qualifications required of an architect! How much patient study is required to master them! This can only be realised by those who have had experience. Everything within the range of sight or thought or conception comes under the practice of an architect, and is capable of exciting a sympathetic chord in his artistic nature. But all must recognise the brevity of life, and, therefore, in his inability to know everything thoroughly, the architect should take care that he masters well what he does study.

There is no knowledge of which a portion will not be either necessary or useful to him as an architect. His profession embraces the whole body of the sciences, and that body is still being added to. Many centuries ago Vitruvius instructed that the architect "should have a knowledge of letters, be expert in drawing, learned in geometry, not ignorant of optics, instructed in arithmetic, and well read in history and philosophy; have an understanding in law, and be versed in music and physics." To these modern evolutions have added heating and ventilating, chemistry, sanitation, electric-lighting, and many other subjects.

There is enough in all this to stagger the most enthusiastic student; but it is obviously not intended that an architect should be an expert in all those branches. He should, however, have such experience of them that in the interests of the public he, if calling himself an architect, should prove himself competent to design a building that shall at least be sound in construction and healthful without extravagant waste of material.

In the adornment of a geometric framework architecture should primarily be faithful to the dictation of the construction. A building which disregards that first principle can never take a higher place as an addition to art than do the fanciful architectural delineations of the scene-painter. Their weaknesses are manifest; they may be painted, but can rarely be built.

You will rightly infer from this that architecture is a definite art, much more so than her sister arts of painting and sculpture. It is in the decoration of the forms of the building that the art is expressible. The art expressed by the lines of the human form is of universal acknowledgment; and there it would be impossible to trace one line, or a part, which is not of exquisite beauty, or which is not, above all, the truthful exponent of an essential part of the severer skeleton frame which is thus clothed. Nothing is there but "tells the bones within," and to each part is given the most perfect artistic delineation. Decorative art is thus always acceptable when it is constructive; that is, when it regards architecture as the parent, and so the basis upon which to superimpose that art.

Now, how are all these requirements to be most readily attained by the student? May I especially add, by the provincial student? For the metropolitan has within easy reach all the machinery in active operation under most favourable conditions, while those confined to the provinces have not the same advantages.

The only way is, first, by a course of well-directed study, and second, by concurrent office practice during a specified number of years. I recommend five years at least. Let us

inquire what systems of teaching our neighbours offer. On the Continent, in France, so long ago as 1671 a Royal Academy of Architecture was founded. It continued in operation, with an admirable system of lectureships and classes for practice, till 1793, when it, along with other academies in France, was suppressed. For a while after the thread of instruction was continued by private efforts.

A new school was instituted under Louis XVIII. (as part of the Institute of France, and composed of five academies). The professors formed a general assembly and controlled everything, though it was a State institution. In 1864 the school was separated from the Academy of Fine Arts, and was made a distinct institution under State control, with a council composed of painters, sculptors, architects, and engravers in equal numbers. At this time the State established in connexion with the school nine ateliers, three for each of the branches of painting, sculpture, and architecture. Here is a list of the subjects of study for the architect:—Ornament, Mathematics, Descriptive Geometry, Perspective, Stereotomy, Physics and Chemistry, General History, Construction, Building Legislation, History of Architecture, Anatomy, Decorative Composition, Theory of Architecture, Literature, History and Archaeology of Arts and Esthetics.

For architecture there are two classes, entrance to the lower of which is obtained by the applicant passing certain preliminary tests in ornamental drawing and design prepared *en loge*; that is, within a separate apartment.

The student afterwards goes forward to the more advanced studies, and finally enters for the prizes at the Ecole des Beaux-Arts. The work is adjudicated upon by a jury of architects only. A diploma is awarded to the students who have shown their competency. The great prize, a gold medal, is that known as the Grand Prix de Rome. It is open only to Frenchmen under thirty, whether students at the school or not, and entitles the holder to an endowment for study during four years in the Academy of France at Rome. The competition is usually great and the tests are very exacting.

As I have already observed, all this will not make an architect artist, but it will at least give an academic value to an architect's work, which, as viewed in some Continental cities, is sometimes criticised as monotonous, but is at least free from the crude expressions of untutored essayists, who venture beyond their ability and vulgarise with eccentric novelties parts which their eyes and intellect have not been trained even to proportion. For my own part, I would rather have the so-called monotony of the Parisian boulevards of Baron Haussmann than I would have the uninteresting polyglot of modern architectural forms that may be seen in some otherwise beautiful districts of our cities.

While the architecture of those boulevards is perhaps tamely uniform, it is genteel and free from vagaries, and, above all this, no one can say the French schools have not produced artists.

In Germany the system of training is different from that carried out in France.

The German aspirant to an architect's career leaves the university with a good knowledge of drawing, mathematics, and physics. He enters an architect's office for a year, studies at an architectural school for two years thereafter, receiving instruction by lectures with theory and practice. He may then be appointed a Government Inspector for three years, after which he studies for two years in the first class of the school, and on passing an examination he becomes an architect or "Master of Building." In Germany engineers and architects are associated in study; in France painters, sculptors, and architects study together. The effect is visible in the respective results seen in the two countries. In Germany the architecture of modern public buildings is strong and rigid without mobility. In France there is everywhere in public buildings, along with correctness of form and proportion, a superadded grace and artistic rendering that pleasantly move the mind of the beholder.

The Courts of Law in Brussels (that always looks to me a structure four times above full size), is fairly correct to classic precedent and academic inspiration, and is doubtless intended by its colossal proportions to overawe the timid with the majesty of the law and to solemnify the tourist who gazes upon it; but it is huge, cumbersome, and ponderous, of almost Egyptian adherence to the earth, without grace or emotion. The Hôtel de Ville and the Opera House in Paris

are to me much more rational designs, appropriate, on equally correct principles of composition, but suffused with artistic feeling. Looking at home we find an absence of anything like State aid, and the burden is in consequence laid upon communities to establish, either by private enterprise or congregated effort, the necessary ateliers and larger schools where such instruction as is required by the architectural student may be obtained.

London is well equipped with such schools. The Slade School for figure drawing, the City Guilds' Institute and the lectures for construction, classes for the art of design, Royal Academy lectures on architecture, are each and all well-organised schemes, and much profit has been derived from them. Chief of all, however, is to be noted the very excellent and complete scheme of instruction offered by the London Architectural Association, which leaves nothing to be desired for the student. Their classes are mostly at such hours as meet the convenience of the students who come from the ranks of those who are prosecuting their labours in the offices of architects in practice. The office training and the school or class instructions are thus concurrent, and in this it seems to me there are advantages. If a student gives consistent heed to what may be termed the academic instructions to be acquired outside his office work, these, of themselves, will in his ultimate practice keep his feet from falling. But with the very great benefit of being able daily to associate himself with the current work of an office, he is learning continuously by witnessing the application of the theory to the practice of his art. He is not apt thereby to fall into the groove of a specialist before he has had a foreknowledge of the many varieties of architectural styles. To this, I incline to think, is due the greater freedom from restraint, the greater variety and manifest vitality over all Continental architectural designs which can be read in British work. The actual defect, however, of our system or custom is what I have already referred to, namely, the too great ease with which any one can enter the profession, take three or four years at very mechanical work in an architect's office, and without special study of any kind, commence the commercial pursuits of an architect. I say commercial, for assuredly they never do, and never can, reach the art zone of architectural practice. It has sometimes been advanced that such undertrained practitioners have places assigned them in the economy of things. I cannot believe it. They are deficient and defective, and architecture, to my mind, is too noble a calling to be travestied by incompetent hands. Even a mill or warehouse (of which there are so many very prominent in our land) can be made to express architecture, and that not necessarily at any increase of cost. Let it be built on simple lines, in truth of form and with due proportion. I have seen chimney stalks of great proportions weighted with excrement decoration of most inappropriate character, which, while adding to the first cost, only destroys the beauty of what would otherwise have been a simple and pure outline. That is the result of extravagant waste of material and money, without any art compensation, and all largely arising from the inadequate training of the performer. With all the machinery in Schools of Art for training students, I submit there is still an important requisite wanting. It is that there should be some form of test at the close of a youth's ordinary school education, from the result of which a direction may be given him as to that labour of life for which he indicates most fitness. If that were done we should, instead of losing, perhaps find that art would be the gainer. Many take up the vocation of artists who have no true gift. The dislike to mechanical employments, believed by some to be degrading, urges many a youth in a city to attempt an art occupation as being to his mind more respectable.

There are, at the same time, many of earnest feeling possessing much artistic power who are lost to art through lack of the first hint and direction to which I have already referred. One cannot live observantly without now and then coming across the humble and conscientious craftsman who will reveal artistic instincts far beyond those of many who practise art as a profession. Giotto, author of the famous Campanile of the Duomo of Florence, would, we are told, have been unknown in the art world had not Cimabue first accidentally witnessed his artistic skill in the delineation of the flock he, as a shepherd boy, was tending.

For you, then, as an association, there is an opportunity, the embracing of which would claim for you the gratitude of many an entrant on the ladder of professional elevation.

An association of this kind should exist primarily for instruction. It should be the nursery and training home for all who enter the profession. Imparted knowledge never diminishes learning's store. On the contrary, the unfolding from memory's store to convey something to another often benefits the giver as much as it does the receiver—by unlocking knowledge from its mental cells, and giving it renewed movement and fresh vitality. Conveying knowledge, by lectures, upon facts (not the controversial matter which savours so much of the debating society, where usually much is said but little bears lasting record) will be found most profitable for a while. The best subjects, for interest and profit, are to be found in the architecture of the past. I have already said the past is that out of which the future grows. It may be granted, therefore, that a valuable groundwork is to know well some of the purest examples of old work. It is not necessary to go beyond our own country in the first instance for good examples. I do not say to copy them, but to study them, to become identified with the purpose and the spirit of the design, and in treating analogous design, to be actuated by that spirit. You will thus find any disposition to eccentric imaginings restrained.

In connexion with the study of old work it is interesting to recall a lecture delivered by the late Mr. Street, the eminent architect, in which he says he had seen enough of other men's works and known enough of their studies to conclude that the most original and most admirable work was produced by the men who had the most thoroughly studied old buildings. He further refers to a tax made upon the originality or honesty of architects by those who condemn other men's work as mere compilations. He notes his observations that the productions of those very critics are actual leaves taken out of the vulgarst books of specimens, without the power to copy correctly and still less that of assimilating or binding together, with anything like harmony, the scattered leaves of their superficial study.

Depend upon it, he remarks, the more you study old work the less you want to copy it, and the only way to avoid copying is to devote yourself enthusiastically to accurate study. There can scarcely be sounder advice for student and practitioner alike.

Following lectures upon the Theory of Architecture, Design, Composition, Architectural History, and other attainable studies, all of which should be systematically pursued, every encouragement should be given to outdoor measuring and sketching under a well-organised section of the Society. A group of aspirants, with sketch block and pencil, at the feet of a romantic fortalice, or a more peaceful cloister ruin, on a summer afternoon will, in after years, be as prolific in happy memories and pleasant associations, as it is sure to produce the rich fruit of instruction.

Permit me here parenthetically to insert a sentence in this relationship. I wish to say a word for the camera. Make it your friend as it has been mine. There is nothing derogatory in an architect's making a camera part of his professional touring requisites. We can all walk, aye, and run, but we willingly take advantage, nevertheless, of the speedier means of locomotion modern science affords us. In like manner we have acquired a faculty for sketching, and should use that faculty industriously and studiously. All interesting details should be earnestly studied, measured, and drawn, but to save time the camera may frequently be employed for large group views before leaving the subject, to be leisurely studied at home. A subject taken with one's own camera will be found to reveal more points of interest to the architect than he may have observed at the time of his visit. Many lessons in effects of light and shadow, and in composition, which no other opportunity offers, may be learned from the camera. A quarter-plate camera can be carried easily with sketching material. Try then a camera club as a section of this Association's work. Its practice will afford much interest and enjoyment in summer; and its collective results will lend much instruction in winter.

I must not forget that in commending such an Association as this (as a valuable atelier for the architectural student (that is, if carried on

with that view, as I think it should be), the student must not overlook his opportunities in concurrent office practice. His care in the latter should be that he becomes a good draughtsman. In the early years of office work he should jealously guard himself against slovenly work. Everything, no matter how trivial, should be delineated with the utmost exactness and neatness; not hastily nor suggestively, but *exactly*.

Architectural drawing is not picture making, and should not presume to affect that aspect. It is essentially, as I have already suggested, something that must be lined in a definite form. How can an edifice exhibit well-balanced parts and just proportion if those realities are absent by carelessness upon the paper delineation? How can details of a building bear fitting relation to that building if their effects are not first studied from a careful enlargement of compartments of the design from the small first scale drawing? Impossible. An architecture there should be composition, balance, light and shade, as much as in any work of sculpture or painting; but with this addition, that as many architectural compositions are (as in cities) only part of a general group, the architect artist has sometimes a greater problem to solve in designing his edifice for such a situation than has the painter whose work is limited by the frame which encloses it. Strive, then, to be neat and accurate draughtsmen. The habit is as indispensable to your future success as architects was the perfectness of the matrix for the deservedly-admired Baptistries gates at Florence.

I have read of men in modern days suggesting that good draughtsmanship is not an essential requisite for an architect. I confess the statement reminded me of the fable of the ox who, through his own carelessness, had no milk. Now, do not deceive yourselves. What may have been by the indifference of training fifty years ago accepted as passable, is not acceptable now, when the opportunities are so liberally spread about. Witness, for example, the weekly professional journals, and view the excellent draughtsmanship in nearly all the illustrations there published. An architect's best help towards a satisfactory design is his first carefully-finished drawing.

Let me recall Vitruvius. He says, "be expert in drawing." Paint that sentence on the frieze of your sanctum, and never disregard it, if you wish to have enjoyment out of your labours as an architect.

If I still have your patient attention, let me, without presumption, add from experience a word to Vitruvius. I strongly advocate for the student a careful study of perspective. By its use he is enabled to see his work as others see

it. Geometric elevations are perfect as far as they go, but an architect, like the gods, should see everywhere, and nothing will enable him to do so so readily as a perspective view. Take a front view of a spire, and with the most considerate thought its outline may be made to appear beautiful, but change the front to a perspective view and at once distortions and weaknesses of composition become disclosed, which a geometric elevation cannot reveal.

Much more could be said in support of the several points I have been urging, but I feel that on a subject the treatment of which does not pretend to be more than the skeleton, and to which one cannot venture to attach any meretricious value by decoration, enough has been suggested.

I have still a word, however. It is one of encouragement to such a society as this. Upwards of fifty years ago, the London Architectural Association started into existence. Architectural art was then at a very low ebb. The most debased efforts of Classic art found expression everywhere—Gothic art, with its great inspirations, its unlimited possibilities, lay, a sleeping Endymion, at the entrance-way to Architecture. Pugin, a pioneer, raised the veil and brought to view from his travels the treasures of Gothic (the true) art, and so inspired and stimulated many admirers. The effect of this you have read of, and witness in the works of Street, Scott, Burges, Butterfield, Brooks, and others, until the whole direction of architectural thought was deviated, and a new art life sprang up among its practitioners.

It would be too long to enumerate all the advantages that arose from this art revival, but that we and the whole country have improved artistically from it there are ample evidences all around to prove.

Architecture has the power, and it should

use it; but it can only do so when it has thoroughly equipped itself by education fitted to its correct practice. Then Painting, which has no home till Architecture supplies it, and Sculpture, which has no pedestal but that constructed for it by Architecture, shall pay tribute by their highest expressions in the decoration of the queen of arts—Architecture. By this time you will have perceived that my subject has been sufficiently wide to claim exemption from the orthodox description of three heads and an application. Yet while the heads may be numerous, it is possible to make an application, and it is this:

Follow in this society the initiative, as far as possible, of the Association in London, but with this distinct object, namely, to regulate the classes of the Association so that students may be assisted in preparing for the examinations formulated by the Royal Institute of British Architects in London. I strongly recommend it as a matter of discipline, if on no other grounds. With this object affiliation with the Institute should form a subject of negotiation as soon as possible."

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Widening of Southampton-row.—The report of the Improvements Committee contained a recommendation to the Council to sanction the estimate of 149,500*l.* for the widening of Southampton-row between High Holborn and Theobald's-road, but the consideration of the matter was deferred.

Horton Asylum.—The Asylums Committee recommended:—"That the estimate submitted by the Finance Committee for the expenditure of 112,000*l.* for the erection and equipment of iron buildings and the alteration of the mansion-house on the Horton estate, Epsom, for the accommodation of 700 female patients and staff be approved, subject to the Home Secretary's approval of the plans." The estate in question is to be used as the site for a new large permanent asylum.

Mr. McDougall, in moving the adoption of the recommendation, remarked that the new buildings were only for temporary purposes.

Mr. Cornwall objected to dealing with the question of the accommodation of lunatics in a piecemeal manner. The committee should bring up a scheme to adequately meet the difficulty of insufficient accommodation.

Mr. Porter moved as an amendment that the report be referred back for specific details. He did not think that the erection of iron buildings and the alteration of the mansion justified such a heavy expenditure as 112,000*l.*, which practically meant a capital outlay of 100*l.* per patient.

Mr. Penfold seconded the amendment.

Mr. McDougall said that it was not so much the actual number of lunatics which had increased as the registration of lunatics. He hoped the Council would pass the accommodation without delay, as it was urgently necessary that more accommodation should be provided.

The amendment was rejected, and the report was adopted.

Competition for Dwellings, Millbank Estate.—The Report of the Housing of the Working Classes Committee contained the following paragraph, the recommendation being agreed to:—

"On February 2 last the Council passed a resolution authorising us to issue an advertisement inviting architects to send in their names as being willing to submit designs for the erection of buildings on a portion of the Millbank Estate; to select a limited number from among such architects, and to invite competitive designs from those so selected, subject, however, to our submitting for the approval of the Council the conditions of competition before issuing the advertisement. We have carefully considered as to the best method of giving effect to the resolution, and having come to the conclusion that the selected architects should be invited to submit designs for a specimen block of dwellings, we have chosen for the purpose a site at the northern corner of the estate where free scope will be given for architectural effect. We submit for the approval of the Council particulars for the guidance of the architects selected to submit designs, and from which it will be seen that a sum not exceeding 500*l.* will be divided among the competitors in such proportion as the assessor shall determine. We have ascertained that Mr. W. D. Caroe, of No. 8A, Whitehall-place . . . is willing to act

in the matter. . . . We recommend (a) That the estimate of 455*l.* submitted by the Finance Committee in respect of the expenses of obtaining competitive designs of dwellings to be erected on a portion of the Millbank estate be approved; and that the Housing of the Working Classes Committee be authorised to divide a sum not exceeding 500*l.* among the architects submitting designs in such proportion as the assessor shall determine, and to pay a fee of 50 guineas to the assessor for his services. (b) That the particulars for the guidance of the architects selected to submit designs be approved.

London Building Act, 1894—Amendments urgently required.—The Building Act Committee brought up the following report:—

"Recent decisions of the High Court as to the construction to be put upon certain sections of the London Building Act are such as appear to us to render the working of the Act as it stands very difficult; and we have also been informed that the Housing of the Working Classes Committee, as having to a defect in the Act, found it necessary when land belonging to the Council is leased for the erection thereon of artisans' dwellings, to insert in the leases a provision to ensure that such dwellings abutting upon narrow streets shall not be of undue height. One of the decisions above referred to, both of which were given so recently as November 2, materially affects the proceedings relative to dangerous structures. Section 188(1) of the Act is as follows:—'Any notice, order, or other document . . . the service of which is not provided for by the Summary Jurisdiction Acts . . . may be served by . . . delivering the same to some person on the premises to which it relates, or if no person be found on the premises, then by fixing a copy of the same on some conspicuous part of the building to which it relates' . . . ; while by sub-section (3) it is provided that a notice to the owner or occupier of any premises may be addressed 'by the description of the "owner" or "occupier" of the premises (naming the premises) . . . without further name or description.' One of the magistrates recently dismissed certain summonses taken out by the council, as he held (a) that all dangerous structure summonses must be served under the Summary Jurisdiction Acts, and (b) that even if they could be served by affixing a copy upon premises when unoccupied (which course was taken by the police authorities when the law relative to dangerous structures was enforced by them, and has been continued by the late Metropolitan Board of Works and by the Council), that was not a sufficient service unless the Council had after some reasonable inquiry failed to find the owner. The question being of great importance, affecting many cases in the course of each year, the Council on October 19, on our recommendation, directed that application should be made to the High Court for a mandamus upon the magistrate to hear the summons with which he had declined to proceed. The case came before the High Court on November 2, when, after hearing counsel on both sides, the Court decided that the first point taken by the magistrate was bad, and that if the Council made reasonable inquiry, it could not discover the owner, a summons could be served under Section 188; but discharged the rule for a mandamus on the technical ground that no evidence was given before the magistrate in the case referred to, that such inquiry had been made. The Court said that such inquiry need not be a prolonged or expensive inquiry, but such reasonable inquiry as any constable knew how to make on the spot in a few minutes. The decision will put most serious difficulty in the way of proceedings. It appears to us that, having regard to the decision as to who is 'owner' for the purpose of these proceedings, it must involve a search in each case for documentary proof of the ownership of premises before a summons can be taken out, as without evidence of ownership, to get which evidence must in many cases be almost impossible, the case might be dismissed with costs against the Council. We consider it essential that structures certified to be in a dangerous state should be dealt with with the utmost promptitude, which will be impossible if such inquiries, which have never hitherto been required, have to be made. In illustration of the necessity for swift action we may state that only a very short time since, owing to a magistrate having refused to adjudicate upon a case in consequence of the point raised as to the service of the summons, two men narrowly escaped being crushed through the roof of the forecourt of a part of a structure certified to be dangerous; and moreover, since the decision of the High Court, other summonses similarly served have been dismissed. We are therefore of opinion that the Section referred to should be so amended as to make it absolutely clear, as the Building Act of 1855 made it clear, that in *all* cases of dangerous structures all documents in proceedings may always be served on some person on the premises to which such documents relate, or if no person be found on the premises by affixing such documents thereto.

In another case the magistrate dismissed a summons taken out with regard to a building erected on the south side of Moscow-road with the boundary of the forecourt at less than the prescribed distance from the centre of the road; he taking the view that as the building itself was at the prescribed distance, no power to proceed was given by

Section 14 of the Act, which, in his opinion merely applied to a building or structure erected within the prescribed distance. This, and the preceding Section 13, were, however, in our opinion, clearly intended to insure that no part of any new building, nor of the forecourt boundary fence or wall in front thereof, should be at less than the prescribed distance from the centre of the road; and, on our recommendation, the Council of May 18 last directed that the matter should be submitted to the High Court by means of an appeal against the magistrate's decision. This case also came before the High Court on November 2, when the Council's appeal was dismissed, and the decision of the magistrate confirmed, and the Council was ordered to pay the respondent's taxed costs. The Court expressed the opinion that the intention of the section was obvious; but that as Section 14 stood the intention was not expressed, and that it was a slip which Parliament should be asked to amend. We consider that it is very desirable that the Council should at once endeavour to obtain the amendment required, in order that it may be made clear that no part of any new building shall be erected with its forecourt boundary fence or wall at less than the prescribed distance from the centre of the road.

It is also desirable that sub-paragraphs (a) (d) and (e) of Sub-Section 3 of Section 200, which section relates to offences against the Act, should be taken out of that sub-section and themselves be placed in a separate sub-section providing a penalty for the offences which these paragraphs (a) (d) and (e) deal with. Sub-Section 3 as it now stands only provides for a penalty when an order of a magistrate is not complied with, and a question has been raised whether any procedure is provided in the Act for obtaining such an order. The matters are of great importance, one being as to the general line of buildings, and the other as to wooden and other structures. It is clear from reference to the previous Acts that these sub-sections have been inadvertently misplaced, and should not have been included in the sub-section of which they now form part.

As regards the difficulty of the Housing, &c., Committee above referred to, we may point out that Section 13 (5) contains a proviso that 'no dwelling-house to be inhabited by persons of the working class shall, without the consent of the Council, be erected or re-erected within the prescribed distance to a height exceeding the distance of the front or nearest external wall of such building from the opposite side of the street;' and we think that the difficulty may be met by an amendment to make it clear that no working-class dwelling shall be erected within 20 ft. from the centre of the street or way on which it abuts, which was obviously intended although the section does not set out the intention in express terms.

We are reluctant to bring before the Council at this late period of the year these suggestions for parliamentary action; but the amendments above specified are shown to be so imperatively necessary, in order that the public safety and the public interest may be properly guarded, that we consider it our duty to ask the Council to consider them as matters of urgency. We have informed the Parliamentary Committee (with a view to the necessary mention being made in the *Gazette* and other notices), of our intention to submit the above proposals; and we recommend—

(a) That the standing order No. 338 as to the period at which reports recommending application for parliamentary sanction during the next ensuing session shall be amended by the Council, be suspended in order that the following recommendation may be considered.

(b) That the Parliamentary Committee be instructed to insert in one of the Council's Bills for the Session of Parliament, clauses for the amendment of the London Building Act, 1894, in the matters above specified, namely:—(a) as to procedure with regard to dangerous structures; (b) as to boundary fences or walls within the prescribed distance from the centre of the street in front of buildings which are themselves set back; (c) as to getting an order from a magistrate in respect of certain offences under the Act, and provision of penalties; and (d) as to erection of working-class dwellings in narrow streets.

Dr. Longstaff said they would agree, he thought, that there was no one in the Council who better realised what a serious matter it was to interfere with the Building Act than he did. He thought it would be a great mistake to propose any amendment of the Act which would be in the nature of new legislation; but it was not new legislation which was needed and sought by the Committee, but rather the correction of errors which it was not surprising had crept into an Act of such length. In regard to dangerous structures, before the County Council was formed, dangerous structures were dealt with by the Metropolitan Board of Works, and previous to the existence of that body such structures were dealt with under the Metropolitan Police Act. The procedure under each power was the same, and a very slight verbal alteration would make it clear that the action of the Council's predecessors in the matter had been correct. In the amendments of the Committee they were not seeking to alter the law, but they were endeavouring to get powers which it was clearly the intention of Parliament to give them.

Dr. White said that notices were often given

in regard to so-called dangerous structures when there was no danger at all.

Mr. W. Emden said that there was no building question in London about which there was more difference of opinion than in regard to dangerous structures. If the proposals of the Committee were agreed to, a magistrate would often only have official evidence brought before him, and no opportunity would be given an owner to bring his evidence forward.

Mr. H. Lawson said that any amendment to be made to the Building Act should be by a separate bill.

After some discussion, recommendation a was agreed to.

Mr. Beachcroft, Vice-Chairman of the Council, moved that the words "or introduce a bill" be inserted in recommendation b.

This was accepted, and the recommendation, as amended, was agreed to.

The Council soon after adjourned.

ARCHITECTURAL SOCIETIES.

PERTH ARCHITECTURAL ASSOCIATION.—On Tuesday last week the inaugural meeting of this new Association, to the formation of which we have already referred, was held in the Lecture-room of the Perthshire Society of Natural Science, when Mr. Hippolyte J. Blanc, R.S.A., Edinburgh, delivered an opening address. Mr. G. P. K. Young, the President, occupied the chair. Before introducing Mr. Blanc the Chairman briefly explained the objects of the society. Mr. Blanc, in the course of his address, wished the society every success, and welcomed it to the group of similar associations. A part of the address is printed on another page.

COMPETITIONS.

LUNATIC ASYLUM, BIRMINGHAM.—At a meeting of the Birmingham City Council on the 9th inst., Mr. Lane, in accordance with notice of motion, moved "That, in order to prevent any misunderstanding of this Council's resolution, minute No. 17,394, the Lunatic Asylums Committee of Visitors are hereby instructed that no Birmingham firm of architects willing to incur the expense shall be excluded from the competition. This Council is of opinion that three premiums should be awarded; the first, after verification by a builder's estimate, being the commission for the architecture of the contemplated buildings, the second being the sum of 200l., and the third the sum of 100l. This Council directs its committee, before making any award, to bring up their recommendations in the form of a report." He reminded the Council that at the last meeting an amendment was adopted having the effect of limiting the competition. He was sure that the mover of the amendment intended the limitation not to refer to any architects in the city. They now knew that six firms had been selected for the competition, and every competitor was to have a bonus of 100l. That was a kind of competition they had not been used to in Birmingham, and he hoped they would not take it up now. What struck him as singular was that eminent firms of architects, who had done so much to beautify the city, should be absent from the competition. It was a great shame that the ratepayers were to pay 100l. to each of the competitors, and that the committee should have the award in its own hands. Mr. Randall seconded the motion. Alderman Lloyd pointed out that there were more than one hundred architects in Birmingham, and if the competition were open to all of them it would entail an enormous amount of work. Mr. Lancaster said it was his opinion, and he believed it was the opinion of the Council, that a certain number of architects should be selected from the Birmingham architects, to send in competing plans. He thought the committee had done practically what the Council decided they should do. The Council had selected architects who were specialists in the particular work required. Alderman Hart said the committee did not object to the appointment of an independent assessor, although they considered the committee and the medical superintendents were far more likely to know which were the most suitable plans than any assessor who might be appointed. Mr. Lane, in view of the concession indicated by Alderman Hart, withdrew his motion.—Mr. Balder, in accordance with notice of motion, moved "That the Lunatic Asylums Committee be, and

they are hereby, instructed to appoint an independent assessor to adjudicate on the plans submitted for the new asylum, and that the names of the architects shall not in any way be made known to the assessor before adjudication." Mr. Tonks seconded the motion, remarking that the committee had put themselves out of court, as far as adjudicating on those plans was concerned, by their distinctly expressed opinion in one direction, and therefore the only course open was for them to call in an impartial person. Alderman Lloyd intimated that if the word "adjudicate" were altered to "advise the committee," he would accept the motion. He also intimated that they would accept the "motto" system. Mr. Barber moved the substitution of the word "advise" for "adjudicate," and Alderman Johnson seconded. Mr. Stenbridge said he should give notice of motion that the names of Messrs. Essex, Nicol, and Goodman, and Mr. Henman be added to the list. The amendment was carried, and the meeting ended.

MUNICIPAL BUILDINGS, SURBITON.—At a meeting of the Surbiton District Council on the 8th inst., the report of the Plans Sub-Committee was read which stated that twenty-six sets of plans had been received for the proposed municipal offices. Mr. E. W. Mountford, the assessor, had selected designs Nos. 11, 25, and 6, the merits of which were sufficiently equal to make it difficult for him to decide between them, but he placed No. 11 first, No. 25 second, and No. 6 third, and he suggested that the premium should be given respectively to the second and third in order of merit, while the one placed first should be commissioned to carry out the work. The Sub-Committee, however, decided in favour of No. 25, and at the meeting on the 8th inst., an amendment disagreeing with this decision and in favour of the assessor's award, was negatived. It was decided to award the premiums as placed by the assessor. The Chairman then opened the sealed envelopes when the names of the successful competitors were given as follows:—No. 25 (selected by the Council and placed second by the assessor) Messrs. W. W. A. Forsyth and H. Maule, 16, Great Marlborough-street, London; No. 11 (placed first by the assessor) Messrs. C. W. Wimpers and H. S. East, London; No. 6, Mr. W. E. Hewitt, 7, Great College-street, Westminster. We are informed that design No. 6 was sent in in the joint names of Messrs. W. E. Hewitt and A. H. Ryan-Tenison.

PUBLIC BATHS, WALTHAMSTOW.—A meeting of the Walthamstow District Council was held on the 12th inst., in order to rescind the appointment of Mr. J. W. Dunford as architect of the proposed public baths, to appoint Messrs. Spalding & Cross as architects, and to ask them to present designs for baths to cost a sum not exceeding 8,500l., and that 100l. be offered, without prejudice, to Mr. Dunford in consideration of the cancelling of his appointment. Messrs. Spalding & Cross were the first firm of architects who came before the Council in connexion with the construction of public baths, and there was an attempt in one quarter to get them appointed, but eventually it was decided to invite competitive plans from Messrs. Spalding & Cross, Mr. Plumble, and Mr. Dunford for baths at an estimated cost of 7,000l. Designs were submitted by Messrs. Spalding & Cross and Mr. Dunford, and it was resolved that they should be referred to Mr. Plumble, who did not compete, for his award. His report went to show that while in some respects the design by Messrs. Spalding & Cross was superior, that by Mr. Dunford was far more within the limit of 7,000l., and, consequently, Mr. Dunford's design was placed first. After a vast amount of opposition, it was decided to accept Mr. Dunford's design. When, as a result of the last election, an attempt was made to upset the appointment of Mr. Dunford and to secure the appointment of Messrs. Spalding & Cross. At the meeting on the 12th inst., the recommendations of the Highways Committee to substitute Messrs. Spalding & Cross for Mr. Dunford and to extend the cost to a sum not exceeding 8,500l., came up for consideration. Eventually the recommendations of the Committee were carried by 11 votes to 10.—*Essex Herald*.

ALTERATIONS TO ST. THOMAS'S CHURCH, WEDNESFIELD.—St. Thomas's Church, Wednesfield, was reopened recently, after having undergone alterations. The roof has been restored and the edifice redecorated throughout, under the direction of Mr. F. Hunter Limes, architect, Wolverhampton.

ENGINEERING SOCIETIES.

INSTITUTION OF JUNIOR ENGINEERS.—This institution held the inaugural meeting of its seventeenth session on the 5th inst. at the Westminster Palace Hotel. Sir Alexander Binnie, the retiring President, was in the chair, and presented the Institution premium to Mr. W. R. Beckton for his paper on "The Protection of Buildings from Fire." Mr. H. B. Vorley moved, and Mr. W. J. Hunter seconded, a vote of thanks to Sir A. R. Binnie for the services rendered by him to the Institution during his year of office, and this was agreed to. Mr. John A. F. Aspinall, M.Inst.C.E., chief mechanical engineer to the Lancashire and Yorkshire railway, was then introduced to the members as President for the ensuing session by Sir A. R. Binnie. Mr. Aspinall afterwards delivered his presidential address, the subject of which was "Some Aspects of Railway Work." In the course of his address, he urged upon young men who intended to learn the business of a railway engineer to make the best use of his powers of observation when he was in the workshop, so that he might store up a fund of useful information by the time he was fortunate enough to secure any position of responsibility. His experience had been that those young men who had in the first instance gone to one of the engineering schools and had afterwards come into the workshop had generally begun the wrong end. The tendency of the lad who went first of all to an engineering school and acquired some slight knowledge of what could be done upon a lathe or other simple tools, when his time came to enter a mechanical engineering establishment, to assume he knew great deal more than he actually did, and to give considerable offence to the workmen among whom he was placed, instead of setting himself patiently and quietly to acquire as much knowledge from them as he possibly could during the short time he would be in the shops. His view was that it was far better for a young man to enter the workshops for one or two years, and after that to go to one of the engineering schools, returning again to the workshops to finish his time.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent has been granted on certain conditions* are—

Lines of Frontage.

Stepney.—An iron and glass shelter over the pavement at the entrance to the King's Hall, Nos. 83 and 85, Commercial-road (Mr. C. A. Legg, for Mr. A. Brown).—Granted.

Bethnal Green (North-East).—The application of Messrs. Giles, Gough, & Trollope for the Guardians of the Poor of Bethnal Green for an extension of the periods within which the erection of an infirmary on the east side of Cambridge-road, between Nos. 214 and 216, was required to be commenced and completed.—Granted.

Brickton.—Erection of buildings on the site of Nos. 6, 8, 10, 12, 14, 16, 18, and 20, Coldharbour-lane (Mr. J. T. Holmes, for Mr. H. Wood).—Granted.

Finchbury, Central.—Erection of one-story shops on the forecourts of Nos. 105 and 107, Pentonville-road, Clerkenwell (Mr. H. H. Tasker, for Messrs. C. Morgan & Sons).—Granted.

Hackney, South.—Erection of a three-story oriel window on the first floor level of the Plough public-house, High-street, Homerton, at the corner of Plough-lane (Mr. B. J. Capel, for Mr. A. Payne).—Granted.

Hamstead.—An open porch in front of "The Turret," West-heath-road (Mr. W. Woodward).—Granted.

Lewisham.—One-story shops in front of Nos. 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91 and 93, Dartmouth-road, Forest Hill (Mr. W. H. Gritten, for Mr. E. C. Christmas).—Granted.

Norwood.—Wooden balustrading and a projecting cement hood at Forest Lodge, No. 70, Tulse-hill Messrs. Wimperis & Arber, for Mr. G. A. Payne).—Granted.

Strand.—That the application of Messrs. Goodwyn & Sons for an extension of the period within which the erection of an oriel window at the first floor level in front of No. 37, Foubert's-place, Regent-street, St. James's, was required to be commenced, be granted.

Wandsworth.—A glass and iron covered way upon part of the forecourt of Inverness Lodge, Alton-

road, Roehampton (Mr. W. C. Banks, for Mr. J. Fraser).—Granted.

Dulwich.—Buildings, with bay windows and one-story shops, on the west side of Peckham Rye, at the corner of East Dulwich-road, Camberwell (Mr. A. Keen, for Miss E. Chamberlin).—Refused.

Greenwich.—Houses with shops on the south-east side of Wellington-road, Old Charlton, near the "Wellington" public-house (Mr. P. Green, for Mr. J. Ellis).—Refused.

Hamstead.—A wooden pediment to the one-story shop in front of No. 316, High-road, Kilburn, (Mr. J. K. Cole, for Messrs. Parkes' Drug Stores, Limited).—Refused.

Islington, East.—A one-story factory at the rear of No. 49, Mildmay Park, to abut upon Mildmay-grove (Mr. J. H. Richardson, for Mr. E. A. Morgan).—Refused.

Lewisham.—Five houses with one-story shops on the west side of Brockley Rise, Honor Oak Park, northward of the Wesleyan chapel (Mr. G. Trotman, for Mr. H. Winterburn).—Refused.

Marylebone, West.—A four-story building with three-story bay windows and other projections on the site of Nos. 23 and 24, Aberdeen-place, at the corner of Cunningham-place (Mr. C. H. Worley, for Mr. F. Crocker).—Refused.

Paddington, North.—Two glass and iron shelters over the public way in front of the Metropolitan Music-hall, Edgware-road (Mr. F. Matcham).—Refused.

Width of Way.

Horlton.—That the application of Mr. F. Matcham for the proprietors of the London Music-hall, for an extension of the period within which the erection of two inclosed gangways across Jane Shore-court, Shoreditch, to afford communication between the hall and the new building on the opposite side of the court, was required to be commenced, be granted.

Poplar.—Portion of a proposed new shelter in connexion with the Coroner's Court, High-street, to abut upon Cottage-street (Messrs. Lansdell & Harrison, for the Poplar District Board).—Granted.

St. George, Hanover-square.—One story additions to the present bay-window at the flank of No. 75, South Audley-street, abutting upon Deanery-street (Messrs. Balfour & Turner, for Mr. H. L. Bischoffsheim).—Granted.

Whitechapel.—A house with shop on the north side of Pelham-street, Mile End New Town, to flank upon Hunt-street (Messrs. Davis Brothers).—Refused.

Line of Fronts and Width of Way.

Rotherhithe.—A schoolkeeper's house in Anthony-street to abut upon Salisbury-place, a special school building in Anthony-street, and a covered play-shed and range of water-closets at the corner of that street abutting also upon Embury-street (Mr. T. J. Bailey for the School Board for London).—Granted.

Hackney, North.—A stable at the rear of No. 77, Alkham-road, to abut upon Chapel-road (Mr. A. E. Even).—Refused.

Hammersmith.—Rebuilding of the "Duke of Edinburgh" beer-house, Brook-street, to abut also upon Queen-street (Mr. W. G. Ingram, for Messrs. Woodbridge & Co.).—Refused.

Islington, East.—A one-story addition to the "Duke of Wellington" public-house, No. 119, Ball's-Pond-road, to abut upon Culford-road (Mr. D. Carmichael for Mr. A. W. Bacon).—Refused.

Peckham.—One-story buildings on the east side of Devonshire-grove, Old Kent-road (Mr. E. Crosbie, for W. Cooper).—Refused.

Open Spaces about Buildings.

Strand.—Deviations from the plan certified by the District Surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of Nos. 184 and 186, Regent-street, St. James's (Mr. W. Woodward, for Messrs. W. Brooks & Son).—Granted.

Deviation from Certified Plans.

Waltham.—Consent, under sections 13, 22, and 73 of the London Building Act, 1894, to the rebuilding of the "Masons' Arms" public-house, No. 109, East-street, Newington, and sanction to certain deviations from the plan certified by the District Surveyor, under section 43 of that Act (Mr. J. R. Johnston, for Messrs. Taylor, Walker, & Co., and Mr. G. H. Shepherd).—Granted.

Formation of Streets.

Lewisham.—That the resolution of the Council of November 2, 1897, sanctioning conditionally the plans submitted by Messrs. Baxter, Payne, & Lepper, for Mr. S. Smith, for the formation or laying out of a new street, for carriage traffic, to lead out of Tredown-road, Sydenham, be modified by the omission of the words "and the widening to 40 ft. of part of Newlands-park."

Dulwich.—That an order be issued to Mr. H. H. Church and to Mr. A. H. Kersey, sanctioning the formation or laying out for carriage traffic of certain new streets to lead out of the north side of High-street, Plumstead, the widening to 40 ft. of the portion of Church-manor-way extending from High-street to the northern boundary of the estate next the South-Eastern Railway, and the widening of a small part of High-street, on behalf of Queen's College, Oxford, Mr. J. R. Jolly, and Mr. W. West.

That the names Bracondale-road, Birkdale-road, Blithdale-road, Manton-road, Cordite-street, Camrose-street, Myra-street, Woodhurst-road, Bendmore-road, and Basildon-road, be approved for the new streets.

Deptford.—That an order be issued to Messrs. G. Lansdown & Son, refusing to sanction the formation or laying out for carriage traffic of a new street, 40 ft. wide, to lead out of Knoyle-street, on behalf of Mr. D. S. Whitcher.

Lewisham.—That an order be issued to Messrs. G. Lansdown & Son refusing to sanction the formation or laying out for carriage traffic of a new street, 40 ft. wide, to lead out of the west side of Hither Green-lane, and the widening of a street known as the Woodlands, on behalf of Mr. W. J. Scudamore.

Wandsworth.—That Mr. T. H. Morley be informed that the application of Mr. F. N. Kemp on behalf of Mrs. Wyatt-Coffee, for the consent of the Council to the erection of sixteen semi-detached houses on the north side of Waverley-road, Streatham Hill, has been further considered, and that the Council sees no reason to depart from its decision of June 1, last, not to grant the application.

Means of Escape at Top of High Buildings.

Strand.—That the Council in the exercise of its powers under section 63 of the London Building Act, 1894, do not grant a certificate in respect of the means of escape, in case of fire, proposed to be provided for the persons dwelling or employed on the sixth and seventh floors of No. 49, Pall-mall, St. James's (Mr. M. E. Collins for Mr. H. Lovatt).

The recommendations marked † are contrary to the views of the Local Authorities.

Illustrations.

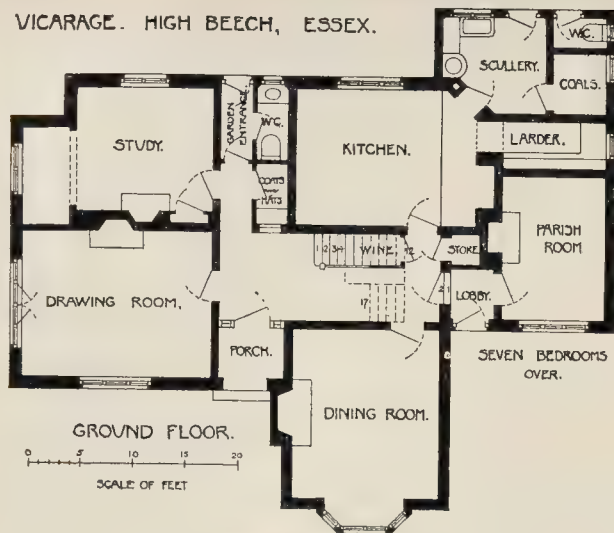
RENAISSANCE ARCHITECTURE IN MALTA.

THE illustrations of Renaissance architecture in Malta are given in connexion with the report of Mr. Flower's paper on the subject, read at the Institute of Architects on Monday last. They illustrate two aspects of the architectural magnificence to which the knights of Malta devoted a considerable portion of their immense revenue. The views from the interior of St. John's Cathedral, Valletta, chosen from among the side chapels, give some idea of the elaborate and greatly diversified ornamentation of which every part of the building is full. The Grand Masters of the Order are all commemorated by mural monuments, distinguished by a lavish use of precious marbles, often employed in very delicate inlay, while the greater part of the church is paved with the memorial slabs of lesser knights, several hundreds in number, each of them displaying armorial bearings formed likewise of marble of almost every colour. The piers and (originally) plain surfaces of the walls are everywhere carved in very high relief, the decoration being entirely different in every bay of the nave, and also in every chapel. Much of this ornament is symbolic, or heraldically appropriate to, the particular nation or "langue," as it was called, to which each chapel was assigned. The graceful—if somewhat rococo—silver screen in the chapel of the Blessed Sacrament was a votive offering made by two Commanders of the Order in the year 1752. It is additionally noteworthy as being one of the few of the original treasures of the church which escaped the general pillage of Malta by the French Army under Bonaparte in 1798. This screen, having by the care of one of the chaplains been painted to resemble wood, was overlooked by the invaders, and thus saved from the fate of the rest of the captured valuables, which were lost in the destruction of the French flagship *L'Orient* at the Battle of the Nile.

The various gateways illustrated are typical of many which occur along the great lines of fortifications which encircle Valletta in concentric rings. Every one of these gates is distinct in its architectural treatment, and most of them were designed by celebrated Italian, French, or Spanish engineers; the work of the Maltese architects employed by the Order being, with few exceptions, confined to ecclesiastical and civil structures. The Porte des Bombes, with its columns in the likeness of upright cannons, had, as originally constructed in 1721, only one arch, the second having been added in 1808. The Zabbar Gate, in the "lines" named after the Grand Master Nicholas Cottoner, whose bust is in the centre of the gates, dates from about 1670. Fort Ricasoli is a work of the same period. The gate of Fort St. Angelo has undergone a good deal of reconstruction; while St. Anne's Gate was

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

VICARAGE, HIGH BEECH, ESSEX.



GROUND FLOOR.
SCALE OF FEET

entirely remodelled in 1868 by General Porter, R.E. (the author of the "History of the Knights of Malta"), but may be taken as a favourable specimen of modern military design.

DESIGN FOR LEAD FONT.

In designing this font an attempt has been made to use throughout one material—combining both repoussé and cast work with colour decoration. The figures of the children on the basin are shown in slight relief and coloured; the core is of wood, roughly shaped to the plan. The two 6 in. steps, octagonal and square respectively, are of importance in the design. The cover is of painted wood.

G. C. CARTER.

CONVALESCENT HOME FOR FORTY CHILDREN, EPPING FOREST.

The home was built at a cost of 3,500l. by a lady in the neighbourhood, and is entirely maintained by her generosity.

The ground floor is of red brick, the upper portion is covered with rough cast, and the roof with Broseley tiles.

The exterior of the building has been treated with the utmost simplicity for the sake of economy, whilst the interior has been carefully considered with due regard to its hygienic requirements.

One of the features of the plan is the aspect of the dining-room, and ward, with dormitories over; these wings are arranged at right angles to the entrance, which faces due south, thus forming a perfect sun trap to catch all the sunshine without exposure to cold winds. The sun, even on the shortest day, will, if visible, shine into the angle for over seven hours continuously, and it will be completely protected from northerly and easterly winds, whilst the rising sun is caught on the east, and the setting sun on the west side. This aspect of the building, to obtain as much sun as possible, was suggested by my friend, Professor G. Vivian Poore, M.D.

The children's dining-room is in the east wing, approached immediately from the entrance hall by the left-hand door, whilst the food will be brought from the kitchen through the right-hand door.

The cripples' ward is in the west wing, separated from the hall by the nurses' room. The lavatory for this ward is outside the building, and cut off by cross ventilating windows. There are also provided on this floor a nurses' sitting-room, servants' hall, kitchen, and offices, with good larder and two store closets. There is a tradesmen's entrance, and a private entrance to the garden and staircase for the staff.

The floors are paved with wood blocks, except the scullery, offices, and private entrance. The walls of dining-room, ward, lavatory,

passage, staircase, kitchen, and scullery, are lined with brown, red, or glazed bricks to a height of 4 ft. 6 in., and plastered above. The entrance hall is panelled with wood.

On the first floor is a dormitory for sixteen girls in the east wing, and for fourteen boys in the west wing.

The dormitories, passages, lavatories, bath-rooms, &c., have a glazed brick dado 4 ft. 6 in. high. All the lavatories, bath-rooms, &c., are distinct from wards, and lavatories are cross ventilated, and paved with marble mosaic. The lavatories, supplied with hot and cold water, are of white-glazed pottery, supported on white-glazed partitions, and empty into a white-glazed gutter, into which the water from the floors can be washed. All the other floors will be polished with beeswax and turpentine, so that they can be dry cleaned. The wards and dormitories are lit and cross ventilated by a window between each bed, to enable the room to be swept with fresh air whenever necessary.

The upper part of windows are fitted with a glasshopper ventilator, which can be open in all weather without draught, and there are air shafts in ceilings for the extraction of vitiated air. The ward and dining-room are warmed with open fires, with hot-air chambers at back for the admission of warmed fresh air. The waste heat from these fires also supplies warmed fresh air to the dormitories above. For cold weather the dormitories are also warmed by hot water coils, which can be regulated as desired.

The home stands in large grounds surrounded by fine trees and woods.

Mr. John Bentley, of Waltham Abbey, was the builder.

THOMAS W. CUTLER.

"WENTLEY WOOD," YORKSHIRE.

This small drawing of a modern half-timbered house was exhibited at the Royal Academy, under the name of Mr. H. C. Frasi as architect; but we have not been able to get any information about it from the architect, whose address as given in the R.A. catalogue is apparently wrong.

VICARAGE, HIGH BEECH, EPPING FOREST.

This vicarage is built in a picturesque part of Epping Forest, on high ground, and is approached by a flight of red brick steps. The ground floor is built with red bricks, the upper stories tile hung, and the projecting gable over dining-room half-timbered in oak and plaster. The roof covered with Broseley tiles.

Mr. John Bentley, of Waltham Abbey, was the builder. It cost, including oak boundary fences on two sides, 1,880l.

THOMAS W. CUTLER.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING. CHAPTER XVI.—EXAMPLES OF "TAKING OFF."

THE mode of measuring the various items having been described, a few typical examples of "taking off" will doubtless be useful, and for this purpose are here given two examples which will illustrate the methods of dealing with concrete, digging, and brickwork; also deductions (shown in the examples given of a window), and joiner's work. In the first instance, the work is taken up to the ground floor only, the method of measuring the brickwork above this line being merely a repetition. The sleeper walls are not taken here, they being generally measured (with their damp-proof courses) with the floors.

The first example is that of a small house purposely made as simple as possible, the extension of the principle being comparatively easy when once the general method of dealing with the subject is mastered.

Projections of footings and concrete ... 2'1.1 = 2.5

20.0

22.2

25.0

2'1.1 = 2.5

27.5

22.2
27.2
602.2 Remove top soil 6 in. deep, wheel, fill, and cart away.

14.0

2/10 1/2 = 1.8

15.0

15.0
141.9 Add

Rear building.

743.11

Front and back wall

main building ... 20.0

Side walls ... 25.0

2'1.2 = 2.4

22.8

2/42.8

85.4

85.4
3.3
3.6
970.8 Excavating to surface trenches, throw out return, fill in and ram around foundation.

14-in. wall.

2/9 0 = 18.0

14.0

2/9 = 1.6 = 12.6

30.6

30.6
2.6
3.6
266.11 Add

9-in. walls.

13.8

10.4

13.0

37.0

Less crossings

3/1.1 = 3.3

.8

3.11

33.1
1.9
3.6
202.8 Add 4 1/2 in. Walls.

1440.3

85.4

3.3

1.6

416.0

30.6

2.6

1.6

114.5

33.1

1.9

1.6

86.10

617.3

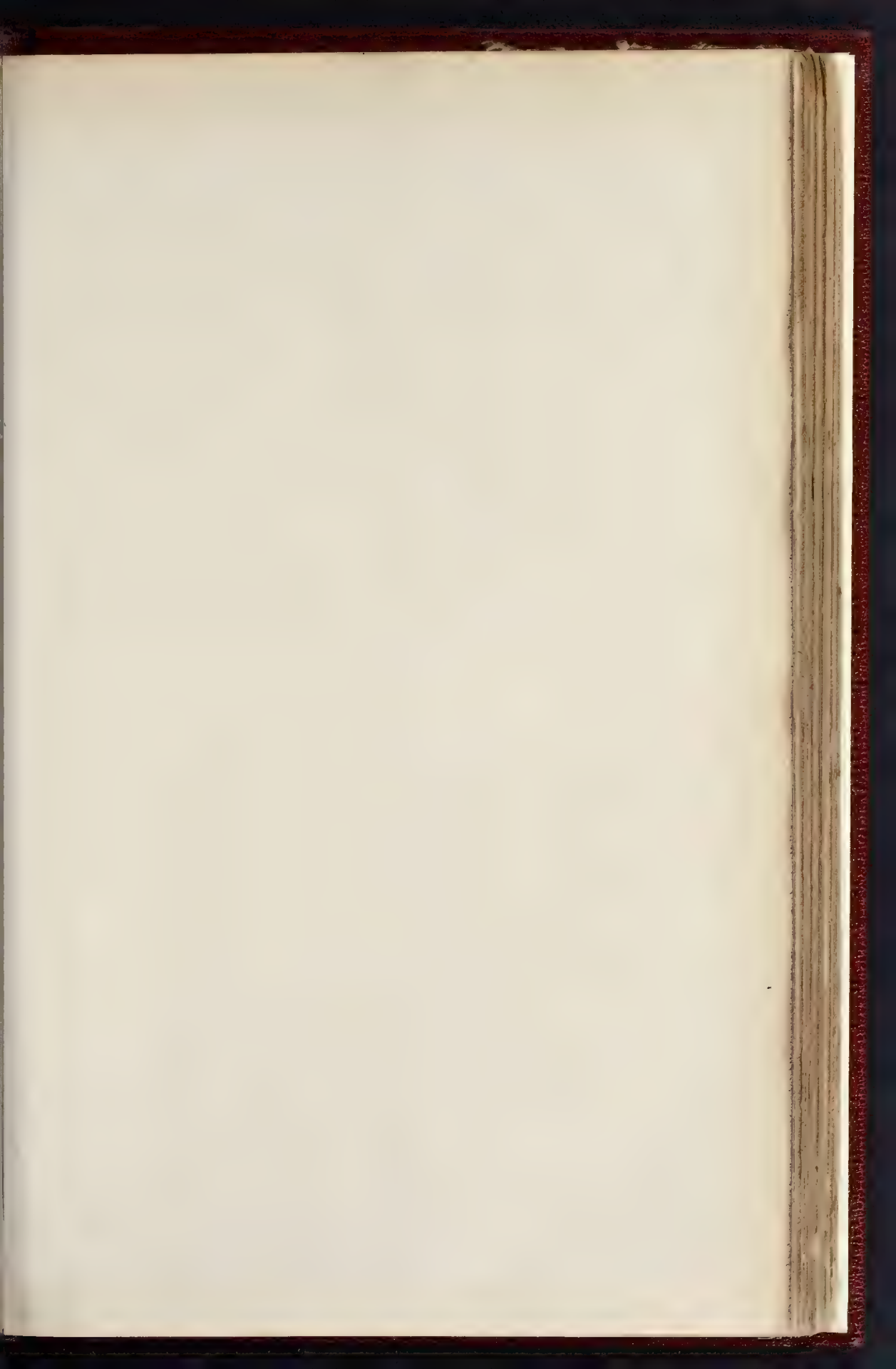
Concrete (as described) in trenches.

and

Deduct excavating as last

and

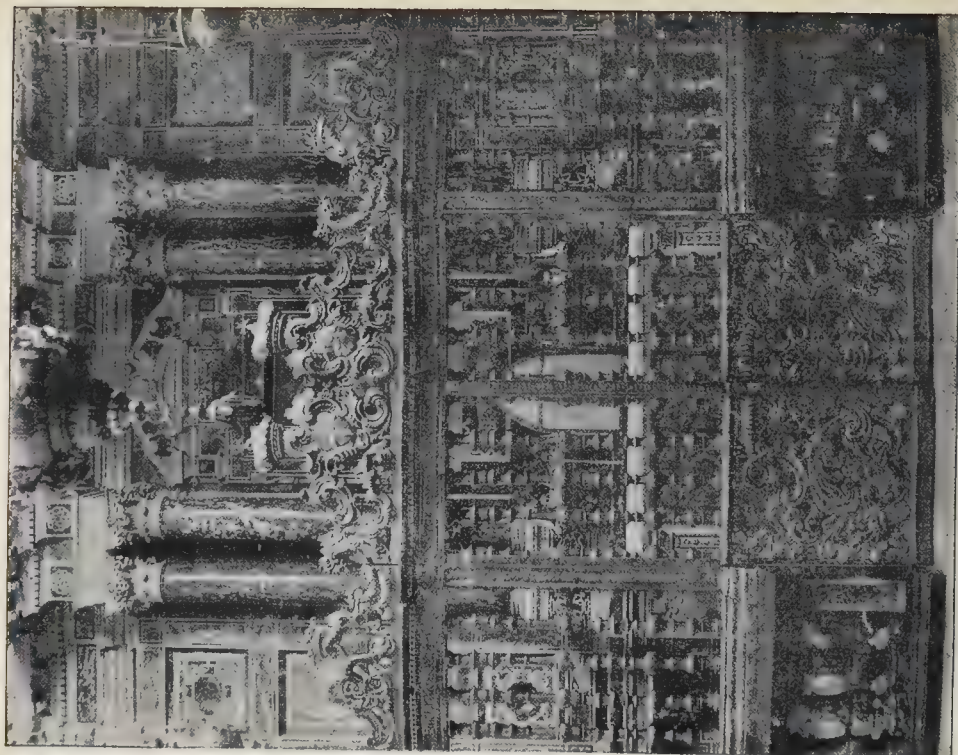
Add ditto, and wheel, fill, and cart away.



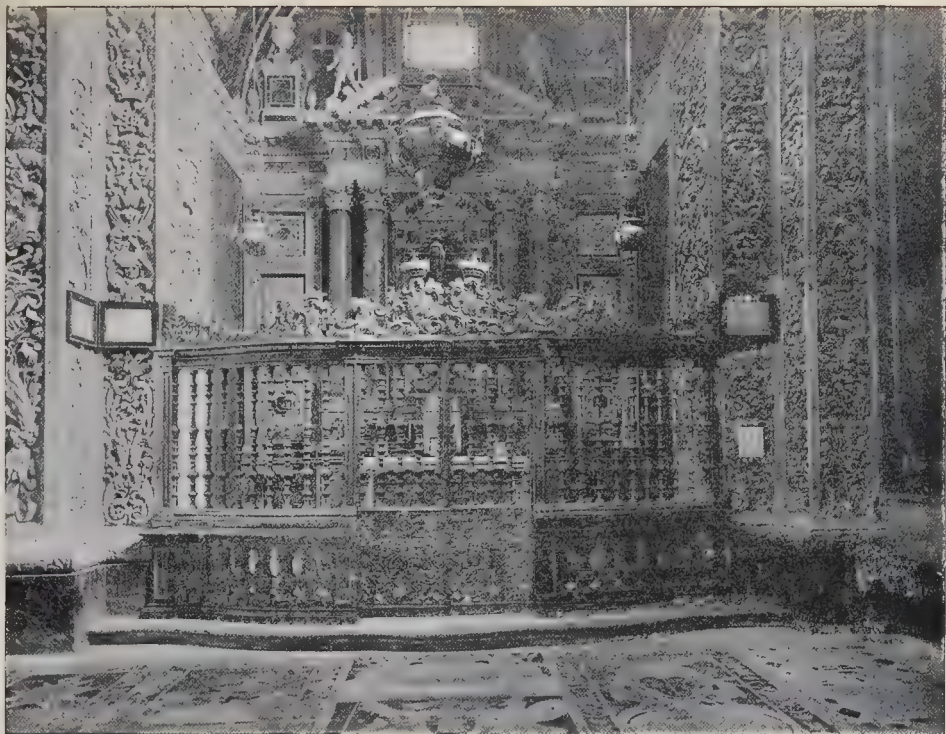
THE BUILDER, NOVEMBER 20, 1897.



MONUMENT OF GRANVILLE (1680-1690); CHAPEL OF ST. CATHERINE;
ST. JOHN'S CATHEDRAL, VALLETTA.



SILVER SCREEN (A.D. 1752) IN CHAPEL OF THE BLESSED SACRAMENT;
ST. JOHN'S CATHEDRAL, VALLETTA.

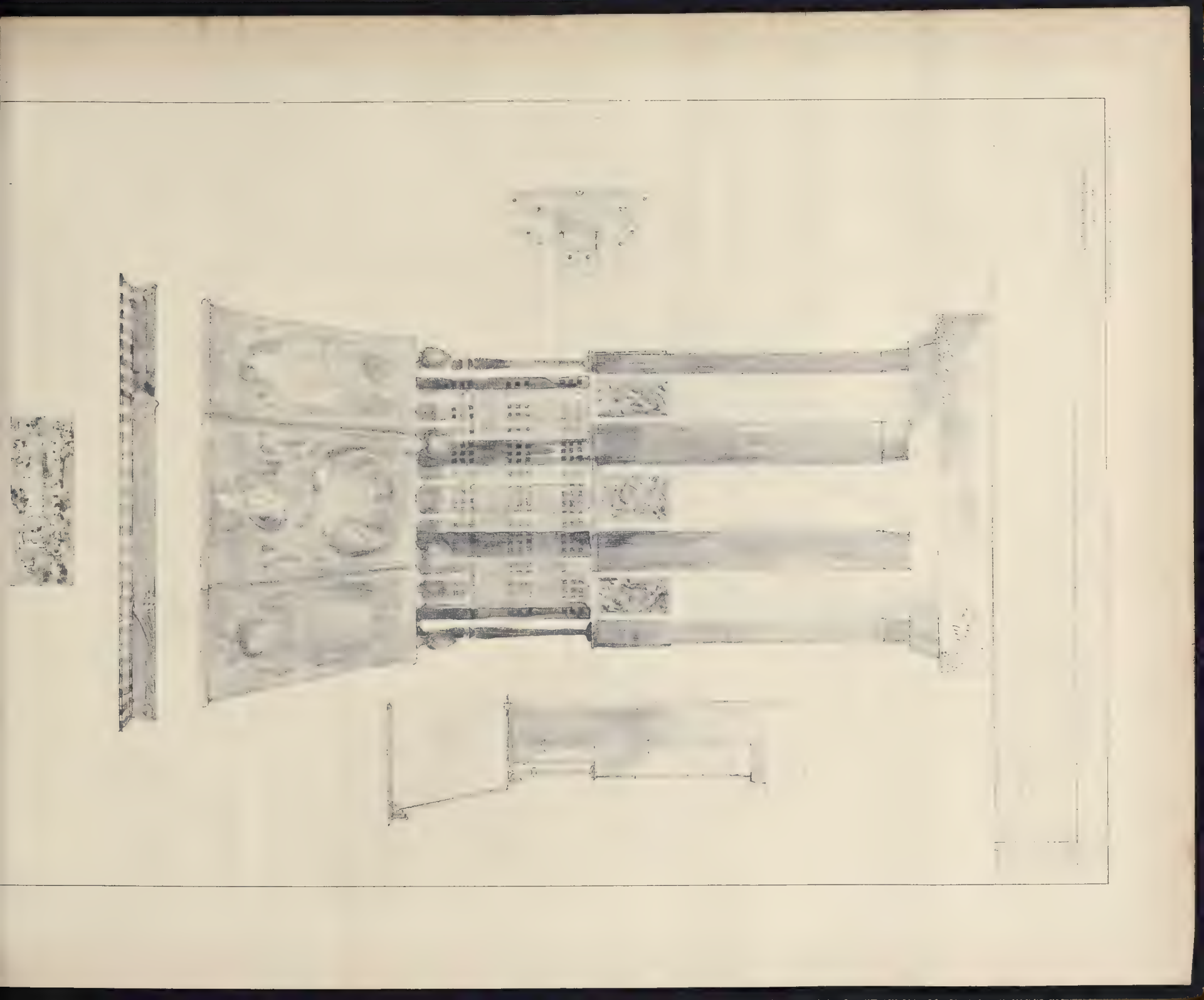


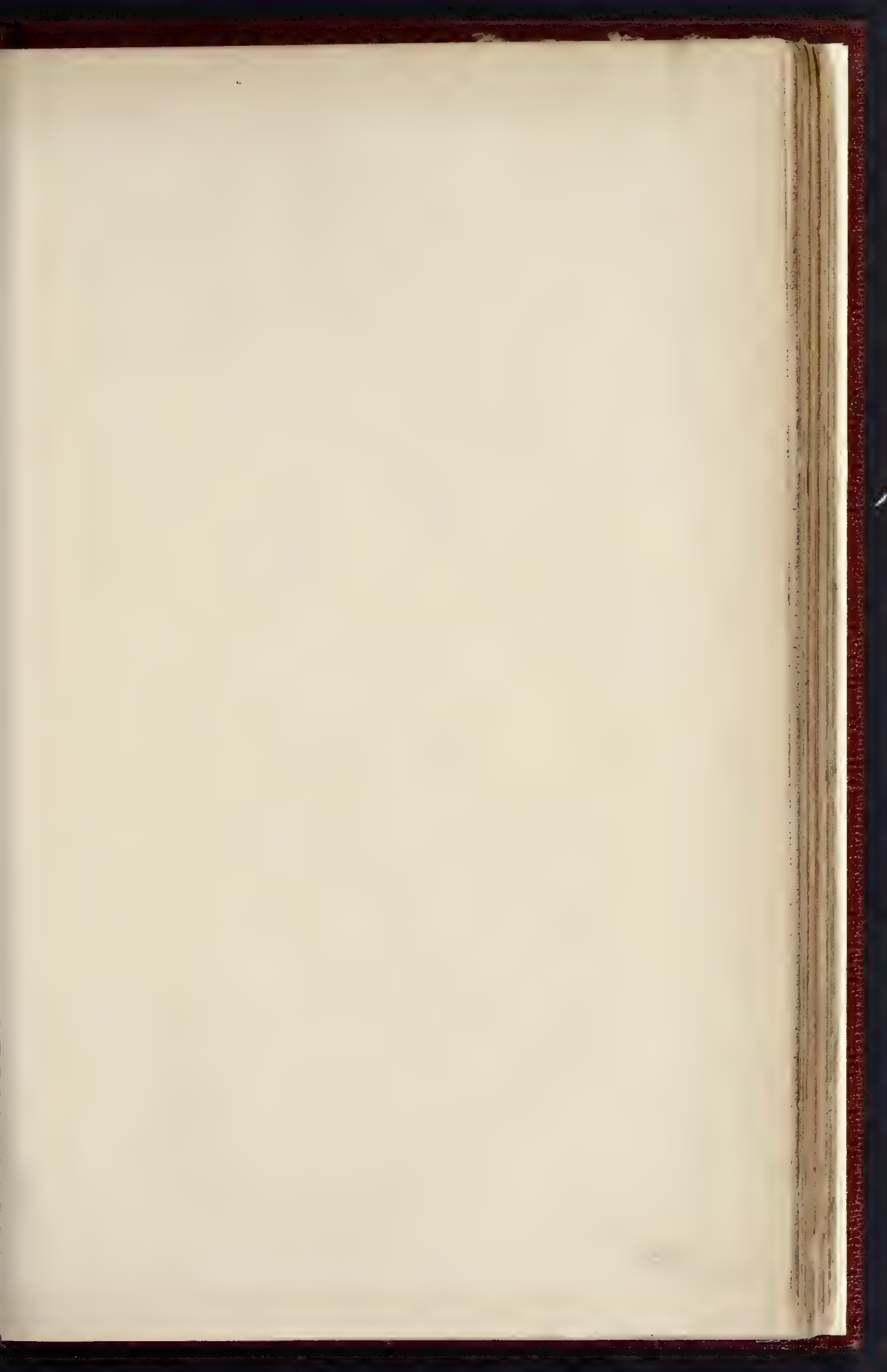
CHAPEL OF THE BLESSED SACRAMENT (OR OF OUR LADY OF PHILERMOS); ST. JOHN'S CATHEDRAL, VALLETTA.



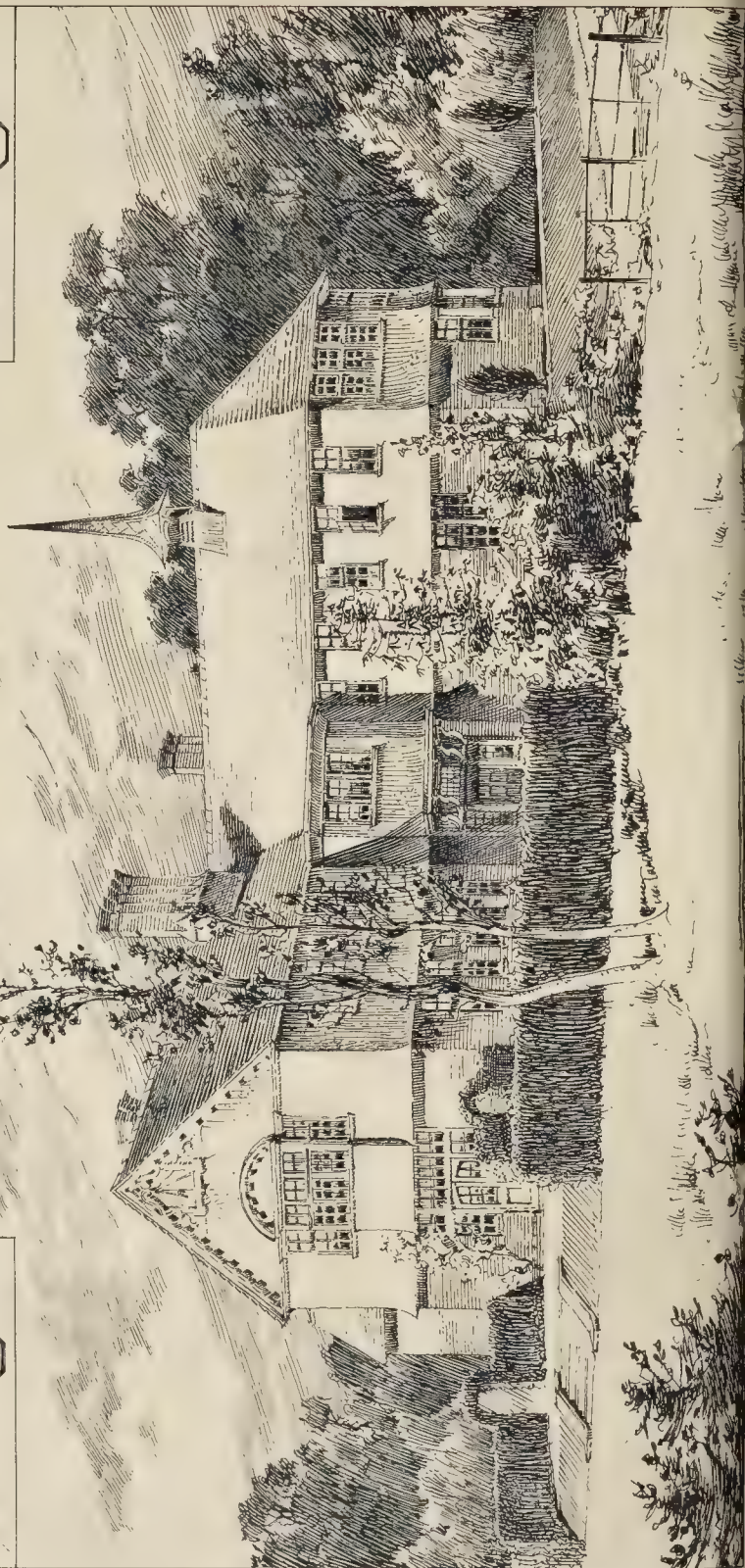
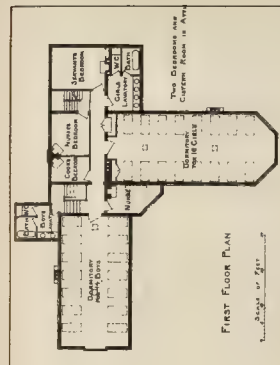
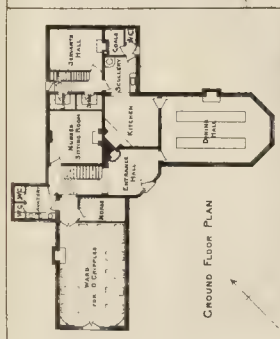
MONUMENTS OF GRAND-MASTERS DE LASCARIS (1636-1657) AND DE PAULE (1628-1638); CHAPEL OF ST. MICHAEL;
ST. JOHN'S CATHEDRAL, VALLETTA.

RENAISSANCE ARCHITECTURE IN MALTA.



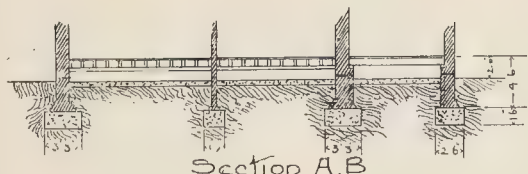
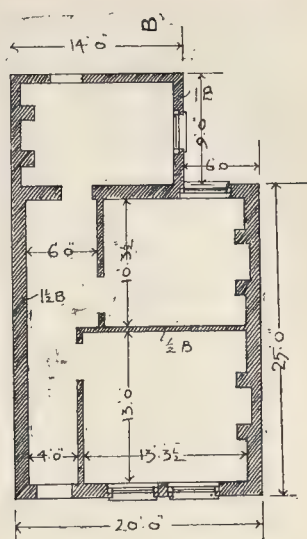
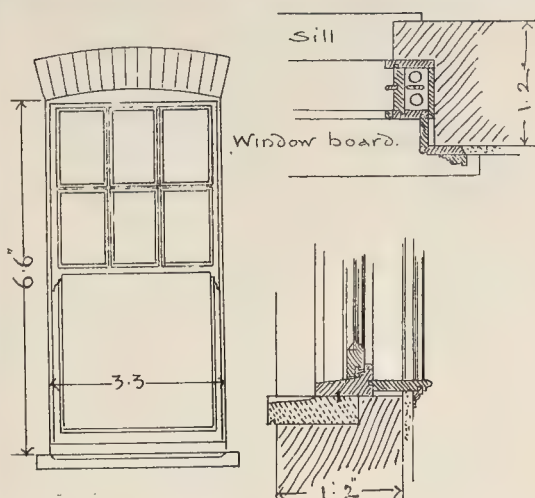


THE BUILDER, NOVEMBER 20, 1897.





VICARAGE EPPING FOREST—MR T W CUTLER, F.R.I.B.A. ARCHITECT



Section A B

85.4	1.11									5.4
	.9									2/1.1 = 2.2
30.6		122.8		2 /	7.6		136.3			7.6
1.4					.9					
.6					3.6					
		20.4					39.5			
33.1										
.9										
.3										
		6.2								
85.4										
1.2					6.7					
1.3					1.2					
		124.5			3.6					
30.6							26.11			
.9										
1.6							66.4			
		34.4								
33.1				2 /	7.6					
.5					.9					
1.9					1.6					
		24.2					16.11			
					6.7					
		332.1			1.2					
85.4					1.6					
.9										
		64.0					11.6			
30.6										
.6							28.5			
		15.3								
33.1				2 /	6.1					
.3					.9					
		8.3			.9		6.10			
85.4										
3.9					5.5					
		320.0			1.2					
30.6					.6					
4.0							3.2			
		122.0								
33.1				2 /	5.4					
4.3					.9					
		140.7			1.3		10.0			
85.4					4.10					
1.2					1.2					
					1.6					
30.6							8.6			
.9							28.6			
		22.11								
33.1				2 /	6.1					
.5					.9					
		13.0					0.2			

	5.5		1½ brick	<i>ditto.</i>
	.6	2.9		
2 /	5.4		1 brick	
	3.9	40.0	<i>up to ground floor.</i>	
	4.10		1½ brick	<i>ditto.</i>
	4.0	19.4		
2 /	5.4			
	.9	8.0	} Damp-proof course.	
	4.10			
	1.2	5.6		
		13.6		

The next example is that of an ordinary sash and frame in a 14-in. wall.

3 /	4.0 6.9	81.0	<p>3 windows to bedrooms 3 ft. 3 in. by 6 ft. 6 in.</p> <p>Deal cased frames having 1 in. inside and outside linings (<i>Note, state if outside linings cham- fered or moulded</i>) with 1 in. x $\frac{3}{4}$ in. bead mitred around inside, $\frac{3}{4}$ in. back lining, $1\frac{1}{4}$ in. pulley stiles tongued both edges, $\frac{1}{2}$ in. part- ing slips, $\frac{1}{2}$ in. part- ing beads, $6\frac{1}{2}$ in. x $3\frac{1}{2}$ in. oak, double sunk, double weathered, check throated and beaded sill, and 2 in. ovolo moulded sashes - the upper in small squares, the lower in one square, double hung with brass-faced and bushed axle pulleys, iron weights. (<i>Note, lead if for plate glass</i>). No. best flax lines complete (in No. frames). * <i>Maker's name and number.</i></p>
3 /	3.3	9.9	<p>Splayed, splay rebated and throated bottom edge to 2 in. sash.</p>
3 / 2 /		= 6	<p>Extra to moulded horns to 2 in' sashes.</p>

3/	4.0	12.0	1½ in. x ¼ in. galvanised iron tongue and bedding in red lead and groove in oak for iron tongue.	3/	4.0	12.0	Circular fair cutting and waste in red brick facing.
3/1/	= 3		Sash fastener (description).	3/2/	9	4.6	Fair skewback cutting and waste in ditto.
3/2/	= 6		Sash lifts.	3/	3.3	9.9	Turning piece 4½ in. segmental soffit.
3/2/	= 6		Sash handles.	3/	3.9	11.3	10 in. x 3 in. York stone, tooled, sunk, weathered, throated, and grooved sills.
3/6/	1.0 1.6	27.0	21 oz. sheet glass, each in one square (upper squares).	3/2/	= 6		Short, fair tooled ends, including stools for jambs.
3/	3.0 3.0	27.0	Do. do. (lower squares).	3/2/	= 6		Ends of sills made good to in facing.
			2/6.9 = 4.0 13.6 17.6				2/9 in. = 4.0 5.6
3/	17.6	52.6	3½ in. x 1 in. lining, rebated both edges, tongued at angles, and including backings, and Groove.	3/	5.6 .9 .4	4.2	Fir lintel.
			4/4 in. = 1.4 18.10	3/1/	= 3		Extra labour, waste, and cement for relieving arch, 6 ft. girt, one brick on soffit by one brick high.
3/	18.10	56.6	5 in. x 1 in. wrot, framed, splayed, grooved, and staff-beaded grounds, and 3 in. x 1½ in. architrave moulding, including mitres.	3/6/	= 18		Fixing blocks (description)
			2/5 in. = 4.0 .10	3/1/	= 3		Window frame bedded and pointed in cement and hair mortar, the sill bedded in white lead
3/	4.10 .7	8.6	1½ in. moulded window board, rebated, one edge and bearers.	A			
3/2/	= 6		Notched and returned moulded ends to 1½ in. window board.	3/2/1/	= 6		Knot, prime, stop, and paint in addition, four times in oil on sash frame one side.
3/	4.8	14.0	2½ in. x 1½ in. bed-mould, rebated, and tongued in, including groove.	3/2/6/	36		Ditto on squares.
3/2/	= 6		Returned moulded ends.	3/2/1/	= 6		Ditto on sash sheets.
3/	4.6 7.0	94.6	Deduct render float and set walls, and Deduct paper p.c. 1/6 per piece and hanging.	3/	17.6 .3	13.2	Linings. K. P. s and 4 on wood work and ½
3/	3.3 6.6	63.5	A Ddt. ½ brick.	3/	18.10 .0	42.5	Ground and Architrave.
3/	4.0 6.9	81.0	Ddt. 1 brick.	3/	4.10 1.0	14.6	Window board.
3/	3.3 6.9	65.10	Ddt. red brick facing (description).				
3/	.9 6.6	14.8	Add red brick facing (reveals).				
3/	3.6 .5	4.5	Extra over ordinary brick-work for red brick axed segmental arches (Description of pointing, &c.)				
3/	3.9 .9	8.5	Add arches, and Deduct red brick facing.				

NOTE.—The foregoing is an example of taking the joiner's work, and all incidental work and deductions with the item; but should the surveyor elect to take the "openings" separately, the dimensions for these would be from A to A. In the same way the painting is here given merely as an example of measuring painter's work.

Correspondence.

To the Editor of THE BUILDER.

THE INSTITUTE AND EXAMINATIONS.

SIR,—In your last week's issue Mr. Seth-Smith proposes to rescue architecture from the wood in which the P.R.I.B.A. says it has been languishing since the fifteenth century by the compulsory examination of all who would practise it.

Now, in my opinion, examinations alone are quite inadequate for that purpose, because they can be passed by bookmen who have not undergone the proper craft training which alone can make them architects. But what is sorely needed is compulsory, thorough, and systematic training in place of the present loose system in which a young man may waste his student years, perhaps his life, by becoming pupil to a master who is totally unfit to give him any architectural training. This would be impossible in the craft guild system under which, in some form or other, all the great periods of architecture have flourished; because in that system a man was not admitted as a master until he had passed through all the inferior grades and become proficient. The fact that the overpowering influence of the Renas-

cence placed architecture in the hands of amateurs and killed the craft guilds is quite enough to account for the unsatisfactory condition of the to-day.

Compare for a moment the present state of the medical profession with that of ours. The new training which the medical students now compulsorily undergo has infinitely increased the knowledge, the efficiency, and the authority of the profession throughout the country. Read the presidential addresses and the articles in the journals. How they glory in their professional work, and their great achievements! They read ours. How desponding they are—a continual wail, often sounding like one of despair! Wonder that the public should think but little of their work, when we think so little of their ourselves. When we have regained our confidence and once more rejoice in our strength, and honestly say that our work is better than that of our ancestors, once more will the public repose confidence in us and take delight in our art.

The question of a great living style must be to the future. How many centuries of steady work in one direction did it take to produce the Parthenon? How many to produce the perfected Gothic from adaptation of the Roman art to the genius of northern architecture? It is for us to prepare the way for the regeneration of architecture by regenerating ourselves, so that a great forward movement of the whole body may be possible, instead of the hesitations and short-lived individual efforts which alone are possible now.

Here, then, is a noble work for the Institute to undertake, and it will meet its reward when it develops into a great guild comprising all who practise our art.

J. HUMPHREYS JONES.

SIR,—The keynote of Mr. Seth-Smith's letter seems to be in the sentence, "It is obviously untrue to those who have studied so hard and at great expense to have to compete with Dick, Tom, and Harry." And so it is, for we must study hard at great expense to deserve the name of architect.

We cannot fairly write the name on a door-plate like an auctioneer's clerk, and wait for prey. No, nowadays there are no heaven-born architects—unless, perhaps, Lord Grimthorpe, who has so much to learn, considers himself one. An incompetent architect is a public danger, and an Act of Parliament compelling him to be efficient seems to result from a practical unartistic point of view, a necessary safeguard against such danger. At present, Jones who develops estates, sells land, and deals in corn is an architect, our professional brother—though not dearly beloved—and we cannot deny it to the public who class us under one head. Those who wish to practise as architects should surely be obliged to pass an examination in architecture, and it certainly seems to me that the Institute, as properly incorporated body by Royal Charter, is the right body to hold such examination. But alas, the Institute carries little weight outside its own doors. Its membership conveys no dignity with it, purpose, ay, its very existence, is unknown to the vast majority of the public. It tries to be exclusive and signally fails. Clever men there are indubitably within its ranks, but—there are clever men outside them.

Acknowledged leaders of the profession are absent from its membership. Brilliant young beginners hold aloof from its advances. And why? Because it is an Institute of Architects and Surveyors. I do so boldly, for I believe it to be the truth. The Institute was founded, according to the Charter, "for the general advancement of architecture." It styled the "Royal Institute of British Architects," a word about surveyors. If surveyors wish to belong to a society they have an Institution of their own. Let them join that.

To return to the original question of Tom, Dick, and Harry. This deluge of mediocrity threatens to overwhelm us like a prehistoric flood, and we have to struggle for very existence. And so it will be till we get public recognition. Let us fight, then, for such recognition, not talk. We have a right to be recognised, and it is our own fault we do not take the position we should. Let the Royal Institute of British Architects be for British architects by holding out every inducement to able practitioners to join its ranks. Let it petition Parliament for a compulsory examination of all architects practising in the future, and so show the public that it is working in the public's interest.

Doctors, engineers, and accountants protect themselves and the public. In Heaven's name, we should not architects?

If we want more recognition, get our Hon. Fellow H.R.H. the Duke of Connaught, to take the chair at the next dinner. Invite the Prime Minister and the First Commissioner of Works. The great ones of the land can be of very great assistance to us, in spite of your dictum, Mr. Editor, I see not the slightest subservience in asking such assistance. It is not a wrong we wish to ventilate, but a right.

PERCY G. STONE.

ST. MICHAEL'S ST. ALBANS NEW TOWER.

SIR,—Last week's *Builder* has been sent to me containing two columns of abuse of the usual kind.

my rebuilding of the above tower. I have no at present, nor would it be well while I had, to state in this column the every statement of fact relative to your object, historical, personal, or architectural, is false, though it is manifestly supplied by person calling himself an architect, and nobody will have any difficulty in guessing whom, in some recent exhibitions of the same kind.*

Just by way of a specimen or two for the tale that Michael is a small N.W. tower though of no particular architectural interest," which last words alone is true. That is pretty well for what every-thing the youngest reader of the most rudimentary book knows to be the oldest of all the churches, and of the most glaring Norman construction on one end to the other, with a little Early English in a side chapel and the clearstory and few small Perpendicular windows here and there. Neither he nor you apparently know that the new and panel (sic) under the rebuilt west gable is most identical with four in the corresponding place in a very old church, and for the frontispiece of one of the volumes, which you may look for yourself; only I added to it a ring of small angles, which anybody can see is a great improvement in this wider space.

I cannot even state without falsehood such a simple thing as the position of the old tower, though was accurately stated in one of the local newspapers on the opening, with the curious history of it given by Scott thirty years ago. Only one material alteration is true, viz., that which all England has known for eighteen years, that my real inquiry has been not paying a kind of blackmail of about 500l. a year to some brass-plate architect for doing infinitely worse, as there are ample proofs of that in the case of the true cause of the outcry against "restoration."

Both he and you had better have stuck to adjectives and epithets, such as "railway station turrets" and the like, which the most ignorant self-styled antiquary can apply without the fear of refutation to any building in the world. Whenever they have got into the region of facts they have exposed themselves to refutation and conviction of mis- taking old work for new and new for old. But for your invention of the most recent history this last writer has "beaten the record," as the modern slang has it. You had better also have remembered Sir G. Scott's often quoted answer to a friend of mine about my criticisms, active and passive, soon after they began. "He can do us much more harm than he can him." Most people now think he was right. GRIMTHORPE.

* Lord Grimthorpe's letter is a mere attempt, in its usual fashion, to draw attention away from the main issue. Another correspondent has written to remind us that the interior or shell of St. Michael's is mainly Norman. But the church is not so elaborated a one that every architect is bound to be within his memory what its interior is like. The article was written by a contributor unacquainted with the St. Albans district, who made an excursion, between trains, to look at Lord Grimthorpe's tower; and at that alone, to see whether it was as bad as it was said to be; the church was locked up, as country churches in England too often are, and the question of the original position of the tower, when he himself has shorn away every trace of its existence, is rather too good, and the fact only makes his own case even worse than we thought. He undertook to "restore" the tower; he quoted Scott in favour of the operation; and it appears that his notion of restoring it was to sweep every vestige of it away and to rebuild his own monstrous specimen in a new situation, in order to substitute a new west end of his own. As to the "panel," his preference to the odd little bosses on the front of Lullington Church, two on each side of a niche, as being the same thing as his gable ornament, is absurd; they are small affairs scarcely larger than a stop to a carriage, the gable of the church at St. Michael's may pass for a clumsy imitation of one of them on a larger scale and in a quite different position; but, in fact, the thing that specially characterises it is exactly that fringe or dog-collar of triangles, which everybody can see is a great improvement," and which was what induced us to give the sketch of it in this issue.

The remainder of Lord Grimthorpe's letter speaks for itself; most people can estimate this kind of braggadocio at its true value; and we cannot help calling special attention to the conclusion in the penultimate paragraph, that the real reason for the outcry against restoration is that all restorations are done by Lord Grimthorpe! We may, however, as well repeat, once for all, that we have never raised the slightest objection to Lord Grimthorpe or any other amateur acting as architect for himself or his

friends on their own private buildings, if they choose. What we object to is his being let loose on buildings which are national property. In this case he has both obliterated the history of the west end of St. Michael's, under pretence of restoring it, and disfigured it architecturally by a ludicrous erection, and all his attempts to draw a red herring across the scent will not alter that fact.—ED.

RE GEARY, WALKER & CO. V. HENRY YOUNG.

SIR.—Your last issue contained a report of this trial, and no doubt all who have read the same will have been struck with the extraordinary decision given against us. If such a decision is to stand, it will practically make it impossible for sub-contractors and specialists such as ourselves to do business. In this case a discount of 5 per cent. was quoted for cash; and it was stipulated that the work should be done to the satisfaction of the architect. It has been held, however, that an architect cannot be compelled to say he is satisfied; and that if he is so disposed he can take ten years or longer before expressing any opinion whatever; and, presuming that at the end of ten years he does give an opinion, that the work is satisfactory, the 5 per cent. cash discount could still be claimed! We should like to have the opinion of specialists and sub-contractors on such a decision—which, of course, we intend to contest at the first opportunity—as it strikes at the root of all business transactions between builders, sub-contractors, and architects.

GEARY, WALKER & CO.

GENERAL BUILDING NEWS.

NEW CHANCEL, ST. CYBI'S CHURCH, HOLYHEAD.—On the 9th inst. the Bishop of Bangor dedicated a new south chancel aisle recently added to St. Cybi's Church, Holyhead, in memory of the late Hon. William Owen Stanley and Mrs. Stanley. The aisle contains a monument, the work of Mr. Hamo Thornycroft, R.A., consisting of a life-size recumbent figure of Mr. Stanley, with angels, representing "Immortality" and "Death," at either end. In niches over the east gable are figures, representing St. (Seiriol and St. Cybi, from the designs of Mr. Thornycroft. The aisle contains two stained-glass windows, executed by Messrs. William Morris & Co. An iron grille in front of the monument is the work of Mr. T. J. Gawthrop. The building has been carried out by Mr. R. Bridgeman, of Lichfield, from the designs of Messrs. Arthur Baker and Harold Hughes. The death, however, of Mr. Baker in the early part of this year left the completion to his partner, Mr. Harold Hughes.

RESTORATION OF SOUTH SCARLE CHURCH, NOTTINGHAM.—It is proposed to restore and enlarge All Saints' Church, South Scarle. It is intended to make safe and repair the falling tower, replace the lost north aisle, reset the church, preserving the old oak benches, restore the old roof screen if possible, and repair the roof. The estimate of the architect, Mr. J. N. Cowper, is 950l. The contract for the work has been let to Messrs. Sherwin, of Boston.

RESTORATION OF DUFFIELD CHURCH, DERBYSHIRE.—This building has just been reopened after internal restoration under the superintendence of Mr. Oldrid Scott. The windows of the chancel have been filled with stained glass supplied by Mr. C. E. Kempe. A screen of carved oak has been placed at the entrance of the church, and the choir stalls have been superseded by similar material. Another alteration was the resetting of the church, and this has been executed in oak. The flooring has been taken up, and black and white marble substituted, with red marble steps in the approach to the chancel. A new high-pressure heating apparatus has been fixed, and a quantity of plaster has been removed so as to bring into view the old timber roof of the chancel. A new system of gas-lighting has also been adopted. A reredos and altar rails of carved oak have been given by Mrs. Gillett. The work has been carried out by Mr. Robert Bridgeman, of Lichfield.

RESTORATION OF CHURCH, CHEBSEY, STAFFORDSHIRE.—Chebsey Parish Church has just been reopened after restoration. No new building has been carried out during the recent works, and only one wall has undergone repairs. The principal features of the present improvements are:—The roof has been covered with new tiles, and the roofs have been covered with oak boards; mullions and tracery have been put in the bare windows; the interior has been concreted in cement, and laid with oak blocks; the plaster has been taken from the walls; the majority of the windows have been reglazed; an oak chancel screen has been erected; the old north doorway opened out; new heating apparatus and chamber have been constructed; and new drainage has been applied to the churchyard. Whilst the operations were in progress, interesting relics were found; amongst them, two carved iron stones of Norman date; a stone coffin without a lid, and subsequently the lid (thirteenth century) lid, and corresponding to this coffin, the same having been used as a window head; also a carved memorial stone, bearing the remains of an effigy (early workmanship) of an ecclesiastic. The work of restora-

tion has been carried out by Mr. G. I. Muirhead, of Newport. Messrs. Lynam, Beckett, & Lynam were the architects, and Mr. S. Howe was the foreman. The painting on the timbers of the chancel roof has been carried out by Messrs. Aldam Heaton & Co., of London.—*Newport Advertiser.*

CHANCEL AND VESTRIES, HANWELL PARISH CHURCH, MIDDLESEX.—The parish church of Hanwell, which was built about fifty years ago from designs by the late Sir Gilbert Scott, having remained without a chancel to the present time, and the choir not having suitable vestry accommodation, steps were taken to complete the church and carry out certain improvements, including re-seating the nave and providing additional accommodation for about ninety persons. Plans were prepared by Mr. William Pywell, and the foundation stone has just been laid by the Misses Hatfielden. Mr. William Brown is the contractor.

CONSECRATION OF ALL SOULS' CHURCH, SOUTH ASCOT, BERKSHIRE.—This building has just been consecrated by the Bishop of Oxford. The church has been built from designs by Mr. J. L. Pearson, R.A., which have not yet been carried out in full. It consists of sanctuary, choir, north transept, south chapel, and one bay only of the nave; also an organ chamber and choir and clergy vestries. The material is of red brick and Bath stone. The builders were Messrs. Cornish & Gaymer.

CHURCH ROOM, STEVINGTON, BEDFORDSHIRE.—The memorial stone has just been laid at Stevington by the Duchess of Bedford of a new church room. The architects are Messrs. Usher & Anthony, of Bedford. The hall will be 40ft. long, 20ft. wide, and 18ft. high, with an open-timbered roof; the floor will consist of wood blocks on concrete, and the walls will be daded to the height of 4ft. Communicating with the hall will be a retiring or class-room, and a preparation room for teas, &c. Mr. James Potter, of Bedford, is the builder.

RENOVATION OF ST. MARY'S, WHITALL-STREET, BIRMINGHAM.—The Church of St. Mary's, Whitall-street, Birmingham, has just been reopened after restoration and renovation. The work has been carried out by Messrs. Horton & Son, under the supervision of the architects, Messrs. Bateman & Bateman.

RESTORATION OF TWYFORD PARISH CHURCH, BUCKINGHAMSHIRE.—The south aisle and porch of the Parish Church of Twyford, which has recently undergone some considerable restoration, was opened recently. The work has been carried out by the Bishop of Reading recently, viz., the repairs to the fabric and the roof, which have been carried out by Messrs. Cannon & Webster, of Aylesbury, under the superintendence of Mr. John Oldrid Scott. Parts of the outer wall as well as the porch have been entirely rebuilt, and much of the roof is new.

MISSION CHURCH, HALE END, ESSEX.—The foundation stone has just been laid of a Mission Church of All Saints, at Hale End. Messrs. John Lee & Son, of London, are the architects. The cost is estimated at about 2,000l. The church will be a plain Gothic building of red brick with English dressings, and it will accommodate 500 worshippers. Mr. S. J. Scott, of Walthamstow, is the builder.

CATHOLIC CHAPEL, PAISLEY.—On the 7th inst. a new mission chapel, erected by St. Mirren's congregation, Paisley, for the accommodation of the members of the Catholic Church resident in the Charles-ton district of the town, was opened. It has been erected from plans prepared by Mr. J. B. Lamb, Paisley, and provides accommodation for over 400.

CATHOLIC CHURCH, GORING, OXFORDSHIRE.—The foundation stone has just been laid at Goring of a new Roman Catholic church. The architect of the building is Mr. W. Ravenscroft, F.S.A., of Reading. Mr. McCarthy E. Pitt being the builder, also of Reading. This new church, when completed, will consist of sanctuary, nave, belfry, sacristy, and porch, the sanctuary being 19 ft. by 14 ft., and the nave 44 ft. by 21 ft., internally. The accommodation will be for 105 worshippers in a small ground floor, with some additional seats in a gallery at the west end of the church, which it is intended to erect for the organ and choir. The style is Perpendicular, and the material generally will be brick and stone, both externally and internally. The first portion to be erected will consist of the sanctuary and one half of the nave. The contract price of the whole amounts to 15,000l.

CONGREGATIONAL CHAPEL, SWANSEA.—The memorial stones of Hill Congregational Chapel, Town Hill, were unveiled on the 9th inst. The building is 53 ft. long and 37 ft. wide. There is an entrance lobby with staircases leading to an octagonal gallery, and at the rear of the building is a schoolroom. The estimated cost is 1,500l. The plans were prepared by Mr. W. W. Williams, Swansea, and the contractor is Mr. Thomas Davies.

PRIMITIVE METHODIST CHURCH, DRAYCOTT, DERBYSHIRE.—A Primitive Methodist church has just been erected at Draycott to the memory of the late Dr. Samuel Antill. The architect was Mr. F. S. Antill, the builder being Mr. George Wagg.

INTERMEDIATE SCHOOL FOR GIRLS, CARDIFF.—Lord Tredegar laid the foundation-stone recently of

* We have not the slightest idea what this remark refers to.—ED.
The reader is invited to look at the sketch of this improvement on page 389 ante.

the new intermediate school for girls which is about to be erected on the site of the present school in the Parade, Cardiff. On the ground floor there will be an assembly-hall, 67 ft. long by 35 ft. wide, four class-rooms, a teachers' room, and a waiting-room. On the first floor there will be four class-rooms, music-room, and teachers' room; and on the second floor there will be a lecture theatre, cookery kitchen, a study, sewing class-room, and a library. In the basement there will be a dining-hall, kitchen, scullery, gymnasium, and hat and cloak rooms. There will eventually be accommodation for 435 pupils. The architect is Mr. George Thomas, and the contractors Messrs. Lattey & Co.

ADDITIONS TO SCHOOLS, CHARLTON, DOVER.—The memorial-stone of the new class-rooms in course of erection at the rear of Charlton Girls' and Infants' day schools was laid recently by Countess Grosvenor. Messrs. Fry & Gardner are the architects of the building.

SCHOOL, LEYTON, ESSEX.—The old Board schools in Newport-road being too small to meet the requirements of a growing neighbourhood, a new block of school buildings, to be used as a boys' school only, has been erected some fifty yards from the original buildings. The new school will accommodate about 600 boys, and is built on the classroom and corridor principle. It has been built by Messrs. F. Coxhead & Co., from the plans of Mr. William Jacques, the Board's Architect.

ENLARGEMENT OF SCHOOLS, CORFE MULLEN, DORSETSHIRE.—The work of enlargement and improvement to the schools in this village has been completed. The work has been carried out by Mr. George Baker, from the plans of Mr. Walter J. Fletcher.

SCHOOL BUILDINGS, EALING.—The enlargement of the extensive school buildings of St. John's Parish, Ealing Dean, Middlesex, was formally opened by the Vicar of the parish on Saturday last. There is increased accommodation for 200 children, making nearly 1,000 in all. The entire sanitary arrangements are also being remodelled and modernised. The works have been carried out by Messrs. Ford & Sons, of Brentford, under the supervision of the architect, Mr. Robert Willey, of London and Ealing.

BOARD SCHOOL EXTENSION, ERDINGTON, NEAR BIRMINGHAM.—On the 16th inst. Mr. R. P. Yates laid the foundation stone of a boys' new department, which is being erected in connexion with the Erdington Board Schools, and at the same time unveiled a medallion of the Queen which has been let into the wall in commemoration of her Majesty's Diamond Jubilee. The buildings comprise a boys' department to contain 310 scholars, a large room or workshop for manual instruction, and a cookery centre. As soon as these are ready for occupation the present boys' school is to be extended so as to accommodate 120 additional scholars, and it will then be used as a girls' school. New teachers' rooms are also to be added and additional cloak-rooms formed. The amount of the builder's contract (inclusive of boundary walls, outbuildings, forming playground, warming, &c.) is 5,629l. The builder is Mr. R. Merton Hughes, the architect being Mr. C. Whitwell, both of Birmingham. The terra-cotta medallion of her Majesty is the work of Mr. George Tinworth.

BOARD SCHOOLS, BROUGHAM, WEST HARTLEPOOL.—These schools have just been opened. The building is planned with central halls, from which the several class-rooms, twenty in number, are entered and supervised. The infants' and mixed schools are placed on the ground floor, the mixed school occupying the whole of the floor above. There are eight entrances to the school from the playgrounds, four to the first floor, each with a separate staircase, and four to the ground floor. A separate cloak-room adjoins each entrance. Four teachers' rooms are provided, and placed so as to overlook the playgrounds of their respective departments. The floors and staircases are of fire-resisting material. The accommodation provided is for 1,495 scholars. The exterior of the structure is entirely brickwork. The contract was let to Mr. Thomas Beetham, of West Hartlepool, the several sub-contractors being: Plumbing, Mr. J. G. Oglesby; plastering, Messrs. Cobbett, Plows, & Co.; slating, Messrs. J. Atkinson & Son; painting, Mr. T. W. Stokell; playgrounds, Mr. J. Hadfield, Sunderland; fire grates, Messrs. T. W. & J. Pounder; lock and door furniture, Mr. N. F. Ramsey, Newcastle; folding screens, the North of England School Furnishing Company, Darlington. The warming and ventilating apparatus has been provided by Messrs. Ashwell & Nesbit, of London and Newcastle. The cost of the building has been about 14,400l. Mr. John Bulmer has been clerk of the works, and the architect was Mr. E. Percy Hinde, of Liverpool.

JUBILEE HOSPITAL, KINGSTON.—The foundation stone of the Kingston Victoria Hospital was laid recently. The building is to be erected on about three acres of land adjoining the Norbiton Railway Station, and immediately opposite the Union Workhouse. Mr. F. J. Collinson, of Teddington, has been entrusted with the erection of the building, which is to cost 3,580l. Major Macaulay is the honorary architect.

WORKHOUSE INFIRMARY, RIPON.—On the 17th inst. the Marquis of Ripon, K.G., chairman of the Ripon Board of Guardians, laid a foundation stone in connexion with the new infirmary which is in course of erection at the Ripon Union Workhouse.

The new building is estimated to cost 2,650l. The architect is Mr. F. H. Hargrave, of Ripon. The building is intended for nurses in the centre of the building, there will be accommodation on the ground and second floors for about forty persons. In addition to the sick wards for men and women there are day and duty rooms, foul wards, lying-in ward, with separate bath-rooms and lavatories in each section. Mr. J. Kitson is the clerk of the works, and the contractors are Messrs. A. Trees, stone, brick work, &c.; H. Boddy, joiners' work; W. E. Dixon, plumbing and smiths' work; J. Lowley, painting.

INGHAM INFIRMARY, SOUTH SHIELDS.—On the 6th inst. the foundation stone of the new wing of the Ingham Infirmary, South Shields, which is in course of erection on the north side of the main building, was laid by the Earl of Durham. The new building is to be called the "John Readhead" wing, in memory of the late Ald. Readhead, and it is intended chiefly for the treatment of medical cases distinguished from surgical cases. When completed, the accommodation of the institution will be increased three-fold, the additional number of beds provided being 48, making a total of 69. The contract price of the new building is 5,928l. The architect is Mr. H. G. Crisp, of South Shields, and the contractor Mr. R. Goodwin.

EXTENSIONS, ASTON WORKHOUSE, ERDINGTON, NEAR BIRMINGHAM.—The newly-erected additions to the Aston Workhouse were formally opened by the Chairman of the Board (Mr. W. J. Adams), on the 16th inst. They consist of a block of buildings providing accommodation for aged married couples, and another building for single vagrants, containing sufficient room to enable the Guardians to detain the professional tramps two nights, whereby it is expected to greatly reduce the number of vagrants calling at the house. The new works also include several other minor alterations, and have been carried out at a cost of 5,802l. by Mr. W. S. Seamark, and according to the plans of Mr. C. Whitwell, architect. The aged people's quarters consist of a two-story building. Accommodation is provided for ten couples, five on each floor. The approach to the upper rooms is by a stone staircase, which gives access to a verandah, on to which the doors of the apartments open. A bath-room is also provided. The building for the vagrants is situated on the south side of the workhouse, and contains twenty-six separate sleeping cells, and thirteen stone-breaking cells, a large bath-room, day-room, and attendants' room, and a house for the occupation of the labour master has been erected near. Iron escape staircases are affixed on the exterior of each wing of the two older three-story infirmary pavilions and afford egress from the two upper stories of each. They are the work of Messrs. Hart, Son, Peard, & Co. The heating and hot water supplies to the vagrant wards, and reheating, &c., of one three-story infirmary have been carried out from the architect's plans and specifications by Mr. T. Parkes, of Birmingham, at a cost of 360l.

BANK BUILDINGS, PŴLLHELI, CARNARVON.—The contract for the erection of a banking house for the Metropolitan Bank of England and Wales at the PŴllheli has been let to Messrs. Jones, Roberts & Jones, of that town. It is to be built on the site of an ancient house in High-street known as "The College." The front will be 45 ft. in length, with a height of 36 ft. to the cornice, all executed in Helsby red sandstone. The accommodation will comprise a banking-room, consulting-room, strong-room, and offices, managers' house, containing entrance-hall, dining-room, drawing-room, eight bedrooms, bath-room, lavatories, and the usual domestic offices. Messrs. Thomas Roberts & Son, Portmadoc, are the architects.

RAILWAY STATION, LLANDUDNO JUNCTION.—Llandudno Junction old station has just been closed, a new station having been erected about 400 yards near Chester than the old station. The contractors for the work were Messrs. Monk & Newell, Bootle, Liverpool, their engineer and manager being Mr. Newell; Mr. J. Birrell was clerk of the works, on behalf of the railway company. The total cost of the new station is 120,000l.

ADDITIONS, MECHANICS' INSTITUTE, GUISBOROUGH.—The foundation stone of a new building in connexion with the Mechanics' Institute, Guisborough, has just been laid. The architect is Mr. J. M. Bottomley, Middlesbrough, and the contractors are Messrs. Cruddas & Son, Guisborough.

VOLUNTEER DRILL HALL, HERTFORD.—The foundation stone of a volunteer drill hall for Hertford has just been laid by the Mayor. The buildings will comprise a new drill hall, 70 ft. by 55 ft. The new headquarters' establishment will be in a separate building, and will give accommodation in separate rooms on the ground floor for a company orderly-room, a battalion orderly-room, and an armoury and military stores, with living rooms provided for the sergeant-major over these rooms. The whole of the buildings will be in red brick, having moulded brick dressings. Mr. J. Farley of Hertford, is a separate architect and Messrs. Ginn & Son are the contractors.

PUBLIC LIBRARY, HAMPSHIRE.—The Central Public Library in Finchley-road, Hampstead, the foundation-stone of which was laid on November 10 last year, was opened on the 10th inst. Mr. A. S. Taylor is the architect. The Central Library is a two-story building, built of Cranleigh red brick, with dressings and mullions of Portland stone. It is

situated at the junction of Arkwright-road and Finchley-road, with a frontage to both thoroughfares. The upper ground floor comprises the reference library and reading-rooms, the lower floor accommodating the lending library, with various stores and offices. The reading-room will be devoted to newspapers, &c. The reference library is 50 ft. long, 30 ft. wide, and is lighted by windows on every side. The building contract was for 4,054l.

CO-OPERATIVE STORES, HELEY.—The foundation stone of a new branch store of the Ecclesall Industrial and Provident Society, Limited, which is being erected in Gleadless-road, Heley, was laid on the 6th inst. The new stores are being erected at a cost of 3,600l. The building will be of brick, with a ground space of 77 ft. by 40 ft., and the whole of the basement is to be lined with white bricks. The architects are Messrs. Hall & Fenton, and the contractor is Mr. James Lenthall, of Attercliffe.

CONVALESCENT HOME, HERNE BAY.—The foundation stone of a new Convalescent Home for Friendly Societies at Herne Bay was laid on the 6th inst. The site of the new building is the Belting Estate, about a mile east of the town. Mr. A. Sax Snell is the architect of the building.

BURTON, N. GREENOCK.—The meeting of the Dean of Guild Court on the 4th inst. Dean McGregg reported that during the year just closed 623 cases had been under consideration, against 757 last year. The probable total cost of the buildings for which plans had been passed was 75,755l., comparing with 83,000l. last year, which, however, was the record year. Of the 136 plans passed, thirty were for cottages or houses, and for improvements, twenty-three for business and other premises, a ninety-six for alterations and additions to existing buildings.

ALMSHOUSES, BUCKINGHAM.—New almshouses have just been erected in the High-street, Buckingham. The building is of red brick, with York stone dressings, Bangor slates being used in the roof. Mr. Charles Bell of London, was the architect, and Messrs. G. Tombs & Sons were the builders. A balcony extends the whole length of the front of the building.

JUBILEE HALL, FARNBOROUGH.—The foundation stone of the Queen's Jubilee Hall at Farnborough was laid recently by Mrs. Holt. Messrs. Charles Smith & Son, of Reading, are the architects. Mr. E. C. Hughes, of Wokingham, is the contractor.

CONCERT HALL, MANCHESTER.—The erection of a new Concert Hall in Manchester has been decided upon by a syndicate. The site chosen for the new structure—"Queen's Hall" it is to be called, as commemoration of the Diamond Jubilee—is in Oxford-street, fronting Oxford-road Station. The designs have been prepared by Messrs. Mangnall & Littlewoods, of Manchester. The style adopted gives a frontage to Oxford-street based on Spanish Late Renaissance or "Plateresque," the material to be employed being buff terra cotta. The building in this part is to be of four stories, the lower one consisting of four shops, while the upper one will be surmounted by a centre gable flanked by towers with octagon turrets. The large hall is to be capable of seating 1,500 persons, in the proportion of 1,000 in the body of the hall and half that number in the galleries. The body of the hall can be divided, if necessary, into three parts, and there will be a separate entrance for each class of seats. The principal entrances will be in Oxford-street, approached by vestibules leading to a crush-room. The larger hall will be on the first floor, approached by two flights of stairs, and on the same landing there are to be an ante-room and foyer. The platform will be adapted for stage play and underneath it will be rooms for artists, choir, and others engaged. There will be a smaller room for private parties, and a feature of the interior design is the provision made for supper-rooms.

COTTAGE HOSPITAL, RAMSBOTTOM.—On Monday the 15th inst. the first sod of the new Cottage Hospital, Nuttall-lane, Ramsbottom, was cut by Mrs. Aitken, of Holcombe Hall, who is defraying the whole of the cost and presenting the building to the town. The contract has been let to Messrs. Platt & Castle, of Ramsbottom, and the architects are Messrs. Haywood & Harrison, of Accrington a Lytham. The estimated cost is about 3,000l. **THE GAITEY THEATRE OF VARIETIES, BIRMINGHAM.**—The Gaiety Theatre of Varieties has just been re-opened after alteration. Not much change has been effected in the exterior of the building, the principal work having been carried out internally. The alterations have been executed by Mr. J. Davidson, of Newcastle-on-Tyne, from the designs of Messrs. Cross & Butler & Stone, architects, Birmingham. The cost of the alterations is about 30,000l. Altogether, accommodation is provided for nearly 3,500 persons, the being room for 1,300 in the pit, 300 in the stalls, 700 in the circle and lounge, 800 in the gallery, and 400 in the amphitheatre. The length of the auditorium is 94 ft., and the width 72 ft., whilst the lounge accommodation at the back increases to 35 ft. by 34 ft. The stage is 30 ft. wide and 60 ft. deep. The principal entrance is in Collesh street, where admission can be gained to the box stalls, and circle by means of a marble staircase. At the back of the circle is a lounge bar. The circle is fitted with 500 tilt-chairs of walnut, upholstered in red plush. Above the circle is the gallery, with amphitheatre in front. The stalls are placed in front of the pit and are upholstered in old green

whilst on either side is a lounge flanked by a box, and above them on each side of the circle a couple of boxes. Bar and lavatory accommodation has been provided for each part of the house. The proscenium arch is 34 ft. by 32 ft. The electric lighting arrangements have been carried out by Messrs. Verity, Limited, of London and Birmingham, the design of Mr. Winfield Bowles, whilst Messrs. R. Deane, Limited, have supervised the whole of the decorations and upholstery.

AS OFFICES, HALIFAX.—These buildings, which have just been completed for the Gas Committee of Halifax County Borough Council, are situated in the pleasure Hall-road (adjoining the Gasworks), and form a frontage to that road of 225 ft. They consist of large offices containing drawing office and plan room, engineer's, engineer's clerks', general, and other offices, store-room and store-keeper's office, telephone-room, waiting-room, and lavatories on the ground floor, with a hall and staircase. The first floor consists of committee-room, laboratory, photographer, and four large store-rooms. Adjoining are two offices for night and day foremen. The basement consists of store-rooms for pipes and fittings. The work has been carried out by local firms, from designs and under the direction of Mr. W. H. D. Marshall, architect, Halifax.

MONASTIC HALL, PORTADOWN, IRELAND.—Lord Portadown laid the foundation-stone, on the 5th inst., of a new hall, at Portadown. The hall is situated near the corner of Thomas-street and Carlisle-street. The walls will be built of brick, with Giffnock stone dressings. The building will be two stories in height. The ground floor will contain dining and reception rooms, cloak-room, lavatory, and a stair will lead to the upper floor, which is to be situated in the lodge-room, and will be situated in the lodge-room, and will be 36 ft. by 27 ft. wide. The contractors are Messrs. Wright Bros., of Portadown, who are carrying out the work from the plans and under the superintendence of Messrs. J. J. Phillips & Son, architects, Belfast.

NAVY AND ENGINEERING NEWS.

GRAVING DOCK, BLYTH.—On the 10th inst. a new graving dock was formally opened at Blyth. The dock is 480 ft. in length, width at cope 80 ft., width at entrance 61 ft., depth of water on sill at high water 22 ft. 6 in., and the depth from cope to floor 16 ft. The site of the dock is on a piece of ground formerly known as the Flanker, and is situated north of the Blyth Dry Dock Company's docks. This ground was entirely covered with water every tide, and was the main outlet of the sewage from the town, as well as surplus water from the land and collieries beyond. A large conduit to convey the sewage and water, 750 ft. in length and 5 ft. 6 in. diameter, partly constructed of brick and concrete and partly of steel tubes, had to be made along the south side of the new dock, the dock wall being afterwards built round it. An extensive coffer-dam had to be constructed to keep back the river water during the excavations and concreting inside. The dock walls and floors are built entirely of Portland cement concrete. The engine-room is below the surface level, and is 16 ft. long by 33 ft. 6 in. wide by 23 ft. deep, and is situated between the old and the new docks; the walls and floors are also built of cement concrete. The pumping machinery has been supplied by Messrs. Gwynne & Co., London. There is also one engine, supplied by Messrs. Tangey, Limited, Birmingham. The gates are built of steel, with Greenheart miter-posts; joints and sill-pieces are hung from the sides, and are held by strong anchor-bolts built into the entrance walls. The gates have been built by the Brandon Bridge Building Company, Motherwell. The engineers for the work were Messrs. J. W. Toman & Moncrieff, Newcastle, the resident engineer being Mr. Donald Macdonald. The contractor for the work was Mr. D. N. Brims, Newcastle. Mr. George Cooper being his representative.

WATERWORKS, NEWPORT PAGNELL, BUCKS.—The newly-formed Urban District Council at Newport Pagnell have instructed Mr. D. Balfour, engineer, of Newcastle-on-Tyne, to report on the existing pumping machinery at the waterworks for the town supply.

SEWERAGE, BILTON, HARROGATE.—At a meeting of the Knaresborough Rural District Council, the tender of Mr. J. L. Hampton Matthews, of Harrogate, was accepted for the carrying out of a scheme of main sewerage and sewage disposal for Bilton, Harrogate, in accordance with plans by Mr. D. Balfour, Newcastle-on-Tyne.

LOCAL SEWERS IN LONDON.—The Main Drainage Committee of the London County Council have sanctioned the construction of the following local sewers:—16 ft. of 12-in. pipe and concrete sewer in Holmwood-road, Upper Tulse Hill, Epswich; 250 ft., 340 ft. and 137 ft. of 12-in. pipe sewers in Lanier-road, Theodore-road and Willow-croft, Catford, respectively. St. Luke, Middlesex: 16 ft. of 12-in. pipe sewer in Baldwin-street, 50 ft. of 14 in. by 2 ft. 6 in. brick sewer in Bath-street, 52 ft. of 14 in. by 2 ft. 6 in. brick sewer in Graham-street, and 160 ft., 200 ft. and 540 ft. of 12-in. pipe and concrete sewers in Henry-street, Lamb's-passage and Peerless-street respectively.

STAINED GLASS AND DECORATION.

WINDOWS, NEILSTON PARISH CHURCH, RENFREWSHIRE.—Two memorial windows have been erected in Neilston Parish Church. The thistle is a feature in the ornamental background of the windows, into the details of which is inserted in one window the heraldic emblazonment of the Craig family. In the companion window the arms of Craig and Pollock are combined, with medallions showing the family monograms. The windows were designed and executed by Messrs. Stephen Adam & Son.

WINDOW, ST. MUNGO'S EPISCOPAL CHURCH, ALEXANDRIA.—There has just been erected in this church a stained-glass window to the memory of Mrs. Burnham. The window is placed at the end of the church opposite the chancel. The centre light is 15 ft. in length, and the side ones 10 ft. In the large window the principal figure is Christ sitting in glory, and holding in his hand the orb of the universe, and a figure of our Lord on the cross. On the left is "St. Agnes" carrying a lamb. On the right is another female figure, representing the lady commemorated. The work was carried out by Messrs. Clayton & Bell, of London.

WINDOW, PARISH CHURCH, HIGHAM FERRERS.—A stained-glass window has lately been put in the chancel of this church in memory of the Rev. A. Thos. The window is 15 ft. in length, and the side ones 10 ft. The work has been executed by Messrs. Shrigley & Hunt, of Lancaster.

REEREDS, HALTON CHURCH.—A reeredos, the gift of Lady Brooke, of Norton Priory, was dedicated in Halton Parish Church on the 7th inst. It is made of Caen stone, alabaster, and marble, the centre panel containing a figure of our Lord on the cross, in the right panel that of St. John the Divine, and in the left that of the Virgin. The work was executed by Messrs. H. H. Martyn & Co., of Cheltenham, from the design of Mr. Edmund Kirby, architect, of Liverpool.

WINDOW, STANISH CHURCH, GLOUCESTER.—A stained-glass window, in commemoration of the Diamond Jubilee of Queen Victoria, has just been dedicated in this church. The subject illustrated is the visit of the Queen of Sheba to King Solomon. The window is the work of Messrs. Joseph Bell & Sons, of Bristol.

WINDOW, TYTHERINGTON PARISH CHURCH, NEAR BRISTOL.—At Tyttherington Parish Church a stained-glass window has been placed in the north side of the chancel. The window has been executed by Messrs. Joseph Bell & Sons, Bristol.

WINDOW, ST. THOMAS', DOUGLAS.—A new stained-glass window was placed in the south side of the Church of St. Thomas, Douglas, recently. The work has been carried out by Messrs. Heaton, Butler, & Bain, London.

FOREIGN.

FRANCE.—The Orleans Railway Company, it is expected, will commence the demolition of the Court des Coches next month, and a competition will be opened by the railway company for a design for a new terminus on the Quai d'Orsay, accompanied by a large hotel.—New buildings for the Ecole de Médecine have been commenced, at the corner of Rue Hauteville and Rue de l'Ecole de Médecine, on the site of the old laboratories of the institution. The scaffolding are soon to be removed from the new Opera Comique building, in which the interior fittings are being rapidly pushed forward. In the vestibules all the red marble columns are now placed, the decorations of the ceiling are in course of execution, and the walls of the foyers are ready to receive the decorative paintings which have been commissioned from some of the first artists of the day. The monument to Bizet by M. Falguère will be placed on the left-hand staircase leading to the first tier.—MM. Tony Noël and Leduc have completed the model of the equestrian statue of the Duc d'Aumale, to be erected in the town of Chantilly. The Prince is represented as he was at the age of fifty-five or thereabouts, the time when he was commander of the Corps d'Armée at Besançon. The figure wears the uniform of a general of division. The model has already been submitted to the municipality of Chantilly.—Some curious baptismal fonts in the old Church of Bello, dating from the sixteenth century, have just been classed among Monuments Historiques. The ancient carved arch at Gap is in process of demolition. It is to be replaced by a new church now being erected.—The Municipality of Rouen has opened a competition for the re-arrangement and artistic decoration of the promenades of that city.—The death is announced of the painter Auguste Bouard, at the age of seventy-two. He was the pupil and friend of Jules Dupré, of Millet, and of Théodore Rousseau. He was a modest and conscientious artist, whose special power lay in portraits. He was a member of the Champ de Mars Society, and a special exhibition of his works at the Georges Petit Gallery last year attracted a good deal of interest.

GERMANY.—Herr Franz von Hoven has been elected President of the Frankfurt Society of Architects.—It is characteristic of the present temper of Germany that difficulties are being put in the way of foreign students. Besides raising the fees at the technical colleges, we now hear that the number of

foreigners attending certain laboratories at Universities in Germany is to be limited.—It appears that the German Emperor, besides taking interest in monuments, is henceforth to actively participate in the design of some of the many churches which are being erected in or near Berlin under his patronage. Baurath Spitta has just had his design for a new church for Wilmsdorf remodelled by this Imperial hand.—Baurath Boeckmann, who has long actively participated in the very characteristic designs for the buildings of the Zoological Gardens, has just accepted the Presidency of the Zoological Society, who own the grounds.—The transfer of the Botanical Gardens, in regard to which we have already given particulars, is to be taken in hand at once, and rapid progress is being made with the new conservatories, &c., on the proposed site.—A new Society of Painters has been formed at Berlin, which will open its first exhibition of paintings on the 21st inst.—An Arts and Crafts Institute is to be started at Florence under the auspices of a Munich Committee, and Professor Brockhaus is to be the Director.

JOHANNESBURG.—In Johannesburg, notwithstanding the depression, building is going on as briskly as ever. Buildings, five and six stories high, on every side give the impression of another city—a new Johannesburg in the place of the old. Some of these new buildings are being constructed on the principle of the American sky-scrapers, with a framework of iron and the brickwork filled in from the top downwards; indeed, nearly all the new buildings are being largely constructed of iron. A large business is consequently being done in pillars and girders, which is providing Home firms with some excellent orders. A very profitable field is open to any manufacturer who will establish a depot for these goods at one of the coast ports. A considerable trade could be done in the same manner in old rails for building purposes.—*Johannesburg Standard.*

THE TOWN OF BULAWAYO.—The following description of the aspect of Bulawayo is taken from the first issue of a new weekly paper, *Rhodesia*, published in London:—"The first features that impress you are the extraordinary width of the streets, and the presence of huge gaps of bare ground between the buildings. Bulawayo is like an overgrown giant lying with outstretched limbs, with no body to boast of. The bulk of the buildings, you find, are built solidly of brick and stone, with many double-storied ones in construction. The principal buildings are the Stock Exchange, which contains the Post Office; Lauer's-buildings, a fine corner block of offices paring the two principal streets and owned by the Rhodesia Exploration Company; the Critch-buildings, another corner block, owned by the Bulawayo Estate and Trust Company; William's-buildings, a double-storied block at the back of the Post Office; Glass-chambers, owned by Rhodesia, Limited; White's-buildings, Stracey's-buildings, and many others. The Government Buildings are of no great architectural importance, neither is the Court House. The Market Hall and offices stand conspicuous in the midst of a Market square as large as the one at Johannesburg. The town has been laid with no stinted hand. The stands, 100 ft. frontage with 140 ft. depth, are each large enough to erect a theatre upon. The streets, 100 ft. across and indefinite in length, are wide enough for carriages to travel eight abreast. At the rear of all blocks is a back passage of 15 ft. in square, large as the one at Johannesburg, and wide enough to drive a bullock wagon through. An extensive park is laid out at the foot of the town between the urban and suburban stands, and miles of building sites are already laid out along the valley, which, when built upon, will form a city, in size and appearance, second to none in South Africa."

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The General Electric Company of London and Manchester have added another branch to their business, at 9, William-street, Dublin.—Mr. W. Henry White, architect, has removed from Vere-street to new offices in No. 14, Cavendish-place, Cavendish-square, W.—Messrs. Eastwood & Co., Portland Cement Manufacturers, in consequence of the re-building of their offices at Belvedere-road, Lambeth, have taken temporary offices at 61, Temple-chambers, Temple-avenue, Victoria Embankment.—Mr. C. R. Giffiths, architect, has removed his offices from 31, Furnival-street, Holborn, to 4 and 5, Warwick-court, Gray's Inn, W.C.

TENDERING FOR THE HULL CORPORATION.—At a recent meeting of the Hull City Council, the Town Clerk read a letter from Mr. G. Stanley, Secretary of the Hull Master Builders' Association, protesting against the practice of several Corporation Committees in ignoring tenders for work after asking for them to be sent in, and then executing the work by Corporation workmen. The letter stated that the Association was composed of 220 firms, which comprised some of the largest ratepayers in the city, and that in consequence of the action of the committees in question considerable irritation was caused through loss of time and trouble in preparing tenders. The letter was ordered to be entered on the minutes.

SOUTHAMPTON-ROW.—We read that the Improvement Committee of the London County Council

are formulating a scheme for widening this street along the portion between High Holborn and Theobald's-road. It appears that the Duke of Bedford owns the freehold of the houses lying between Southampton-row and Kingsgate-street, and Theobald's-road and High Holborn. The leases will shortly expire, most of them in 1901; so it has been proposed to treat with the Duke for buying the freehold and one or two long leasehold interests, the short leases being allowed to run out, and to then increase the street's width to about 80 ft. The estimated net cost of the improvement is £149,500, after allowance for recoupment by the sale of surplus lands. The alteration would involve the demolition of the west side of Kingsgate-street. The south part of Southampton-row was formerly named King-street. Halton, in "A New View of London," 1708, says that Kingsgate-street and the King's-way were so called because the King used to go that way to Newmarket; the latter was also known as Theobald's-road, because it formed the way to James I.'s hunting-seat in Hertfordshire. Dr. Dodd, the forger, removed to Southampton-row from Pall Mall; at No. 14, in 1824-5, lived B. W. Procter ("Barry Cornwall").

CHURCH TOWER, LISKEARD.—Liskeard Town Council met on the 9th inst., when the Borough Surveyor, Mr. T. McMeikan, in accordance with the directions of the Council, said he had made a careful inspection of the tower of the parish church, and headed in a written report, in which he stated that several cracks are apparent in different parts of the masonry, due doubtless to the defective foundations, this being particularly noticeable in the north and south walls, which were bulging seriously. A considerable portion of the masonry is of a very poor character, and portions may fall at any time; and the stability of the tower had been so seriously interfered with as to render it dangerous to persons in the immediate vicinity, more especially in the west end of the church itself.—Mr. Henwood moved that a copy of the report be sent to the vicar and churchwardens, it being their building, with a request for a reply from them. Mr. Young seconded, pointing out that it was the special duty of the Council to ensure the safety of the public. The motion was adopted.

PROPOSED BUILDERS' EXCHANGE, HALIFAX.—At the Junction Hotel, Halifax, a meeting of the representatives of the firms engaged in the building trades of Halifax and district was held on the 10th inst. to discuss the project of establishing a "Builders' Exchange" for the district. Mr. Isaac Firth presided. Mr. S. Naylor said that the Master Builders' Association had called the meeting at the request of large firms of stone merchants, brick-makers, and others who thought the time had come when, in the interests of the various trades, an exchange should be formed. Personally he was convinced that an exchange could be formed.—Mr. H. Dilworth proposed, and Mr. Gilbert seconded, "That a Builders' Exchange be formed for Halifax and district." Mr. Dalzell supported the resolution. He suggested that the membership be extended to builders and others engaged in the stone and general building trades, with a distinction between buyers and sellers, the sellers' proportion of subscriptions to be larger than the buyers' proportion. The resolution was carried unanimously. Mr. S. Naylor suggested the appointment of a committee of inquiry, comprising representatives from the various trades, and from stone districts like Southwam, Ringby, &c., with a secretary. Mr. Oates (Oates & Green) indicated the lines on which the Bradford Exchange was formed—the cost of membership was 10s. for sellers and 6s. for buyers, and the exchange was worked with a chairman, a small working committee, and a secretary. After some conversation it was decided to appoint the following gentlemen as a temporary committee:—Messrs. Maurice Greenwood, A. Dalzell, Wilson (Wilson & Haigh), B. Riley, T. S. Dodd, Isaac Firth, and S. Naylor. On the motion of Mr. Hartley, seconded by Mr. Craven Robinson, it was decided that the market day be changed from Saturday to Wednesday. Mr. A. Dalzell was requested and consented to discharge the duties of secretary *pro tem.*, and numerous members were enrolled.

MEMORIAL SCREEN, S. MICHAEL AND ALL ANGELS', NEEPSSEND, YORKSHIRE.—The old chancel screen in this church has been removed, and is now replaced by a new one as a memorial to the late Mr. William Wake, of Osgathorpe House. The new screen is divided into six compartments, the central doorway being 5 ft. wide, the side openings being narrower. Rising from the centre of the screen is an ornamented cross. The doorway of the screen has gates of wrought ironwork, painted red and partly gilt. The whole of the woodwork and carving, except the figures and emblems, is the work of Messrs. E. Bowman & Sons, Stamford. The figures, &c., being carved by Messrs. Roddis & Nones, of Birmingham; the iron gates were made by Mr. E. Laiden, of Durham; and the marble was supplied by Messrs. Patterson, of Manchester. The whole work is from the design of Mr. W. C. Hodgson Fowler, of Durham.

THE NATIONAL ASSOCIATION OF MASTER PLUMBERS.—The half-yearly meeting of the National Association of Master Plumbers was held on the 10th inst. at Bradford. Delegates were present from eighty towns in England and Wales. The chair was occupied by Mr. John Beal (Hull),

the President, who was supported by Mr. W. Jaffrey (Manchester), Mr. A. E. Biggs (Leicester), Mr. R. W. Cooke (Newcastle), Mr. W. Skerrow (Leeds), and Mr. H. Blackburn (Dewsbury). The reports of the Secretary (Mr. W. H. Smith) and the Hon. Secretary (Mr. J. Peattie, Oxford) were adopted. Mr. Thomasson (London) said that in their district they had found that the best course was to appoint a paid secretary, and this had resulted in a considerable accession of membership.—The Secretary's report, which was adopted, showed that the Association had been duly registered as a limited liability company. Several complaints had been received against masters, most of which had been settled to the satisfaction of the members concerned; and there had been small disputes with operatives at Bradford and at Derby, which the Association had done its best to bring to a satisfactory conclusion.

STONE AND TIMBER TRADE AT ABERDEEN HARBOUR.—During the financial year ended September 30 last there were exported from Aberdeen Harbour 31,400 tons of caseway setts (a rise of 9,400 tons on the exports for 1895-6), 8,982 tons of polished granite (an increase of 458 tons), 4,236 tons of kerb, pavement, and building stone, 11,217 tons of rubble and chips, and 2,769 tons of road metal. These figures do not include polished granite monuments for the United States, which go by rail from Aberdeen, being shipped at Glasgow. Owing to the uncertainty as to the tariff value of the exports to America in the same period exhibited a falling off. The monumental granite trade in Aberdeen is still very busy, and the monuments manufactured during the past six months have included a large number of more elaborate and expensive monuments than was the rule in the previous year. During 1895-7 there were imported into Aberdeen 13,874 tons of rough foreign granite for monumental purposes. Owing to the activity of the building trade in and near Aberdeen, the imports of timber at the harbour rose from 2,720,000 cubic feet in 1895-6 to 3,000,000 cubic feet in 1896-7.

FAIR WAGES AND CORPORATION CONTRACTS.—At a meeting of the Liverpool City Council on the 9th inst. Mr. Taggart moved an amendment to No. 80 of the standing orders, which provides that standing orders as to tenders and contracts shall not apply, among other things, to work estimated to cost less than 100l. Mr. Taggart sought the omission of the words "estimated to cost less than 100l.," but after his amendment had been seconded by Mr. Kearney and briefly discussed it was rejected. Mr. Flynn moved as a further amendment that the sum be reduced to 50l., but this also was defeated. Considerable discussion took place upon No. 90 of the standing orders, by which corporate contractors are required to undertake to pay the rate of wages and observe the hours of labour recognised and agreed upon between the trades unions and the employers respectively, "or such rate of wages and hours as are equivalent thereto." A letter was read from Mr. John Shannon, secretary of the Liverpool and Vicinity United Trades and Labour Council, stating that at a joint meeting of representatives of the council of the Building Trades Federation and the Printing and Kindred Trades Federation a resolution was passed recommending the City Council to adopt such a fair-wage clause as would enable all employers to compete with those who had secured a monopoly of trade contracts by cheap labour and lengthened hours. The letter stated that this resolution had the hearty support of every respectable firm in Liverpool, who deplored the unfair tactics pursued by certain houses in connection with these contracts.—Mr. Rutherford moved the omission from the standing order of certain words, and substituting therefor "That in any trade where there is an agreed and recognised scale of wages and hours of labour, agreed upon between the recognised representatives of the employed on the one hand and of the employers on the other hand, in any branch of work within such contract, in the locality in which the work for carrying out the contract is to be performed, I (the contractor) will pay such rates of wages and observe such hours of labour, &c." Mr. Taggart seconded Mr. Rutherford's amendment. Mr. Warr, M.P., pointed out that Mr. Rutherford's object would be achieved with less circumlocution if the words used in Government contracts were adopted—"The wages and hours generally accepted as current in each trade for competent workmen in the district where the work is carried out."—The Lord Mayor said he would rather use the words "the trades-unions" honestly inserted in the standing orders. They all desired that the best workmen should be employed upon all corporate work, and properly paid and reasonably worked. At the same time there were disadvantages in drawing a too hard and fast line round the conditions under which corporate work was done. Certain classes of work they could not carry out practically by freedom of competition. If the standing order was altered as suggested it would gravely inconvenience some of the services of the Corporation. On a division the amendment was carried by 37 votes to 30, and it was then brought forward as a substantive motion. Clause 90, as amended, was put to the vote, and was lost by 44 against 40. Mr. Taggart moved that, inasmuch as Clause 90 having been struck out, Clauses 91 and 92, which hinged upon them, would also have to go. Alderman Hughes, in reply to questions, said that after the ruling of the Lord Mayor he could not

move Clause 92, but proceeded to move Clause which read:—"In cases in which the articles required by any Committee can be obtained at ordinary market price in the City, or other place, being equal, preference shall be given to tenders of persons carrying on business within the City." Mr. Lonsley moved as an amendment that at the end of Clause 93 the words be added, "are paying trades union wages and observing trades union hours." Mr. Flynn seconded the amendment, which on a division was lost by 48 votes to 35, standing order as submitted was passed.

THE BRILLIANT ELECTRICITY METER.—We have received from Messrs. Downie & Adams, of Oxford-street, London, a descriptive price-list of the Brilliant meters. Like many other electricity meters, it is highly ingenious apparatus. It is a true energy meter, and measures the energy supplied to consumer, and not merely the current. If voltage of supply be persistently low, or if alternating current arc lamps be used, this is an important matter. It compares very favourably with other energy meters, both in respect of the amount of energy consumed at no load, and also in regard to starting current. In the course of the year it is calculated that a 40 ampere Brilliant meter consumes only nine Board of Trade units, which, of course, at the cost of the supply company. The starting current is very small, as it will start with a quarter of the current required by an arc lamp. A peculiarity of this meter is that the current which drives it is not the house current, but is taken directly from the mains, the house current merely controlling the speed by acting directly on a high resistance coil joined between the mains. A cylinder of copper rotates between six horseshoe magnets fixed to a ring, and is suspended from the movable part of the meter. On any current flowing in the mains this coil turns round and lets a current pass through a little motor which rotates the horseshoe magnets. As the Foucault currents induced in the copper cylinder tend to make it turn in the opposite direction to the coil, a position of equilibrium is determined in which the turning moments on the coil and cylinder balance one another. The speed of the motor spindle is always in proportion to the energy consumed in the house circuit, and as it actuates a train of gearing by means of a worm wheel it gives readings directly in Board of Trade units. It may roughly be described as consisting of a motor whose speed is governed by a very sensitive regulator, which may be compared to the governor of a steam engine. In the governor of a steam engine centrifugal force is balanced by gravity. In the regulator of the Brilliant meter the couple caused by the induced currents in the copper cylinder is balanced by the direct magnetic action of the mains on the high resistance coil. The latter type of this meter has the great advantage over many of its rivals that all its constituent parts are easily accessible whether for cleaning or repair. In addition we notice in this price-list a table giving the names and prices of the constituent parts, an innovation decidedly to be commended. It is a strong instrument, and as it is mounted on a heavy slate base complete rigidity and perfect insulation are secured.

PICTURES BY MR. TOM LLOYD.—A special exhibition of water-colour drawings by Mr. Tom Lloyd is at present open at Messrs. Frost & Reed's Gallery, at 3, Clare-street, Bristol. They are said to be all exhibited for the first time, though we sometimes recognise some of the titles in the catalogue sent to us.

CITY COMMISSIONERS OF SEWERS.—The widening of Lower Thames-street between Botolph-lane and Fish-street-hill was the subject of a report by the Finance and Improvements Committee at a meeting of the Commissioners of Sewers on Tuesday. It was stated that the portion of the street in question varied between 28 ft. 7 in. and 30 ft. wide, the carriage-way being only sufficient for two vehicles stand abreast, varying as it did from 17 ft. 4 in. to 18 ft. 1 in. in width. The committee thought that the accommodation this space afforded was wholly inadequate, and that this part of the thoroughfare should be widened without delay. They submitted three plans for widening the street for the length 315 ft.—one to widen it 40 ft. at a cost of £151,500, another 50 ft. at a cost of £171,000, and the third to widen it 60 ft. at a cost of £190,000, and recommended that the views of the London County Council should be ascertained upon the subject before the subject was asked to come to a vote on the scheme. The report was agreed to on the motion of Mr. Cloudeley. The solicitor reported that the Postmaster-General had taken out summons in the Mayor's Court against the commissioners, under the Telegraphs Acts, 1863 and 1884 for refusing to allow his officials to open the City streets for the purpose of laying telegraph wires, except on the condition that he undertook that the wires should not be used by the National Telephone Company, who had refused to make concessions to the public. The Court instructed the solicitor to enter an appearance to the summons, and if necessary to carry the case before the Railway Commissioners as the Court of Appeal.

THE BOROUGH INSTITUTE.—Mr. Bayley, L.C.C., presided on the 15th inst. at the presentation of the Borough Polytechnic Institute. Borough-road, the ceremony being performed by Professor Stuart, M.P. The Chairman, in opening

proceedings, said 10,000 students had passed through the Institute since it was established in 1871. He explained the various branches of work undertaken by the Institute, and the intentions of the Governing Body with a view to promoting its progress, including the building of five new workshops, a new gymnasium, and further improvements, at an estimated cost of 10,000l. Mr. C. T. Ellis, the principal, read the report, referring to the success gained, to the number of 395 in the various examinations, the percentage of passes being higher than that of the preceding session. They had gained twenty-three County Council scholarships in science, art, and technology against seven last year. The successes in the Society of Arts examinations were in advance of those last session. Specimens of work done by women in the various classes were sent to the Women's Work Section of the Victorian Era Exhibition, and included exhibits of work, boot and shoe manufacture, mechanical and geometrical drawing, as well as the usual domestic economy subjects. In the trade classes they had 650 actual workers in the various trades, and in the Science and Art classes of over 350 fully trained per cent. were engaged in industries. Professor Ellis distributed the prizes, and delivered a part address.

THE SLATE TRADE.—Prices for the coming year in the Festiniog quarries will remain as they are, and we do not anticipate the Carnarvon quarries will make much change. The Penryn quarrymen have now fairly settled down to work, and at one time it was feared the settlement arrived at would be set aside. This will probably put an end to the importation of foreign slates, which was taken up, not by firms in the slate area (who had experience of the past), but by outside firms unconnected with the trade.

LEGAL.

PROSECUTION UNDER THE BIRMINGHAM BY-LAWS.

At the Birmingham Police-court, on the 9th inst., Messrs. A. Chamberlain and Bolding sat for several days hearing cases of alleged infringement of the by-laws. The defendant, Stephen Blundell, plumber and contractor, Blundell-road, Sparkbrook, was summoned for erecting houses in Charles-road, small Heath, and neglecting and refusing to provide suitable drain-traps in the house connections with the drains; and, further, for refusing to provide at least two untrapped openings for the purpose of securing sufficient ventilation in each house, as required by the by-laws. Mr. McCordie (instructed by the Town Clerk) appeared for the Corporation, and Mr. Hugo Young (instructed by Mr. Barber) for defendant.

Mr. McCordie said there were twelve summonses, dealing with six houses in Charles-road, but they were practically similar, for the purposes of the case would proceed with two summonses only. On January 12 last defendant submitted, by his architect (Mr. Hamblin), plans for the erection of certain houses, commencing with the thirty-first house in Charles-road, on the west side from Bordesley-green, and on January 19 those plans were disapproved by the Corporation on the ground of certain defects. The plans were again submitted on January 25, and again on February 1 were disapproved. On that day, or shortly afterwards, an interview took place between the City Surveyor and Mr. Hamblin, and the latter made certain alterations which justified the Corporation in approving the plans on February 5.

On February 28 the Corporation received a letter from Mr. Barber, defendant's solicitor, in which he denounced the architect's plans for Hamblin to make the alterations in question. Mr. Barber sent to the Corporation addenda to the plans indicating the position of the drainage which he thought ought to be approved by the Corporation. On March 2 those plans were disapproved, but in spite of this the building was commenced on March 9. On June 6 notice was given that the drains were ready for inspection, and a visit was paid to the property. It was then found that the drainage system as laid down was not in accordance with the plans approved by the Corporation, but in accordance with the addenda which had been disapproved by the Corporation. On August 5 fresh plans were submitted, and were again disapproved, and an interview with the Health Committee failed to bring about an acceptable arrangement. He (Mr. McCordie) believed that at the present time the buildings were occupied by different families as dwelling houses. As a matter of fact, there was only one inlet and one outlet for each house instead of two, and one trap for the six houses. He quoted the sections of the Public Health Act, 1875, and of the Birmingham Consolidation Act, 1885, under which the Corporation received powers to make by-laws with respect to the drainage of buildings, water-closets, &c.

Mr. Henry Price, City Building Surveyor, stated that in accordance with the by-laws each house should have a separate connection with the main drain, but in the present case that was not so.—By Mr. Young: It was not within his knowledge that a different interpretation had been applied to the by-laws to that applied prior to the appointment of Mr. John Price and himself. He was not aware that the system of combined drainage, as it was called, was carried out in respect of thousands of houses recently erected. The difference between the two systems was that the Corporation now insisted upon the application of the by-laws to each house, as distinct from their application to a block of houses.

Mr. J. Price (City Surveyor) also gave evidence. His interpretation of the by-law was that there should be a trap to each house, and not one trap for a block of houses, in each case.

Mr. Hamblin, who acted as architect for defendant, said that up to the coming of Mr. Price the Corporation allowed blocks of houses to be drained with one trap. Mr. Price, rightly or wrongly, now insisted upon one trap for each house. He believed the artisans' dwellings in Ryder-street were erected on the former system.

Dr. Bostock Hill also gave evidence on behalf of defendant.

For the defendant, Mr. Young said that since 1887 the system of drainage carried out by the defendant had been going on with the sanction of the Corporation; but Mr. Price now put a different interpretation on the by-law, and, without any reason based on sanitary grounds, endeavoured to enforce his reading of the law.

The Bench held that defendant had broken the by-laws, and imposed four penalties of 20s. and costs each in respect of two houses. They consented to grant a case for appeal; and, on the application of Mr. McCordie, allowed five guineas extra expenses.—*Birmingham Post.*

ALLEGED OBSTRUCTION OF ANCIENT LIGHTS AT MARYLEBONE.

In the Chancery Division of the High Court of Justice on Nov. 12, the case of Carter v. Spencer, Turner, & Boldero, Limited, was mentioned to Mr. Justice Romer, on a motion by the plaintiff, Mr. Robt. Carter, a solicitor, for an injunction restraining the defendants, their contractors, servants, and workmen, from erecting a wall at the back of three houses in Earl-street, Lisson-grove, N.W., owned by the plaintiff, so as it was alleged, to darken or obstruct the lights of those houses.

Mr. Alexander, Q.C., counsel for the plaintiff, said that an interim undertaking in the terms of the notice of motion had been given by the defendants, and was proceeding to detail the circumstances of the case when Mr. Ralph Neville, Q.C., counsel for the defendants, said he was told that his clients had only just put in their affidavits, and he therefore asked for the motion to stand over in order to prepare the case.

It was ultimately arranged that the motion should stand over for three weeks, the interim injunction being continued.

MEETINGS.

SATURDAY, NOVEMBER 20.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture from Anglo-Saxon Times to the end of the Eighteenth Century." III. 3 p.m.

SUNDAY, NOVEMBER 21.

Sunday Lecture Society.—Mr. Richard Kerr on "Wireless Telegraphy." 4 p.m.

MONDAY, NOVEMBER 22.

London Institution.—Mr. Arnold Mitchell on "Peterborough Cathedral and its Restoration."—Illustrated. 5 p.m.

Surveyors' Institution.—Mr. J. D. Wallis on "The Manchester Ship Canal Compensation Cases." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. Charles Mason on "Scavenging, Disposal of House Refuse." 8 p.m.

TUESDAY, NOVEMBER 23.

Institution of Civil Engineers.—Mr. W. S. Gresley on "Central Station Electric Coal Mining Plant in Pennsylvania." 8 p.m.

Royal Victoria Hall, Waterloo-road, S.E.—Professor Ramsay, F.R.S., on "The Gas Helium, and how it was Discovered." 8.30 p.m.

WEDNESDAY, NOVEMBER 24.

Society of Arts.—Professor James Douglas on "Progress of Metallurgy and Metal Mining in America during the last half-century." 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection of Disinfecting Apparatus and Model Steam Laundry at St. John's Wharf, Fulham. 3.30 p.m.

St. Paul's Ecclesiastical Society.—Two papers by Mr. Cutbert Atchley to be read. 8 p.m.

THURSDAY, NOVEMBER 25.

Society of Antiquaries.—8.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor Henry Robinson on "Sewerage and Sewage Disposal." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Continuation of discussion on Mr. L. Epstein's paper entitled "Accumulator Traction on Rails and Ordinary Roads." 8 p.m.

FRIDAY, NOVEMBER 26.

The Architectural Association.—Conversations to be held at the Mandarin Theatre, Langham-place, W. Reception by the President from 8 to 8.45 p.m.

SATURDAY, NOVEMBER 27.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture from Anglo-Saxon Times to the end of the Eighteenth Century." IV. 3 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection of the Refuse Destructor and Electric Light Works, Shoreditch.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

22,070.—**IMPROVED SLIDING WINDOWS.** *L. England.*—Inventor claims, (1) a method of rebating the glazed sash style to sliding piece (viz., on the inside half of sash only, above hinge and below hinge); (2) an improved hinge; and (3) an improved threaded screw for connecting the two parts of hinge.

23,404.—**NON-CORROSIVE, PRESERVING, AND FIRE-RESISTING PAINT.** *The Non-Corrosive, Preserving, and Fire-Resisting Paint Company and Others.*—Inventors claim patent in the manufacture of which the following ingredients are employed—(a) flake white (or other usual base paint), linseed oil, sulphuric acid, turpentine, and (b) flake white, linseed oil, sulphuric acid, turpentine, ammonia, chloride of copper, chloride of zinc, nitrate of copper, and cyanide of potassium. Both formulae substantially in the proportions and manner described in specification.

27,392.—**DOOR AND OTHER LATCHES.** *W. Benson.*—Relates to raiser for door and other latches, which is so formed that, when connected with a metal plate, it will, when pulled outwards, lift the latch, which, when released, drops again to its place.

25,867.—**HAMMERS.** *A. H. Harriman and Another.*—Invention relates to a claw hammer, claws of which are cut away on inner surfaces and provided with supplemental pivoted jaws.

26,197.—**WINDOW FRAMES AND SASHES.** *E. Braunsteiner.*—Invention consists in a carving machine for hollowing out angular grooves in frames of windows and sashes for embedding the angle-irons.

27,713.—**DOOR-CLOSING APPARATUS.** *H. F. Braun and Another.*—Invention consists in the combination of a helical spring, a brake block (or roller), and brake rod in telescopic casing.

19,756.—**MANUFACTURE OF VARNISH.** *J. E. Bedford and Another.*—Inventors claim the use of oil acids of linseed and castor oil as solvents for Kauri gum in the production of elastic products suitable for the manufacture of varnish.

19,795.—**WEDGE FASTENING FOR DOORS.** *A. Koburger.*—Invention consists in a metal wedge with toothed base, in the event of attempts to force the door to which it is applied, sticks firmly into the floor and resists the effort.

20,267.—**ROOFING TILES.** *C. W. Wright.*—Invention provides that the tiles are formed with an arched part, a flange, and a moulding, which, engaging each other in adjacent tiles, secure a certain amount of bond.

NEW APPLICATIONS FOR LETTERS PATENT.

NOVEMBER 1.—J. and J. Wright, Device for Securing Window Sashes.—25,256, R. Bowker, Window Frames.—25,257, M. Adams, Flushing Syphons.—25,270, D. Black, Machines for Moulding Bricks.—25,293, J. Bliss, Brick that requires no burning.—25,328, A. Pritchard, Tie for Hollow or Cavity Walls.

NOVEMBER 2.—25,347, W. Littleton, Ventilating Drains and Sewers.—25,356, W. Ross, jun., Syphons for Flushing Water-closets, Urinals, &c.—25,357, J. Dunn, Boards of Floors, Walls, &c.—25,383, J. Shaw, Gully Traps.—25,385, M. Weir, Double Bolt Fastener for Doors, Gates, and Windows.—25,429, W. Scadding, Door Handles and their Spindles.—25,428, S. Waggoner, Extension Ladders.—25,454, J. Guidoux, an Irrigating Level.

NOVEMBER 3.—25,473, L. Saunders and T. Haddon, Rim and Mortice Locks.—25,504, W. Peel, Fasteners for Windows, &c.

NOVEMBER 4.—25,360, R. Williams, Casements.—25,365, J. Hill, Automatic Window Fastener.—25,372, R. Gibson, Window Sash Fasteners.—25,601, C. Kirby, Spring Catches and their Arrangements for Windows, &c.—25,649, W. Reece and C. Davies, Floor and Lining Cramp.—25,656, C. Marks and F. Barnes, Blocks or Blocks for Building.

NOVEMBER 5.—25,685, A. Küpper, Hollow Building Blocks or Artificial Stones, and in Apparatus employed in their manufacture.—25,709, S. Shevell and W. Clark, Ventilator.—25,724, T. Usher, Hinge Joints.—25,734, E. Clark, Moulding or Forming Bricks, &c.

NOVEMBER 6.—25,780, J. Witter, Flushing Apparatus for Urinals, &c.—25,797, J. Martelli, Nuts for Bolts for Mortice Work.—25,801, D. Ferguson, Material for Constructing and Decorating Buildings.—25,862, D. Ferguson, Fire-proof Doors, Shutters, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

21,680, H. Foster and others, Bolt for Joining Handrails, &c.—21,993, P. Watt, Thawing Frost out of Land, Stone, Mortar, &c.—22,461, G. Maxted and F. Knox, Bricks.—25,684, L. Dalton, Presses for the Manufacture of and Undercutting of Tiles, Bricks, &c.—22,920, W. Clarkson, Maintaining Paint Brushes in a Moist Condition.—23,586, J. Haswell, Door Fastenings.—23,656, W. Essex, Door Locks.—23,720, F. Gibbons, Sash and Axle Pulleys.—23,766, E. Miall, Baths.—23,946, R. Dobbin, Stoves.—24,053, F. Heath, Preventing Windows Steaming.—24,092, J. Emery, Adjustable Tread Support for Stairs.—24,139, W. Jarvis, Bricks.—24,219, D. Hurst, Flushing Cylinders for Water-Closets.—24,256, C. Sankey, Channel and other Interceptors, Traps, Gullies, Syphons, &c.—24,424, R. Easton, Stoves and Fireplaces.—24,669, L. Brockmann, Artificial Stone.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

26,494, P. Gadot, Flushing Cisterns for Water-closets.—20,827, W. Lambert, Fire Grates or Stoves.—25,920, W. King, Window Sash Fasteners.—19,524, W. Boydell, Gully and Stench Traps for Waste Water.—21,069, W. Baxter, Fastener for Window Sashes, Casements, Doors, &c.—23,853, W. Richards, Method of and Apparatus for Hanging Window Sashes and such like purposes.

MALMESBURY ROAD SCHOOL (Bow).—For new Junior Mixed department, &c.:

Stinson & Co.	£2,155	Extra for building brickwork in cement.	£45
W. Shumner	9,069	.....	103
Treasure & Son	8,565	.....	151
W. Pattinson & Sons	8,368	.....	175
L. H. & R. Roberts	8,151	.....	185
E. Lawrence & Son	7,859	.....	195
F. & F. J. Wood	7,835	.....	205
W. M. Dabbs	7,445	.....	251

MARLBOROUGH-STREET SCHOOL, BLACKFRIARS.—For enlargement and improvements. The revised accommodation of the whole school on the completion of the enlargement and improvements now proposed will be—for boys, 448; girls, 448; infants, 523—total, 1,419.

Extra for building brickwork in cement.	£38
F. & H. F. Higgs	£19,113
B. E. Nightingale	18,093
Kilby & Gayford	18,297
E. Lawrence & Son	18,367
W. Smith	18,125
Lathes Bros.	17,344
Leslie & Co. Limited	17,011

NETHERWOOD-STREET SCHOOL (Kilburn).—Additional heating.

Z. D. Barry & Sons	£189	J. F. Clarke & Sons	£135
J. W. Somers-Smith, Gray, & Co.	154	W. G. Cannon & Sons	234
J. Fraser & Son	140	Duffield & Co.	209
J. & F. May	140		

NORTHEY-STREET.—Erecting manual training centre for forty boys, and enclosing, draining, and tar-paving the additional land.

Extra for building brickwork in cement.	£32
Staines & Son	£1,420
J. Wilmut & Son	1,316
W. Shumner	1,221
Johnson & Co.	1,213
L. Crover & Son	1,201
W. MacCormick & Sons	1,138
F. & F. J. Wood	1,033
J. T. Robey	1,034

OLDRIDGE ROAD.—Providing and fixing low-pressure hot-water apparatus and independent boiler, and converting gas radiators into hot-water coils for heating hall, three class-rooms, and corridors in infants' department, and one class-room and corridors in Boys and Girls departments respectively.

J. C. & J. S. Ellis Ltd.	£510	L. D. Berry & Sons	£420
Magnure & Gatchell Ltd.	489	Strode & Co.	362
J. & F. May	458	Purcell & Nobbs	357
Washam & Waters, Ltd.	438	E. Oldroyd & Co., Ltd.	319
W. G. Cannon & Sons	437		

SCRUTTON STREET SCHOOL (Shoreditch).—Enclosing, &c., additional land.

J. Kiddle & Son	£130	J. J. Grover & Son	£99
-----------------------	------	--------------------------	-----

SLEAFORD STREET.—Providing and fixing boiler and complete low-pressure hot-water apparatus.

Magnure & Gatchell, Ltd.	£276	J. Geo. Davis	£161
J. C. & J. S. Ellis, Ltd.	690	S. Mason, Ltd.	451
F. Milne	689	J. Defnes & Sons, Ltd.	412
E. Oldroyd & Co., Ltd.	405	Russell & Co.	379

STEPHEN STREET SCHOOL (Lisson Grove).—Improvements, &c. The revised accommodation consequent upon the proposed improvements will be: Boys, 332; girls, 334; infants, 400; total, 1,066 (involving a reduction of 79 places over the whole school, viz.: Boys, 34; girls, 41; infants, 4).

Extra for building brickwork in cement.	£165
W. Schreiner & Co.	£16,406
G. S. & S. Williams & Son	15,330
D. Charteris	15,093
E. Lawrence & Son	15,593
Treasure & Son	15,907
J. Chesson & Sons	14,475
J. Simpson & Son	13,591
R. A. Verbury & Sons	13,455
Leslie & Co., Ltd.	13,224

"VICTORIA" SCHOOL (Hackney-road, Starch-green).—Additional Heating Apparatus.

W. G. Cannon & Sons	£83	J. Duffield & Co.	£56
El. C. Price, Lea & Co.	79	G. Davis	54
J. & F. May	75		

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT, Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FAREINGDON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE. Telephone, 95, 774 Holborn. Tels. Address, "SNEWIN, London."

"WHITTINGTON" SCHOOL (Highgate-hill).—Overhauling and extending the heating apparatus.

W. G. Cannon	£740	Stevens & Sons	£475
G. Davis	354	J. Defnes & Son, Limited.	374
H. C. Price, Lea & Co.	518	Duffield & Co.	340
W. G. Cannon & Sons	418	A. J. Kallaway & Co.	311

"WHITTINGTON" SCHOOL.—Erecting offices for boys, adapting boys' old offices for girls, and providing part new drainage scheme.

Samuel Mason, Ltd.	£1,395	Stevens Bros.	£1,227
J. Wilmut & Son	1,439	G. S. Williams & Son	1,270
R. A. Verbury & Sons	1,250	Cowley & Drake	1,143
H. Lawrence & Sons	1,235		

WOOD-STREET SCHOOL, WOOLWICH.—Sanitary and drainage works.

W. J. Mitchell	£3,177	A. Black & Son	£2,304
Kirk & Randall	2,974	J. & C. Howyer	2,303
C. E. Walby & Son	2,747	W. Akers & Co.	274
Treasure & Son	2,640	G. Parker	2,207
H. Somerford & Son	2,445	Johnson & Co.	2,021

Scrapper Contractors:—

O'Brien, Thomas, & Co. (for 200)	£568	to 0
Carter & Ainsley	each	1 2 0
F. Brady & Co., Ltd.	0	13 6
H. & C. Davis & Co., Ltd.	0	15 6
Rowland, Drew, & Co.	0	12 6
H. S. Timson	0	21 9
Moore & Co.	0	0 10
Wood Bros.	0	0 5
Pryke & Palmer	0	0 1
F. Bird & Co.	0	0 1

TO CORRESPONDENTS.

E. O'N. C. (below our limit).—G. S.—T. R. P. (amounts should have been stated).—E. & C. (amounts should have been stated).—W. J. E. (below our limit).—R. J. W. (amounts should have been stated).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the author. Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.
Telephone No. 270.

HIGH-CLASS JOINERY,**LASCELLES' CONCRETE**

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,**GREENHOUSES,****WOODEN BUILDINGS,****Bank, Office, & Shop Fittings.****CHURCH BENCHES & PULPITS.**

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT to the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., per annum Remittance (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 46, Cannon Street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, preparing at the Publishing Office, 10s. per annum (4s. 6d. per quarter), can ensure receiving "The Builder" by Friday Morning's Post.**THE BATH STONE FIRMS, LTD.**

FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Douling Stone Co. (Incorporating The Ham Hill Stone Co. and C. Trask & The Douling Stone Co.).

Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalts.—The Seyssel and Metallic L. Asphaltic Company (Mr. H. Glenn), Office, Poultry, E.C.—The best and cheapest materials: damp courses, railway arches, warehouse floor, raft roofs, stables, cow-sheds and milk-room granaries, tun-rooms, and terraces. Asphalts Contractors to the Forth Bridge Co. [ADV.]

SPRAGUE & CO., LITHOGRAPHERS,

Employ a large and efficient Staff especially for Bills of Quantities, &c.

4 & 5, East Harding-st., Fetter-lane, E.C. [ADV.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON, 10, PRINCES STREET, "QUANTITY SURVEYORS' TABLES," For 1897, price 6d. post 7d. In leather 1/- Post 1/- [ADV.]

PILKINGTON & CO.

(ESTABLISHED 1838), MONUMENT CHAMBERS, KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark.

Poloncean Asphalts

PATENT ASPHALTE and FELT ROOFING ACID-RESISTING ASPHALTE. WHITE SILICA PAVES.

SEYSSSEL ASPHALTE.

ERNEST MATHEWS & CO.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.

PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES**SLATE SLABWORK**

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.

MARBLE & ENAMELLED SLATE CHIMNEY-PIECES

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow. Head Office and only City Address, 61, ST. MARY AXE, E.C.

SEND FOR ILLUSTRATED PRICE LIST.

Payne-road Wharf, Bow, Branch House, 37, Victoria-street, Bristol.

ILLUSTRATIONS.

Birmingham Architecture:—

The Town Hall	Single-Page Tone Block.
Police Offices and Law Courts.—Messrs. Aston Webb & Ingress Bell	Single-Page Line Block.
St. Alban's Church.—Mr. J. L. Pearson, R.A.	Double-Page Ink-Photo.
St. Oswald's Church.—Mr. W. H. Bidlake	
St. Augustine's Church.—Mr. Chatwin	Double-Page Ink-Photo.
St. Martin's Church: Interior.—Mr. Chatwin	
Premises, Corporation-street.—Mr. William Hale	Double-Page Ink-Photo.
Premises, High-street.—Messrs. Essex, Nicol, & Goodman	
Central Hall, Law Courts.—Messrs. Aston Webb & Ingress Bell	Double-Page Ink-Photo.
Premises, Steelhouse-lane.—Messrs. Essex, Nicol, & Goodman	
Bank of England.—Mr. Doubleday	Double-Page Ink-Photo.
Cobden Hotel.—Mr. Doubleday	
Municipal Buildings.—Mr. Yeoville Thomason	
Lloyd's Bank.—Mr. Chatwin	
Union Club House.—Mr. Yeoville Thomason	

Blocks in Text.

Birmingham Architecture:—

Christ Church	Page 296
St. Philip's Church, Colmore-row	437
Birmingham Joint-Stock Bank.—Mr. F. Osborn	439
St. Chad's Cathedral from the Canal	439
House, Cannon-street.—Messrs. Bateman & Bateman	

Birmingham Architecture (continued):—

House Front in Edmund-street.—Messrs. Mansell & Mansell	Page 439
The School of Art.—Messrs. Martin & Chamberlain	440
A Street Doorway.—Mr. Doubleday	440
Edgbaston Assembly Rooms.—Messrs. Osborn & Reading	440

CONTENTS.

Architecture of our Large Provincial Towns	435	Association of Municipal and County Engineers	447	Sanitary and Engineering News	452
Fire at Cripplegate	441	The London County Council	448	Electric Lighting News	452
London Municipal Buildings Competition	443	The Institution of Tank & Engineering	449	Stained Glass and Decoration	452
Session for Lewisham Public Libraries	444	St. Alban's Architectural and Archaeological Society	451	Foreign	453
Session for Baths and Washhouses, Bethnal Green	445	Trade Catalogues, &c.	450	Miscellaneous	453
Surveyors' Institution	445	The Institute Examinations	450	Capital and Loans	454
Structure of Birmingham	446	The London Building Act of 1894 and the Spread of Fire in the Metropolis	451	Legal	455
Archaeological Societies	446	The Great City Fire	451	Meetings	455
Buildings	446	The Slate Trade	451	Recent Patents	455
Structural Societies	446	Obituary	451	Some Recent Sales of Property	455
St. George's Cathedral	447	General Building News	451	Press Correspondence	457
				Tea-tellers	457

The Architecture of our Large Provincial Towns.

XI.—BIRMINGHAM.



BIRMINGHAM is one of the most oddly laid out of all our cities; or rather, it is not laid out at all. There is nothing central or axial anywhere; the streets in the central portion of

the town wander about at all kinds of unexpected curves and angles, so that the stranger within the gates never quite knows in what direction he is going, and finds himself coming round unexpectedly, every now and then, to the point he had left a short time before. There is an element of the picturesque in this, no doubt, and one does not want to see cities laid out, like many of those in the United States, on the plan of a gridiron; but in a large city dignity is an element one seeks as well as picturesque-ness, and the entire want of axiality and balance interferes very much with architectural dignity.

Among the public buildings two may be regarded as especially characteristic, the one of old Birmingham and the other of new Birmingham; viz.: the Town Hall and the Law Courts, and it is partly for this reason that we have placed them facing each other in our illustrative plates. The Law Courts is not indeed by Birmingham architects; as all our readers are aware, it is the design of two London architects who have on several occasions worked together, Mr. Aston Webb and Mr. Ingress Bell, who gained the commission in a very large competition; but it is obvious that it has had a very great effect upon recent architecture in the town. Half a century ago Birmingham was, as far as the most important buildings were concerned, a city of stone architecture; it seems to be

now tending to become a city of terracotta architecture, and it is pretty evident that this is due to the example set in the Law Courts, and the great admiration with which that building was, very justly, regarded. We have before said that we think the facilities afforded by terracotta for multiplicity of ornamental detail are rather too freely used in that building; but the detail is all of a delicate and unobtrusive character, the general composition is most picturesque, and it is one of the best planned modern buildings in England. Unfortunately the taste for terracotta which it has evidently initiated has been followed in some instances with much less refinement. It is curious to turn from this building to the Town Hall, completed about 1850 from the designs of Messrs. Hanson & Welch, and to reflect that these are examples of architecture from the same city and within half a century of each other. The Town Hall is so well known that it might be thought superfluous to give an illustration of it, but we have learned that these articles on the architecture of English cities are looked to with some interest by readers in the Colonies, to whom its appearance may not be so familiar. It is a good example of revived Classic, and the height and projection of the podium give it an added dignity, though it must be admitted that the exterior design has little relation to the interior arrangement, which is of a very naive description. The hall fulfils the most important requisite of a music-hall in being a good room for sound; it is a pity that the interior decoration is not of a more refined type.

The region immediately around the Town Hall may be regarded as the architectural centre of Birmingham, though it is a very irregular one, even what is called "Chamberlain-square," from the fountain in honour of Mr. Chamberlain in the middle of it, being merely an open space left, as it were, accidentally, between buildings of completely heterogeneous design. The front of the

Art Museum, which forms architecturally a portion of the block of the municipal buildings, faces the square on one side. A view of the whole block, from a photograph, is given in one of our lithograph plates, the clock-tower and pediment on the left marking the Art Museum. We fear it is impossible to say that the building as a whole is one of which the city can be very proud. It no doubt duly suggests the idea of municipal buildings, but the coarse character of the detail is only too much emphasised by the Classic refinement of the neighbouring Town Hall; and we must candidly say that we think the clock tower one of the very poorest erections of the kind that we have ever seen, without dignity, proportion, or character. On the north side of Chamberlain-square we come to Modern Gothic in the Norwich Union buildings and Mason College, both good specimens of modern revival Gothic, divided (or connected) by a low and very mean-looking bit of building which it would be very desirable, if the opportunity occurs, to get rebuilt in a manner more worthy of its position. The Midland Institute and Free Library block, westward of the Town Hall and the square, is a curious blending of old and new Birmingham, and indicates the restlessness which is one of the dangers of modern Birmingham taste. The original portion of the Midland Institute is a sober and good piece of Classic design by E. M. Barry, which suited the neighbourhood of the Town Hall, and this design was continued in the lengthening of the façade to form the first portion of the Free Library, the two forming one block, parallel with the Town Hall and rounding off at each end. But round each corner we find an addition forming part of the same block of building yet with totally different treatment; the portion of the Library at one end in a sort of Classic of quite a different kind to the main building, with a gilt cove cornice and various experiments in polychromy, polished granite columns too thin in proportion, and a curious

sort of corbelled-out buttress at each side, which is merely so much stonework hung on for effect. Round the other end of the block we come to the new portion of the Midland Institute, containing the lecture hall, in a revived Gothic, acceptable, no doubt, in its day, but somewhat *passé* now. Surely it would have been worth while to have endeavoured to complete the whole block, including the two institutions, in such a way as to make one dignified whole with Barry's commencement. Perhaps this course would have been thought want of enterprise then, but it would lead to more satisfaction at the present moment.

The Chamberlain fountain is a creditable "revived Gothic" erection in the taste of its day, which is not that of the present day. On the opposite side of the road below the Town Hall are the two Post Offices, old and new; the latter a very weak and pretentious building of Office of Works architecture; the former a heavy but dignified Classic structure of about a quarter of a century ago, which (as we have found to be the case in several other towns) compares favourably, in an architectural sense, with its modern successor. It is now used as the "Inland Revenue office," as announced by a large painted board on the entablature. The old building might surely have been treated with more respect than to put the *affiche* on it in this unsightly and architectural manner. Then, going round the Town Hall, we come to Christ Church, the question of the destruction or preservation of which has been a bone of contention recently in Birmingham. We regret to say that the demolition of the church has just been decided on, and was announced at last Sunday's service. It must be admitted that there is nothing of architectural value in the church with the exception of the west front with its tower and spire, of which we give a sketch (fig. 1); the nave is ugly and uninteresting both inside and out. But the west front is bold and effective in design, and all the more so from its remarkable and salient position, which renders it in fact one of the most prominent and characteristic landmarks of the town. The thing to do with it would have been to have removed some of the mean-looking shops in front of it, treated the front space in some way with steps and balustrades, and planted some larger trees at the sides of the church so as to mask its bareness. In destroying the church the Birmingham people are destroying what, as far as the west front is concerned, is probably better than anything they will get in place of it, and which has besides a considerable interest of history and association.

The reference to Christ Church leads naturally to a word as to the Birmingham churches, of some of which we are able to give illustrations. We must first mention two of the old churches. St. Philip's, another Classic church, occupies, like Christ Church, a very prominent position in a large open churchyard flanking a part of Colmore-row. It dates from the early part of the last century, but has been refaced over nearly the whole exterior except the upper stage of the tower, the weathered stonework of which comes out picturesquely by contrast with the new work below. This tower (fig. 2) is one of the best things in Birmingham; it has a fine effective outline; there is something reminding one of Wren about it; it is a work of Archer's, the architect of the well-known



Fig. 1.—Christ Church.

church of St. John at Westminster. Behind the new hospital is the very plain octagonal brick church of St. Mary's, built we believe in the early part of the present century, and which attracts notice from a distance by the odd outline of the circular tower and spire on its western face, the large cornice at the base of the spire giving the stage below it a kind of hour-glass outline; but the church internally, with a colonnade dividing the aisle from the centre, shows a plan very practically suited for congregational worship; it has been decorated, and the galleries removed, under the superintendence of Messrs. Bateman & Bateman. There was an attempt to get this church demolished, we are told, some time since; it is well it was preserved, for it is a characteristic building in its way. Mr. Chatwin's St. Augustine's, in Edgbaston, well situated in the midst of an open space with a circular drive round it, shows a graceful tower and spire (see lithograph), and there is St. Oswald's by St. Bidlake, a well-designed exterior which did not see, but of which an illustration may be found among our lithographs. The most important modern church in regard to position and function is of course the parish church of St. Martin in the Bull-ring, standing on the site of the oldest church in the town, but which is all modern Gothic except a small portion of the old church arch and a pier or two, incorporated in the western portion of the new interior. The church is a good specimen of revived Gothic by Mr. Chatwin; a view of the interior is given in the lithograph. Architecturally speaking the most important modern church, in rather an out-of-the-way situation and in one of the poorer districts of the town, is Mr. Pearson's large and



Fig. 2.

church of St. Albans, of which we give two illustrations, the west end (from a photograph) and a sketch of the whole composition from an original drawing by the architect; this shows the church as intended; unfortunately the ground story only of the tower has been built, and is seen on the right of the west end view. But the interior is the most striking portion of this church, and is undoubtedly the finest piece of architecture that Birmingham has to show; every way in style, noble in proportion, and with almost the dignity and spaciousness of a small cathedral. The varied treatment of the transepts, four tall lancets in one, three in the other, is a fine point. The only small detail we regret in the interior is the prominence of the square compartments of the glazing in each division of the wheel window

at the west end; they are seen in our exterior view, but look more prominent in the interior, and have rather a harsh effect. Then there is the Roman Catholic Cathedral of St. Chad, in Bath-street, by Pugin, of which we give a sketch as seen from the canal (fig. 3), in which aspect there is an odd kind of suggestion of a Rhineland church about it; but the interior is an unmistakable and characteristic example of Pugin's genius, and his passion for the most soaring effect of height he could obtain within a given altitude, the thinly proportioned piers and arcade going right up almost to the roof springing, leaving only a little pretence of a clearstory in the shape of small circular openings. The effect, one quite after Pugin's own heart and which he realised in one or two other churches, is really fine, and is quite a surprise in com-

parison with the apparently small scale of the exterior.

Among other churches up and down the town made be noticed the very ambitious Baptist church of the Redeemer in Hagley-road (Edgbaston) with an octagonal centre lantern with battering angle turrets or pavilions—not very refined in detail but with a certain effectiveness about it; and what is called Bishop Ryder's chapel in Gem-street, apparently a rebuilding of a very late Gothic brick and stone front, with a rather effective tower with detached angle turrets. In Corporation-street is the Wesleyan chapel and schools, an angle block of building by Messrs. Osborn & Reading, rather picturesquely treated (it was illustrated in the *Builder* of December 18 of last year), in which may be seen the odd arrangement of a church building with the ground floor let off for shops, which we suppose presents nothing objectionable to the Wesleyan mind. Down the Bristol-road are various churches of no special interest, among which the visitor is brought for a moment by the apparently startling apparition of a small Norman church in a very decayed state and partially restored, but which resolves itself into an early revival effort carried out in such bad stone that all the original portions are already worn away like those of an ancient building.* Apparently the same stone must have been used in Scott's simple and pleasing Early English church of St. Mark in King Edward's-road, which is in a nearly similar state of premature decay. The tower of this has never been built. St. John's, Deritend, is on a historic site, on which there was a chapel in the fourteenth century, but the present building is a dull affair of the eighteenth century, of no architectural interest.

Birmingham, in its present stage of existence, is an essentially modern town, the only bit of old Birmingham, we believe, known to survive being in the shape of a few old houses in Deritend, the south-eastern quarter of the town near the market. Taking the modern architecture in a general view, Colmore-row is the street most representative of the older Birmingham architecture of this century, of what we may call the "stone age," and Colmore-row as a whole is certainly a dignified and handsome street. Two of the principal buildings, Lloyd's Bank (next to the Municipal buildings) and the Union Club, are shown on one of our lithograph plates. The former would have been much better for a greater simplicity of treatment in the upper story. The predominance of the cornice over the ground story suggests the idea of the upper story being an attic, and yet it is too large and too "busy" to answer to that idea, and the building is certainly not improved by the rather unmeaning erection over the angle. The Union Club is a much superior building, and (except the large acroteria vases, which one must take as common properties of this class of design) is both dignified and refined, and certainly a much better style of work than the

* This, we are informed, is Whirley Castle stone, from a site at Northfield, about five miles out on the Worcestershire side of Birmingham. It was given by the owner of the land as a contribution towards a subscription of 30,000*l.* for ten new churches; rather an unfortunate form of subscription. St. Luke's appears to be not only dilapidated as to surface, but in a precarious structural condition; at all events we observed that it is all shored up on the north side.

Municipal buildings by the same architect. The Northern Assurance Company's offices is a gracefully treated classic front; it is slightly set back at the two ends, with a surface of blank wall decorated with a sculptured portrait in a medallion, this portion contrasting effectively with the centre. The offices at No. 103 form a well-treated front with an order on the ground story, and an effective variety in the treatment of the windows in the two upper stories; two sculptured figures on the pediment over each doorway are gracefully introduced; Messrs. Osborn & Reading are the architects. The small porches bracketed out at the doorways, however, cut rather awkwardly into the line of the columns. The Conservative Club, by Messrs. Osborn & Reading, of which we have not been able to find room for an illustration, is on the other side of St. Philip's churchyard, a graceful classic front at once suggesting a club-house; and overlooking the churchyard on another side is the branch Bank of England by Mr. Doubleday, of which we give an illustration, and which looks rather more like a club-house than a bank—it is wanting in power for a bank design; the end elevation towards Temple-row is gracefully treated. Lower down Colmore-row is an immense stone front, of no very marked character, which forms the architectural frontal to the principal covered shop arcade, the Great Western arcade, by Mr. Ward; a good specimen of this kind of covered street.

The two other principal streets are New-street and Corporation-street, forming with Colmore-row the three sides of a long scalene triangle, of which New-street is the base. The latter, which in spite of its name is, we imagine, the oldest thoroughfare of the three, is the least noteworthy architecturally; the London and Midland Bank presents a fair old-fashioned Classic front with a long return side rather well treated according to its fashion, only that the engaged order on the upper story has the columns too far apart for what may be called the grammar of the style; it is, however, much more restful to the eye than the gimcrack block of the Exchange building opposite. A little further down New-street the quiet and broadly-treated late Gothic of Barry's King Edward's School is an abiding lesson against the taste for show and fussiness of detail which is a besetting sin of Birmingham architecture; and it is remarkable how much better this building keeps its place than much of the Gothic of a later period of the revival; it does not strike one as out of date, as the Chamberlain Fountain and the Midland Institute lecture hall do; and the façade towards the playground (not accessible to the public) with its open arcade on the ground story, is still better. It is evident that Elmes was indebted to this building for some of the treatment of his Liverpool College,* though the latter is by no means equal to Barry's School. The pleasing Classic front of the Birmingham Joint Stock Bank (fig. 4) is illustrated from a photograph sent us by the architect, Mr. F. B. Osborn; we are not quite clear as to its whereabouts, as it is not one of the buildings we noted on the spot; we only know it from the photograph.

In the short High-street, turning out of the

* Illustrated in the article on Liverpool in our issue of September 26, 1896.



Fig. 4.—Birmingham Joint Stock Bank (Mr. F. B. Osborn).

end of New-street, the front of the "Louvre" shop (see lithograph) gives an example of the modern terra-cotta architecture of Birmingham, with open tracery dropping like lace curtains from the soffits of the ground floor arches; but we must candidly say that we give the illustration as an example of what is being done and not because we admire it. We are glad to illustrate on the

same sheet a much more pleasing street building in Steelhouse-lane by the same architects, and which is both elegant and original in design. Further along Steelhouse-lane, the back elevation of the Law Courts looks curiously suggestive of a Board School, and to the left is the great mass of the new Hospital, occupying three sides of a quadrangle. Terra-cotta

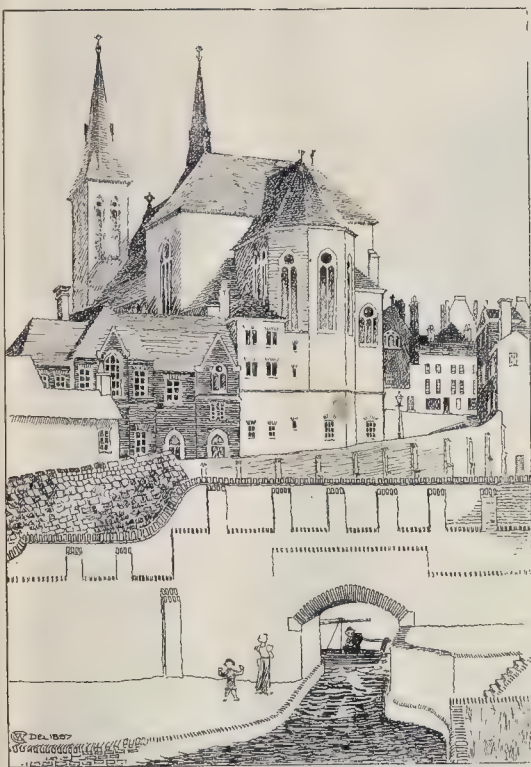


Fig. 3.—St. Chad's Cathedral from the Canal.

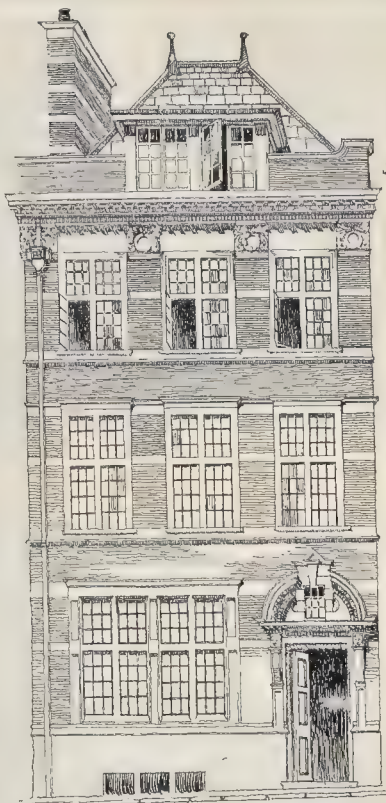


Fig. 6.—House Front in Edmund-st. (Messrs. Mansell & Mansell).

detail is treated with more severity here; the general effect is picturesque, the terminations to turrets, &c., are well treated, the ventilating shafts are worked into the architectural design in a very happy manner. Whether the whole building is exactly suggestive of a hospital is another matter. We quite approve of endeavouring to render hospitals architectural in expression; whether a little more severity of treatment is not, even in an architectural sense, more fitting may be a question, but the building as a whole is undoubtedly a credit to its architect. The triangular carriage porches are a happy and perfectly practical idea, giving shelter on the side where it is wanted, without the heavy appearance of the "porte-cochère" as ordinarily designed.

Corporation-street is the greatest possible contrast to the more staid quality of Colmore-row, and not a happy contrast. It represents a great deal of the besetting architectural sin of the city—fussiness and "loudness." The large Gothic Cobden Hotel (see lithograph) is a fair specimen of the Gothic revival period of Birmingham, certainly effective as a whole, but not very refined in detail. Among the more recent buildings a pretty and picturesque one is Mr. Hale's series of shops shown on one of the lithographs, and which looks better in reality than in this small-scale illustration (reduced from a water-colour drawing); a great deal of the detail is very pretty and piquant. In the open space called Old-square a whole nest of large terra-cotta faced business buildings are

going up or just completed. Among these the premises for Messrs. Lunt & Co., by Messrs. Essex, Nicol, & Goodman, show a good deal of richness and breadth of treatment; the continuation of the row of small arched windows in the third story, in an unbroken line across the front, is very valuable to the design and a very good point. At the top of the Square a very large building is still in scaffolding, and seems to be very bold in design, with some special decorative effect by the use of grey marble in the upper part in balusters and panels. But bad detail is the bane here, as it is in so many others of the new buildings.

One of the most notable recent buildings is the great pile of the Technical School, by Messrs. Essex, Nicol, & Goodman, in a rather back situation in Suffolk-street. This shows again that same want of reticence in detail into which terra-cotta seems to tempt people, but it is a remarkable-looking building nevertheless; the great segmental arch embracing the four doors under its shadow, and the bay windows running through two or three stories between the solid buttresses, and built boldly out on the extrados of the arches of the basement windows, are bold features which cannot but impress one; and the plainer back elevation looking towards New-street Station is also very effective. A small pencil drawing which the architects lent us would not have produced well, and gave no idea of the scale of the building, otherwise we should certainly have selected it as one for illustration.

We must not pass over, either, the Art School, which is pretty well known, but of which we give a small illustration (fig. 5); and although this is not quite the kind of Gothic one likes best, and the bits of polychromy introduced have rather a spotty effect, still this is an original building with a character and treatment of its own, and moreover it suggests an Art School. Edmund-street, running from this point eastwards, is a street with a special character of its own—one in which brickwork is predominant, and brickwork treated mostly in a very solid fashion; many of the buildings being warehouses or something of that class. The front of St. Edmund's College has a certain merit as a brick Gothic front (spoiled by the ugly panelled cross-pieces dividing the long windows). We give a sketch of a small front in this street (fig. 6), by Messrs. Mansell & Mansell. At the corner of Edmund-street and Newhall-street is the new Telephone building, an extraordinary effort of Messrs. Martin & Chamberlain, of which it is difficult to say whether it is very dreadful or very clever or both. It is certainly novel and bold. Large massive buttresses run up the two fronts at regular intervals, between which are lofty arches whose mouldings resolve themselves partly into the sides of the buttresses, the windows being grouped under these arches. The front towards Edmund-street, where the buttresses and reveals are deeper, has a very bold effect. The front of the buttresses is decorated towards the top by flat scroll ornament as if



Fig. 5.—The School of Art (Messrs. Martin & Chamberlain).

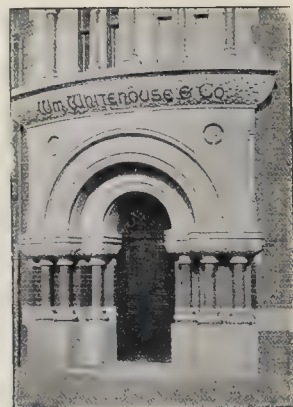


Fig. 8.—A Street Doorway (Mr. Doubleday).



Fig. 7.—Edgbaston Assembly Rooms (Messrs. Osborn & Reading).

perced, which is the worst point in the design, the effect is coarse and tawdry. The crowning ornament above the entrance (at the roof level) looks so thin seen sideways as to resemble a dish on edge; the architects had better replace it with something more solid. The building shows all the characteristic weaknesses of modern Birmingham architecture—restlessness and showiness; but it certainly has the merit of originality.

Few towns can boast such an extensive and beautiful residential suburb as Birmingham possesses in the large western district known as Edgbaston. One drives through road after road, broad, well kept, and flanked by a series of detached houses, many of them of picturesque character, and it may be observed

that the most recent houses are the best in architectural style. Among others may be mentioned a new house near St. Augustine's Church, a long rather low house with small windows, built we believe by the architect, Mr. Ball, for himself. "The Cedars" in Calthorpe-road, a half-timbered house by Messrs. Bateman & Bateman, is another good example. The Edgbaston Assembly Rooms, by Messrs. Osborn & Reading, is a good building of which we give an illustration (fig. 7). On the other hand, no town regions can be more dismal, melancholy, and uninteresting, than those which the tramcars take one through on the south and east portions of the town. On the road to the suburb with the fascinating name of Sparkbrook, but little answering to its name, one

passes some buildings worth notice; the new Cattle Market (Messrs. Essex, Nicol, & Goodman); a picturesque Board School in Stratford-road, and in the same road a fine block of red brick buildings forming apparently one of the dependencies of the King Edward's School.

Among buildings in the town we give two other illustrations, one of a street doorway to a place of business (fig. 8), by Mr. Doubleday; one of a quiet and pleasing house front in Cannon-street (fig. 9), by Messrs. Bateman & Bateman. It is to be hoped that more efforts will be seen in the direction of this kind of unpretentious building; it is the taste for unpretentiousness and sobriety in architecture which especially requires fostering in Birmingham; at pre-

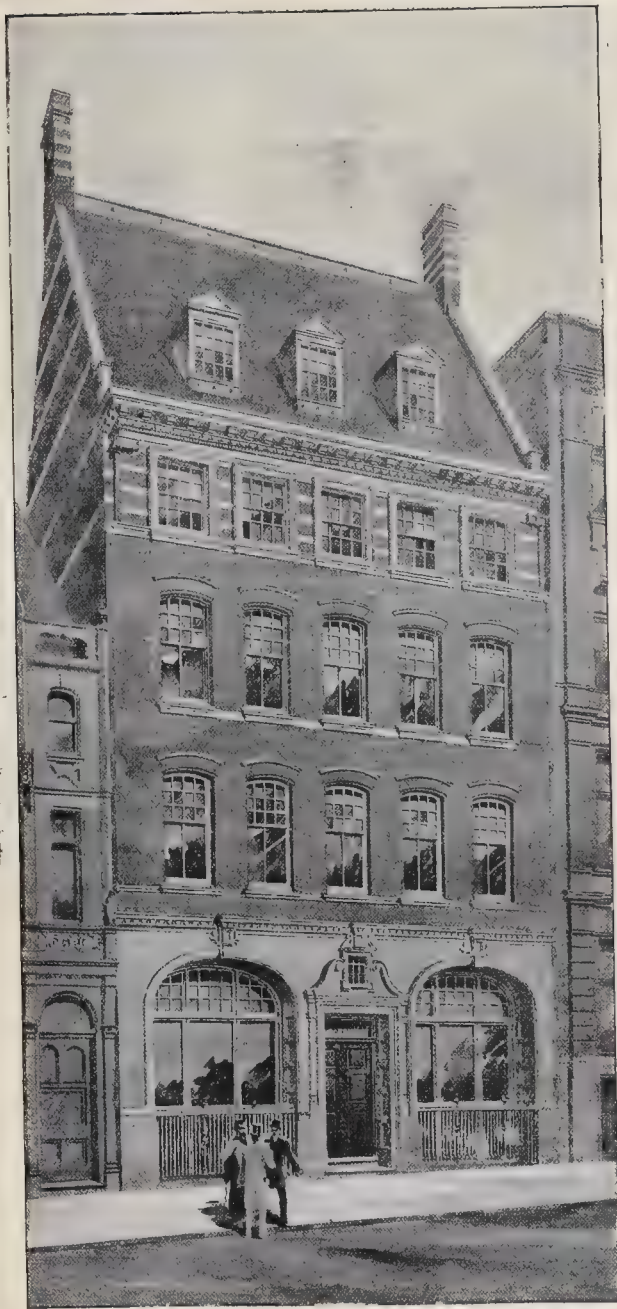


Fig. 9.—House, Cannon-street, Birmingham (Messrs. Balcan & Bateman).

sent, apparently, "few there be that find it." Mr. Bidlake's Kyrle Hall, which was illustrated in the *Builder* of Feb. 20, 1897, is another example of a building which is at the same time quiet and picturesque. The Board Schools appear mostly to be treated in a rather ambitious manner, with towers and multiplicity of gables. There is one of this class in the Bristol-road; not very satisfactory. That in Benson-road, by Mr. Whitwell, which we know only from a photograph, is more suitable as the architectural expression of a Board School; a row of four equal gables, with an octagonal turret in the rear.

One cannot but be struck with the number of waste places and corners, surrounded by bill-pasted hoardings, waiting apparently for

something to be done with them. Some of these waste lands, near New-street Station for instance, have been in that condition, if we remember right, for a good many years. Adjacent and opposite to the Law Courts is a quantity of empty waste land or decaying buildings of this kind, contrasting sadly with the new buildings near them; and the surroundings of the Art School are miserable, on two sides at least; bare rubbish grounds railed off from the road with mean wooden railings, and having a most forlorn and unsightly effect. Surely some effort should be made to reclaim these waste spaces, and put them to some use for the improvement and adornment of the city. We may add that scavenging, in the lower quarters of the town, seems to be much neglected; quantities of dirty paper lie about the streets, apparently in perpetuity. The naming of streets is another matter we would call attention to. It is imperfectly and irregularly carried out.

The principal park, Cannon Hill Park, is a fairly pretty place with a good piece of water in it, but a want of large trees.

We ought to express our thanks to many Birmingham architects who have liberally lent us drawings and photographs; so liberally in fact, that we might have filled our lithograph sheets five times over. Considering the limits of available space, all we could do was to select those buildings for illustration which appeared to be most important or most typical. We hope that those whose contributions we were unable to find space for will believe that we are not the less grateful for their courtesy.*

NOTES.

THE discovery of a very curious and interesting mosaic is announced in the *Notizie degli Scavi*, 1897-8.

It is thought by the discoverer, Signor A. Sogliano, that the design, which is very well preserved, represents Plato teaching in the Academy. The mosaic was found in the Contrada Civita di Torre Annunziata, and measures 0.86 by 0.85 metres. It is set in a block of travertine. In the background to the right is represented a town with walls and towers, out of which uprises an acropolis. To the left, still in the background, are two pilasters, joined by an epistyle. In the middle of the background is a pillar surmounted by a sun-dial. Between the sun-dial and the pilasters is a tree with rich foliage, and in front of it a bench with four seated figures. The central figure, an old man with a bald head, holds a scroll; another figure holds a globe; a third, seated on the arm of the bench, supports his head on his hand in deep thought. Clearly we have a scene in a school of philosophy. The background may represent Athens, and it is tempting to see, in the bald man, Plato expounding in the Academy some such subject as that treated in the *Timaeus*.

We have received another long tirade from Lord Grimthorpe, which we are not going to

humour him by printing, but in the course of which he asserts that he only undertook the work at St. Michaels by request, and that the Committee were aware of what he was

* The next of this series of articles, on the architecture of Edinburgh, will be given in our issue of January 1898.

going to do. That (if true)* only shows that the Committee, and those who granted the Faculty, acted as foolishly as the Chancellor who granted the Faculty for the work at the Abbey, and gave up a national building in their charge into notoriously incompetent hands. That does not exonerate Lord Grimthorpe; he quoted the authority of Scott (whom he has constantly abused whenever it suited his purpose) in favour of restoring the tower, and then did what Scott would never have done, and what would have caused a hue and cry against any professional architect who had done it. The spectacle of an irascible old gentleman without the slightest knowledge of art or design, but with a *penchant* for playing the amateur architect, disfiguring ancient buildings with his clumsy work, and then announcing to all the world—"my architecture is better than any one's, and if you say it is not you are a mean person actuated by the basest motives," has certainly its ludicrous side; and it is a spectacle that can be enjoyed nowhere but in England. If Lord Grimthorpe had lived in France he would never have got his hands on a national building—the "Commission des Monuments Historiques" would have taken care of that; and though the French are too much given to restoration, they at least take care that it is done by learned architects and not by amateur bunglers. We doubt very much however, whether Lord Grimthorpe will be allowed another chance—even in England.

Covenants for Quiet Enjoyment. THE case of Robson v. The Palace Chambers, Westminster, Company, Limited, which was decided last week by Mr. Justice Bigham, is of some interest. It was an action to recover damages for breach of a covenant for quiet enjoyment in a lease. The plaintiff was the assignee of the original lessee, and the breach of the covenant of which he complained was that a high building had been erected near the plaintiff's rooms so as to darken them. The plaintiff, it should also be said, was an architect, who, therefore, required a good light for his rooms. He failed, however, in his action, because the judge found, as a fact, that not only did the original lessee know, when he took the rooms, of the intention that buildings were to be erected, but that the plaintiff also knew the circumstances. It would appear, also, that but for the buildings which had now been erected, the rooms would have been let at a higher rent. The moral of the case is that people should not rush into litigation basing their claims on strict legal documents and at the same time ignore the circumstances under which those documents were drawn up. We must assume that the judge was right in his finding of the facts, and on those facts it is clear that the plaintiff had no cause for complaint, either as a matter of law or a matter of common sense.

Barcelona Exhibition. AN Art and Industrial Exhibition is to be opened at Barcelona on April 23 of next year. The directing committee is composed of the best known and most competent persons in the

* Lord Grimthorpe will please to remember that he has forfeited all claim that we should accept his unsupported testimony as to facts, from the day when, in order to raise a prejudice against his critic, he published in the *Times* a pretended quotation from this journal of words never used by us, and which he has twice repeated in print since.

artistic and industrial world of the city, and foreign committees are to be formed of the representatives of different countries who are resident in Barcelona, and who will attend to the interests of their respective countries in all matters relating to the exhibition. It is stated that a considerable fund is being formed by the municipality and by private subscribers for the purchase of works of art from the exhibition, which will be added to the museums of art and industrial work at Barcelona.

THE Painters' Company are offering for next year, as they have done several times previously, a travelling studentship of the value of 50*l.* for the encouragement of the study of decorative painting, open for competition to students between the age of twenty and thirty-five in any recognised School of Art or other institution devoted to the study of Applied Art. The particulars are stated in our advertisement columns, but we may draw attention here to the value of this competition in promoting the study of decorative work among those who follow the craft of painting; the conditions requiring each competitor to submit a drawing from the antique or from life, a study from an example of coloured ornament, and a set of original designs for coloured decoration on a space, representing a portion of an interior wall of a building, which is defined in a diagram supplied to competitors. It should be added that the sum offered has been made up by private subscriptions among members, the Company having no funds at their disposal for such objects. It is to be hoped that this offer will meet with a good response from young painters, who will certainly benefit by the studies required in the programme of the competition.

AMONG the notices for the A New Thames Railway, ensu-
ing session of Parliament is one by the Great Western Railway Company for the junction of the Great Marlow branch with the Henley branch; in other words, a line will presently run along the Thames Valley between Marlow and Henley. This will open up a very charming piece of country, and will—we were about to say we fear—give still further facilities for building in the Thames Valley. No doubt this domestication, if we may use the word, of this charming part of England is inevitable, and a large number of the houses already built, or which are in progress, on the banks of the Thames are in good taste. But still the Thames is being changed into an artificial water; it is losing its rustic beauty in many places, and the Upper Thames from Kingston to Streatley is now much more in its character what the lower Thames about Richmond and Twickenham was in bygone days. We do not deny the pleasure of gliding by gay gardens and trim lawns on summer days, but the real charm of the Thames was not in these but in its small villages and timbered reaches, free from the intrusion of the town and the townsman.

Vauxhall Bridge. IN regard to this in many respects fine bridge, soon to be replaced by a new one, an engineering correspondent, Mr. J. B. Redman, writes—

"The passage for many years past, and up to the present time, of colliers of 1,000 tons burthen dis-

charging their cargoes of sea-borne coal at Nine Elms after passing beneath the soffit of this work, demonstrates the slight interference with the free tidal navigation of the river it offered.

It is not, however, so favourable to the freedom of vehicular traffic, owing to its severe gradients of approach, similar to Southwark and other early bridges. It was designed some seventy years back by James Walker, Government Engineer of the day, and successor of Telford in the Presidential chair of the Institution of Civil Engineers, which he occupied for ten years continuously. The drawings were got out by his partner, Alfred Burges, father of the distinguished architect, William Burges, and the details of construction were evolved by the well-known firm of millwrights and engineers, Messrs Hunter & English, of Bromley-by-Bow.

Like old Westminster Bridge by the Swiss engineer Labeley, and old Blackfriars Bridge by Mylne, the piers were founded by 'caissons,' temporary vessels floated from the shore with the pier built up to half-tide level therein, and the bottoms of which formed the platforms of each pier after due adjustment, when the sides and ends were knocked away.

As regards the superstructure, the cast-iron open spandrels have been copied elsewhere, and may be seen reproduced in the elegant foot-bridge connected with the modern tide-regulating apparatus below Richmond."

Fireproof Buildings. "CAN Buildings be Made Fireproof" was the subject of a paper read by Mr. C. T. Purdy before the American Society of Civil Engineers a few weeks ago. At the present moment, when the attention of architects and engineers has been particularly drawn to this matter by the recent great fire that has occurred in London, the conclusions arrived at by those who have studied the question of fireproof construction much more than we have ought to be carefully considered by all who are responsible for the building of structures intended, as far as possible, to resist the action of fire. The subject matter of the paper was chiefly obtained from the large fire that occurred at Pittsburg last May, when several so-called fireproof buildings were destroyed. In the author's opinion partitions of 4-in. hollow porous material made of sawdust and clay properly manufactured, column coverings made in the same way, of a thickness not less than 3 in., and floor arches of the same material, will resist any combination of heat and water. He also points out that damage to fire-proofing material is generally due to its being composed of hard tiles, which are unable to withstand unequal expansion and contraction. The importance of having unbroken flat ceilings instead of panel work is insisted upon, and the system of erecting large store buildings open over entire floors is severely condemned. In conclusion, Mr. Purdy states that it is at present impossible to say, whether concrete will resist fire and water better than brickwork.

Cleaning Steel-work by Sand Blast. THE sand blast has lately been very successfully employed, says the *Scientific American*, for cleaning the structural steelwork of a large viaduct in New York, which, owing to its position, is greatly subjected to corrosion. Although the viaduct is regularly painted every year the gases from the locomotives are so active in scaling off the paint, and injuring the metal, that the Board of Public Works has been obliged to adopt special measures to protect the structure. They decided to first have the steelwork thoroughly cleaned, and afterwards have various portions of it painted with different kinds of paint, in order to ascertain what coating will

protect the surface for a reasonable length of time. It was found that the ordinary wire brush would not give that perfectly clean surface which is necessary for the best results, it being desirable to remove not merely the old paint, but also the rust and scale, and consequently the employment of the sand blast was decided upon. The sand, which is of a clean and rather coarse quality, is conducted by a $2\frac{1}{2}$ in. hose, at the end of which is a chilled iron nozzle, 8 in. in length, with a $\frac{1}{8}$ in. opening. This nozzle is held a few inches from the steel work, and, as the particles of sand strike the surface, they break up and cut away all the scale, rust, and old paint, leaving the metal perfectly clean. The air-pressure used is 20 lbs. per square inch, and the surface exposed to the sand is found to be so effectively cleaned that it is very sensitive to the action of the weather, it beginning to rust in a few hours if the atmosphere is damp. Consequently the painting is performed as soon after the work is cleaned as is possible. The approximate cost of cleaning steel work in this manner is 6d. per square foot.

At a recent meeting of the Electrical Cabs. Institution of Electrical Engineers, Mr. Manville gave some interesting data about the electrical cabs, which are becoming a familiar sight in the London streets. Each cab carries forty accumulators, and has two motors capable of exerting eight-horse power on occasion. On level roads, when running at from six to eight miles an hour, the current taken by the motors is 30 amperes, and as the pressure is 80 volts, this represents an expenditure of 24 Board of Trade units per hour. On very rough roads the current taken is 45 amperes, consuming 36 units per hour; and going up a steep hill the current required may be two or three times as great, the Savoy hill in the Strand requiring as much as 120 amperes. Mr. Epstein said that the weight of a battery for a motor vehicle to carry from two to four persons would be about 9 cwt., the whole vehicle weighing about 30 cwt. Taking the battery efficiency to be 70 per cent, the combined efficiency of the motor and gearing to be 65, and the cost of a unit to be 2d., this would work out to 3d. per mile for energy. So far, then, as energy is concerned they ought to be able to compete successfully with horse traction. The only point about which there seems to be doubt is the cost of the maintenance of the battery. From experiments made by Mr. Manville at Faraday House on all kinds of cells, it would appear that violent shaking of the cells during the whole period of their discharge does not deteriorate them electrically. As he experimented on cells both of the Plante and pasted types, this is a very remarkable result. It seems probable that 20 per cent. on the initial cost of the battery—about 80s.—would be a safe allowance to make for its maintenance.

The "Red Lion," Henley-on-Thames. We read that this well-known hostelry was withdrawn from sale at the Mart last week, the highest bid being for 22,500l. The older portions of the inn were built nearly three hundred years ago. Lying on the high road to Oxford and Birmingham, it formed a resting-place for the Duke of Marlborough

when travelling between London and Blenheim. Charles I. stayed there in 1632, on his way to Oxford, and again, ten years later, with Prince Rupert, whose troops were at Henley. In March, 1776, Boswell went with Dr. Johnson on a visit to Oxford, Stratford, and Lichfield. Johnson was accompanied (in the Oxford coach) by Gwynn, the architect, whom Boswell describes as "a fine, lively, rattling fellow," and who did not come off at all the worse in one or two arguments with the Doctor. The party lay one night at the "Red Lion," where Shennstone had written his familiar stanzas on the freedom and comfort of an inn. Eight years ago the archway opening into the inner court was replaced with a porch and central hall.

The Institute Dinner. WE should like to call the attention of members of the Institute of Architects to the Festival dinner on Thursday next, and urge that they should endeavour to contribute to its success by a full attendance. Among the guests who have accepted the invitation of the Council are Sir Edward Poynter, Mr. T. G. Jackson (who is willing both to dine with and to read papers to the Institute though he cannot unfortunately make up his mind to belong to it), Sir Jas. Linton, Mr. Alfred Gilbert, Mr. Thomas Hardy, Sir E. Maunde Thompson, the Lord Mayor, the Governor of the Bank of England, Sir Henry Howorth, and others.

THE FIRE AT CRIPPLEGATE.

ON Friday last we had a repetition of the St. Mary Axe fire of 1804, only on a larger scale, and with far more disastrous results. As on the day of the St. Mary Axe fire, the wind was scarcely perceptible, but had this not been the case, and had we had anything like half a gale of wind, the disaster must have been far greater. In fact, at Cripplegate, as far as the planning and construction of the buildings were concerned on the one hand, and the means at the disposal of the Fire Brigade on the other, every facility was practically given for the commencement of a second great fire of London. We should really congratulate ourselves that the extent of the fire was not greater rather than bewail a catastrophe, for the regular recurrence of these conflagrations must be considered as a matter of course until the question of fire protection is taken up seriously.

According to Colonel Rotton, the Chairman of the Fire Brigade Committee, "the astonishing rapidity of the fire was entirely due to the nature of the buildings and the stock which they contained, the distribution of enclosed courts and well-holes, numerous communications in party walls, and the narrowness and relative position of the thoroughfares."

It is not often that we get an explicit official statement that so strongly condemns our neglect of ordinary precautions regarding the general arrangement of our thoroughfares or the planning and construction of our buildings. We must assume that we should not have had these words had not some reason to be found for the way in which our Fire Brigade was beaten on Friday in fighting against the flames until it was able to make use of some natural boundaries in the form of open spaces, the unexpected collapse of a building, and some particularly strong divisional walls. In excusing the working of his brigade, Colonel Rotton has told us some home truths regarding our City warehouses.

According to Colonel Rotton's official statement, however, the fire service of the metropolis is ahead of what is to be found elsewhere. He (or his Committee) believes London well in advance of every other town, and, to quote him, "that every one of the appliances used in New York was also used in London." The Fire Brigade Committee of the County Council are under an illusion. Every one seriously interested in the matter knows that, with the few exceptions in respect to the smartness of the men, the rapidity of moving our engines, the excellent new fire

stations (prepared from the plans of Mr. Blashill, we have little to be proud of regarding our Fire Department. The principles on which it is worked, its organisation, its methods, were no doubt the right thing at the end of the sixties, when the brigade was reorganised by Sir Eyre Massey Shaw, but for 1897, we are afraid that little except the new fire stations, some "steamers," and some details in the appliances, fulfils modern requirements, and, instead of constantly advertising its own perfection, the department might well attempt to remedy defects. It should always be remembered, however, that the complaints regarding the Fire Brigade are never in reference to *personnel*. It would be difficult to find a finer set of men, headed by smarter officers, than those in the County Council's employ; it is simply a question of organisation, methods, and appliances.

But for architects, the question of the efficiency of the fire service is really of secondary importance, as is for the matter of fact the whole question of extinguishing a fire, as compared with the question of preventing an outbreak, and limiting its extent by structural divisions. The site of the fire should afford an example of what not to do in warehouse construction, yet the site of the St. Mary Axe fire in 1804 gave us exactly the same lesson, and to-day if we visit it we find but little improvement in the construction of the buildings which have taken the place of those destroyed three years ago. As far as warehouse fires are concerned, narrow thoroughfares, small courtyards upon which are several warehouses, party walls which are broken through, iron doors which will not resist fire, and iron construction which will cause the immediate collapse of a structure the moment it is heated, are some of the elementary points to be avoided. Not only have these been neglected, but errors are also constantly being made in nearly every possible direction, both as regards the use of the buildings, the manner in which they are illuminated, the carelessness allowed among employes, and the lack of appliances to combat a fire with in its earliest stages. It almost seems incredible how much has been neglected in the Cripplegate district, and to what extent carelessness is rampant in nearly every warehouse. But what is more incredible is that almost exactly the same state of affairs exist to-day on the St. Mary Axe site as in 1804, and if we may be allowed to prophesy, the same state of affairs will again be seen to exist in three years time on the site of the present fire, unless the question of fire protection be seriously approached.

To summarise the history of the Cripplegate fire, one might say that the outbreak was first noticed in Wells-street, that the fire engines were called, and, after experiencing considerable difficulties, owing to congested traffic, reached the ground only in time to see that the fire would be a very serious one, and that the force usually "turned out" to the first call in this district would be entirely inadequate to prevent its extension. The usual means were adopted for calling further assistance, which probably meant that a messenger was sent on horseback to the nearest fire-station to telephone particulars. The first call for aid seems, by-the-by, to have been through a private telephone, for ignorance as to the whereabouts of fire-alarm posts is almost proverbial. But of fire-alarm posts is almost proverbial. But assuming that a fire-alarm post stood close to the scene of outbreak, we should always remember that they cannot be used reliably for signalling any particulars as to the extent of a conflagration, much less for telephoning particulars. Within thirty minutes the official report says that nineteen steamers, with a complement of long ladders and escapes, reached the scene, and that eventually about fifty steamers, with two hundred and eighty-eight men of the M.F.B., were on the spot, as well as the Salvage Corps. But, partly owing to the difficulties of the ground, it took considerable time before all these engines were at work. It would lead too far to give in detail the progress of the fire, the lack of uniform methods in combating it, the complaint regarding the dearth of water in the early stages of the fire, or any of the other many details regarding the headway made by the conflagration. For architects, it is perhaps only necessary to know that the flames jumped the streets with the greatest ease, and also many areas and courts, but that in many cases a mere wooden shutter or (better) an iron shop roller would have pre-

vented the spread from house to house. The flames only once or twice "jumped" party walls, and this not exactly in the same manner as was the case at St. Mary Axe, for it was more a case of some packet of materials being thrown up in the air and then falling on to an adjoining roof and setting it alight. The ironwork in the building bent and twisted far more rapidly than is usually the case, owing to the tremendous heat generated by the light materials which are stored in this district. There were only a few cases where ironwork was protected by terra-cotta, plaster, or brickwork. As a rule, the large girders, bent by the heat, first sagged, pulling the walls slightly inwards, and then expanding, threw them outwards. The enormous heat left the ruins in a far cleaner condition than is usually the case; by far the greater part of the woodwork was burnt up, and there was by no means the number of half-burnt balks of timber usually to be seen at fires. Very little of the mortar, comparatively speaking, was to be seen attached to the bricks; most of it had powdered off and left the brick clean. If one considers the enormous amount of materials contained in the walls of the buildings, it is most curious to observe what a little remains on the site. As regards the falling away of copings and cornices, string courses, &c., this was frequent in the early stages of the fire owing to the scorching heat which affected any building standing opposite one which was alight. Where freestone was used, the mouldings often appeared as if cut off cleanly from the facade, the difference of temperature to those parts of the stones which were bedded in the brickwork from those parts which were exposed having caused a clean crack exactly on the front of the facade. There were innumerable small points of interest during the progress of the fire, though, taken as a whole, there was not so much to learn at Cripple-gate as is the case where more modern forms of construction have been attempted, and where their respective power of resistance can be observed.

Taken as a whole, the Cripple-gate site remains, as said above, an example of what the neglect of the most elementary preventative measures may mean in a city where warehouse property is so considerable as in London.

Up to the present time little has been done in this country in the direction of fire prevention with the exception of enforcing the old requirements of the Building Act as regard hearths, party walls, and the like, which really date from 1857. Of course, we have our Factory Act (which affects a considerable amount of our City property), our theatre regulations, which deal with our places of public entertainment, and several other by-laws; but taken as a whole, we have neither a uniform policy regarding the safety of all classes of buildings, nor anything that resembles in its methods or measures the working of the Fire Acts of most of the Continental and American cities. There is now, however, going to be a serious attempt at interesting our public authorities in the matter. An influential committee is being formed, on the lines of a scientific society, to take up the whole question of fire protection. "The British Fire Prevention Committee," as it is called, will include architects, surveyors, engineers, and men of science, besides Government and Municipal officials and the representatives of the insurance interests. Members of Parliament, large employers of labour, warehousemen, and others interested in our commerce are to be invited to join together with the leading actors and managers interested in our playhouses. Mr. Blashill and Mr. Arthur Cates are among the original members, together with a large number of district surveyors, borough surveyors outside London, as well as several architects specially interested in public buildings and commercial property. The number of members has already nearly reached two hundred.

It is only to be hoped that the question of the safety of the metropolis may be dealt with energetically, otherwise we may have to expect, sooner or later, a second "Great Fire" rivaling that of 1666.

VICTORIA HALL, ERROL, PERTH.—The Victoria Hall, Errol, was opened on the 15th inst. The hall is situated at the west end of the village, and has a frontage to High-street. It is capable of seating from 250 to 300 persons. The architect was Mr. Alexander Johnstone, Dundee; while the contractor was Mr. Robert Goodall, Errol.

* Offices, No. 1, Waterloo-place, Pall Mall. Assistant Secretary, G. E. Monckton, M.A.

SURBITON MUNICIPAL BUILDINGS COMPETITION.

THE drawings submitted in the competition for the Surbiton municipal offices have been exhibited to the public this week, so that it is now possible to form an idea of the respective merits of the three designs from among which the final selection has been made. The result is to rather modify the view we have already expressed as to the action of the Committee in determining to build the second premiated design instead of the first. The design is very inferior to the first one, so much so that we cannot understand how the assessor came to say, in the first instance, that he had had difficulty in deciding on the relative merits of the three which he finally selected for preference. The setting aside by the District Council of the design recommended for adoption by Mr. Mountford, the assessor, in favour of the one which he placed second, is entirely due, it appears, to aesthetic considerations. Of the majority in the Council who by their votes procured the reversal of the award not one attempted to question the propriety of it, or indeed to discuss the quality of any of the designs, from a practical or economical standpoint—their opposition was based purely on grounds of "taste." Surbiton seems to be richly endowed in this respect. The absurdity of the position taken up by the party who successfully opposed the adoption of the assessor's recommendation can be best appreciated from the words used by their spokesman. He began by declaring that, although an amateur, he would surrender his judgment to no one, and continued (as reported in *The Surrey Comet*) that "he had arrived at the conclusion that the plan recommended was not suitable for the magnificent site they proposed to put the building on. He was not enamoured of the one suggested. He had not been told what particular style the building was in. He was at a loss to find a name for it, and he called the assessor said it was distinctly original and consequently he supposed it was not the following of any school (laughter). He, as an amateur, claimed to pronounce judgment upon it, and in his opinion it was not suitable to the taste of Surbiton. or to the site provided for it. He knew well the taste of the residents, and ventured to say that if the building suggested by the assessor was put up, the Council would be universally condemned." [More declamation of a similar kind followed, and by eleven votes to five the Council decided to be guided solely by their "taste."]

The interesting, though not at all unnatural result of this proceeding is that they have thereby secured for their constituents not only the design worst as regards elevations of the three specially mentioned by the assessor, but the one very much the worst as regards arrangement of plan and general economy. The design finally selected is, indeed, as compared with the two premiated ones which now take second and third places, distinctly an extravagant one; and while there is no doubt whatever but that either of the other two could be carried out for the stipulated sum—5,000l.—it is, with due deference to the opinion of the assessor (who, however, guards himself in his report with a "thereabouts") a little difficult to believe that this one could be—at least, without substantial modification. Probably, however, knowing the inferiority of this design in so many respects to the one which he placed first, the assessor hardly contemplated the likelihood of its erection, and awarded to it a premium mainly in recognition of the unquestionable labour and care which have been expended upon it. In a second letter to the Building Committee he gives much more weight to the advantages possessed by the design of his choice, No. 11, over No. 25, that favoured by the committee in the particular respects of being more compact and less costly, both in first building and in future maintenance. The unfortunate part of the whole thing was that, in his original report, the assessor admitted that he had selected three designs, Nos. 11, 25, and 6, the merits of which were sufficiently equal to make it somewhat difficult for him to decide between them. This confession afforded a handle to the malcontent members of the Council, of which they made very effective use. Although an assessor in a competition is technically not a judge, it is certainly better, and the lesson will be enforced by the present case, that he should follow the advice of an eminent judicial authority, and "never give reasons for his decisions;" at any rate not to the extent of leaving obvious loopholes for attacking his awards on the grounds of his own inclination.

After a careful study of all the twenty-six

designs exhibited, we have no hesitation in agreeing that the assessor picked out the three best for special mention, but the general merit, and more particularly the special suitability, of two of these, Nos. 11 and 6, seem to be so far in advance of even No. 25, that it is to be regretted that in his actual award he did not confine himself to recommending these two for premiums, and one of them for adoption. In the earlier part of his report he mentions that "on the whole the plan of No. 6 may have the most advantages. The corridors, hall, and staircase are all spacious and well lighted, and the plan is exceedingly compact." This is all exceedingly true, and we think that if this design had been given the first place no reasonable objections could have been raised. This design, by Messrs. Hewitt & Ryan Tenison, which was placed third, strikes us as being particularly well arranged throughout, and the lighting excellently managed. The plans of both floors are very pleasing, and have a simplicity which shows much thought. The elevations, though equally pleasant and refined, are certainly less imposing than those of No. 11, and might be objected to as being too "domestic," recalling, perhaps, the character of an almshouse or grammar-school of the days of Charles II., but as they are not intended for a town hall, but only for the offices of a semi-rural district, their exterior is not actually inappropriate, and is certainly satisfactory both in proportion and details. No. 11 (Messrs. Wimperis & East), to which the first premium has been awarded, is likewise planned in a good and workable manner, and is sufficiently compact. The elevations are well drawn, and show a very solid design in the manner at present so fashionable among young architects, being a very clever imitation of the style in vogue in the early years of the eighteenth century, genuine "Queen Anne," as distinguished from what used to be called so twenty years ago. It is distinguished by a somewhat grandiose colonnade, embracing the two stories of the building, and formed by recessing the central portion, and carrying across a deep entablature (built up of small blocks, the spaces being much too wide for real lintels) supported on Ionic columns. The main entrance is not placed opposite the central intercolumn, but to one side. Another feature is the large semicircular gable, with a cornice bent round it, which forms the end of the council chamber. Compared with these two, No. 25 (Messrs. Forsyth & Maule) is, as said before, badly planned, being especially deficient in lighting, and unsatisfactory in elevation. The central hall, lobbies, and corridors are entirely dependent for light upon glazed doors in the offices, and the access to the public offices is, besides, cramped and awkward. The principal staircase suffers very much from the space which should be devoted to a large window being blocked up by a semi-detached group of lavatories, &c., on the hospital system, but singularly out of place here. The council chamber will certainly have to be modified in execution. It is about 40 ft. by 30 ft., and only 14 ft. high, lighted from one side by semicircular headed windows, 12 ft. 6 in. high, from floor to head, and the reporters' table is placed at the far side. The exterior design aims at the appearance of a town hall, and is altogether out of scale for the actual size of the building. The elevations are unduly broken up, and the general effect is restless, besides having an attenuated and drawn-up look, strangely at variance with the actual lowliness of the rooms. It is much to be hoped that if this design is to be carried out, greater breadth and solidity may somehow be infused into it. Considerations of expense, however, may probably be trusted to prune it of some of its redundancies, even if, in its present condition, it unreservedly commends itself to the amateur "taste" of Surbiton.

COMPETITION FOR LEWISHAM PUBLIC LIBRARIES.

As was announced in our advertisement columns of last week, the competition designs received by the Libraries Committee have been publicly exhibited at the Lewisham Town Hall. They comprised designs for two separate libraries, one on a very good site in the High-street, Lewisham, the other on a restricted and rather awkward site at Forest Hill. The cost in each case was stipulated to be 4,000l., but, beyond this fact, the information given in the particulars issued to the

competitors was meagre in the extreme. For the former there were exhibited forty-four designs, for the latter thirty-six, many competitors sending in drawings for both libraries. A very large proportion of the designs in both cases was evidently the work of junior members of the profession, but in both cases there were several which would do credit to any designer, and sufficient to provide the Committee with a difficult task in the selection. Dealing first with the designs for the Lewisham Library, an excellent plan is sent in under the motto "Supervision," in which a central entrance leads to a good hall, with the lending library in the front, reference reading-room on right hand, and magazine-room on left, all on the ground floor; whilst the ladies' reading-room and committee-room are placed upstairs, together with premises for the caretaker. The exterior is very nicely treated in a modern version of Renaissance, and the design, as a whole, is one that is quite suitable and worthy of a high place in the award.

Under the device "L" (in red) a very charming and picturesque design was submitted, with a thoroughly good and workmanlike plan.

"Vigilans" is remarkable for its boldly-drawn perspectives, the exterior in brown ink, and a very good interior in bold pencil showing the hall. But we do not consider that either the plan or the elevation are in design equal to those already noticed.

"Cleghornie" has pleasantly-drawn elevations. The plan, which is in two stories, is a good one, but rather extravagant, as, for instance, provision is made for the caretaker of dining-room, drawing-room, four bedrooms, besides kitchen and offices. Possibly the author considered that the caretaker would be the chief librarian, a view which does not seem to be shared by the remainder of the competitors.

"Lux" has a good plan for the accommodation provided on the ground floor, and a nicely tinted perspective in monochrome of good and quiet design.

"1897" has one of the best elevations in the room, shown in well executed drawings and an excellent perspective. The plan is fair, but somewhat defective in facility for supervision, and the caretaker is rather badly treated with sloping skylights to one of his bedrooms and his living-room, although the latter has in addition a dormer window at the back. The author seems to have been afraid to have broken his wide expanse of roof with dormers in the front, although we think he might have done so very well without detriment to the exterior of the design, and certainly with very great advantage to the planning of his caretaker's quarters.

"Volume" has a plan that possesses merit, though eccentric and lacking simplicity in its arrangement. His elevations are of a fairly suitable character.

"Novel" is chiefly noticeable for well drawn pen-and-ink perspective in a "Railtonian" fashion, which is rather too good for the design.

"If?" has ideas of an elevated character, and he has accordingly produced a design far too grandiose for it to have any chance of being erected under the Public Libraries Acts.

Turning now to the designs for the Forest Hill Library it is sad to notice that a great many of the competitors have thrown away any chance they might have had by not making themselves acquainted with the site. This has a narrow frontage of 60 ft to the existing Dartmouth-road, and a return frontage to a proposed new road of 182 ft. Unfortunately, there is evidently a considerable fall in the site from back to front, which we gather from the drawings submitted the competitors had to find out and measure for themselves, as while many have ignored the levels altogether, those who show them appear to have different ideas as to the amount of inclination. Amongst the best designs in this set, as in the other, are those under the motto "Supervision," who makes his entrance from the Dartmouth-road, and places the reference library and book store on the first floor, with the remainder of the accommodation on the ground floor. A good plan and a practical one is produced, though the "supervision" is not quite so easy as it might be. The elevation, though inferior to the same author's design for the Lewisham Library, is nevertheless suitable and satisfactory. "Vigilans," as before, is noticeable for its perspectives—the interior, in pencil, being an especially clever drawing—whilst the exterior shows one of the best—if not the best—piece of external design in the competition, both

piquant and clever. The plan is simple, and gives promise of working well, if carried out. The entrance is from the Dartmouth-road, leading to a long corridor, the lending library on the right, the paper and magazine rooms on the left, and reference library at the end.

"Superv" ignores the levels, and makes his principal entrance in the new road, and save for these failings has a good plan with the hall in the centre, lending library and reference room on the left, news room and magazine room on the right. The elevation, though of somewhat queer detail in parts, is not unsuitable, but the roof would be an expensive one to construct and maintain; whilst the provision of a room 12 ft. by 14 ft. as a filing and mending room without other book store cannot be considered as adequate.

"Tristan" has another two-story plan, economical in arrangement but defective in supervision. One room to serve as reference, magazine, and reading room and the librarian's room are shown on first floor. News room, lending library, and ladies' room on ground floor.

"1897," as in the competition for the Lewisham Library, has one of the best designs in elevation but the levels are ignored, and the plan would be totally impossible in working, although if the Lewisham people want a library to look at and not to use—like the grand example in Boston, U.S.A.—they could not find a better design amongst those submitted than that of "1897."

"Civis"—A design evidently by the same author as "Novel," for the Lewisham Library, has here also a nicely drawn pen-and-ink perspective. The plan is in two stories, but the supervision and lighting are both defective, and although all the fittings are not shown, there are sufficient to indicate that a fuller acquaintance with the working of a public library would improve the author's future designs.

"If?" seems to have an exaggerated idea of the inclination of the site as compared with some of the other competitors, and has produced a grandiose design in one story, with a flat roof and small glass cupolas except over the news reading-room, which has a kind of hypostyle treatment, with small side windows in the lantern. We fear this must be classed as one of the impossibles.

"L" (in red) has in this case, as in the former one, one of the most charming designs in the competition. The plan is good, with an entrance from the corner of the Dartmouth-road and the new road; the reference library is placed upstairs, the lending library, magazine, and news room downstairs.

It is to be regretted that the Committee has not half a dozen libraries to erect instead of two, as some of the excellent designs submitted must, as indeed, more the pity, it happens in most competitions, be relegated to the abyss of "might have been."

We trust that a wise selection will be made, and Lewisham will then have two libraries excellent in plan, and charming in elevation.

COMPETITION FOR BATHS AND WASH- HOUSES, BETHNAL GREEN.

This limited competition, for which six architects have sent in nine sets of designs, has been decided in the favour of Mr. R. S. Ayling, A.R.I.B.A., to whom has been awarded the first premium of fifty guineas, the second premium of thirty guineas being awarded to Mr. E. Harnor, A.R.I.B.A. The site is a rectangle about 132 ft. by 64 ft., and is bounded on one long side by Cheshire-street and on the ends by Abbey-street and Ramsey-street, whilst the remaining side is bounded by the Abbey-street Board School. The particulars furnished to the competitors suggested the following minimum accommodation:—A laundry to contain about forty washing-stalls, and fitted with the necessary hydro-extractors, drying closets, mangles, ironing stoves, &c.; ten men's first-class baths; twenty men's second-class baths; five women's first-class baths; ten women's second-class baths; accommodation for the superintendent, to consist of sitting-room, kitchen, scullery, &c., and two or three bedrooms; pay office; committee-room sufficiently large to accommodate sixteen persons. No limit of cost was imposed by the conditions, competitors being required to send in their own estimates, and, with a view of insuring accuracy, it was made a condition of the competition that the remuneration of the architect employed to carry out the work should be 5 per cent. on his competition esti-

mate. We are glad to say that Mr. Shoppee, the assessor called in to advise the Vestry, reports that the competitors' estimates are reliable. In Mr. Ayling's first premiated design, under the motto "Savon," a very excellent plan is shown with entrances for men and women controlled by one pay office, with superintendent's office and board-room adjoining, but provided with separate entrance from the side street. On the ground floor are the baths, in number as suggested, plus one, and the wash-house, which is well arranged, with entrance from the side street, with space for storing linen perambulators; office for laundry manageress, cloak-room, mangle and ironing room, with tables, laundry, and drying closet (for forty persons), and four hydro-extractors, two water-closets. On the first floor are lavatory and water-closet for the Board, superintendent's apartments, consisting of sitting-room, kitchen, scullery, three bedrooms, bath-room, and water-closet, and four cold-water storage cisterns. The engineering work is very completely shown, and the author's estimate of cost is 11,910l. The external treatment is free from ostentation, but at the same time dignified and picturesque, and excellently shown in well-drawn elevations and a pleasantly tinted perspective, and the Vestry are to be congratulated on having wisely selected an admirable design. The second premiated design, by Mr. Harnor, under the device of a red cross, also adopts the suggested schedule of accommodation, and, although a good plan, is not quite equal to that which has received the first premium, whilst the author's estimate at 15,940l. places it at a still further disadvantage in the competition. In this design also the engineering work is very thoroughly and completely shown, and evidences thorough acquaintance with the technical arrangement of baths and wash-houses. The remaining designs are by no means equal to those premiated, either in plan, elevation, or completeness of detail. "Sweetness and Light" estimates the cost of his building at 6,571l. 9s. 4d., but gives no estimate for engineering work. "Simplicity with Utility" estimates his design at 14,000l.; "Expertus" at 8,107l. 18s. 9d.; and "Progress" at 11,300l.

THE SURVEYORS' INSTITUTION.

An ordinary fortnightly meeting of this Institution was held on Monday evening in the temporary premises of the Institution, Savoy-street, Victoria Embankment, the President, Mr. Christopher Oakley, occupying the chair.

The minutes of the last meeting having been read and confirmed, the Chairman referred with regret to the death of a past President of the Institution, Mr. C. J. Shoppee.

A paper was then read by Mr. John D. Wallis, entitled "The Manchester Ship Canal Compensation Cases." In the course of his paper the author said that he proposed to place before them some particulars of the land purchases and compensation cases arising out of the construction of the Ship Canal, giving the actual prices paid, and as many details as possible. The total excavation necessary in the construction of the land amounted to about 50,000,000 cubic yards, the whole of which, with the exception of a portion used for constructing railway embankments, had to be placed upon adjacent land; for this purpose alone it was necessary to acquire about 1,300 acres. The Parliamentary estimate made at the end of the year 1884 for the estimates for the Bill of 1885 amounted—for land, compensation, interest, and expenses—to 1,100,108l. for an area of 3,430 acres, an average price of 320l. an acre. This estimate included a sum of 120,000l. for land and property forming part of the Mersey and Irwell Navigation, afterwards included in the purchase of the Bridge-water undertakings. Credit was also taken in the Parliamentary estimate for the re-sale of 1,760 acres of surplus and spoil land for a sum of 116,672l., including an allowance for re-sale of building materials and plant on the land purchased. The estimate was in this way reduced to a net figure of 863,436l. for an area remaining after re-sale of surplus lands of 1,664 acres. The actual gross expenditure for land and compensation, including interest and expenses, had been 1,359,490l. for an area of 4,664 acres, an average cost of about 291l. an acre, the average provided by the Parliamentary estimate being 320l. It was necessary to acquire an area of 1,220 acres in excess of the area provided for in the Parliamentary estimate, the chief cause of this increase

being the alterations made in the Bill during its progress through Parliament. Nearly 1,000 claims were received altogether, those from landowners numbering 425, and those from lessees and tenants, 529. The claims sent in amounted in the aggregate to 2,325,208l., being nearly 100 per cent. in excess of the settlements afterwards arrived at. The following figures showed the final result in acres:—Land for canal and works, 1,537; land for docks at Manchester, 266; land for deviation railways, 178; land for deposit of spoil, 1,296; severed lands, 1,367; total area purchased, 4,664. In addition to the area purchased, exchanges of land with public authorities were arranged in several instances.

Purchase Money and Compensation.

	Claims.	Settlements.
Land—4,664 acres	£2,023,205	£1,094,403
Injurious affecting where no land taken	122,750	61,013
Lessees and tenants	179,163	58,136
	£2,325,208	£1,213,612
Redemption of land-tax		2,721
Interest upon purchase-money		42,030
Expenses		101,121
Total expenditure		£1,359,490

This was exclusive of chief rents of 379l. a year payable by the company. The cost of the 4,664 acres, exclusive of tenants' claims, claims for injuriously affecting where no land was taken, interests and expenses, was 1,094,403l., an average price of 234l. an acre. This included injury by severance, trade claims, buildings, manufactories, and works. The price paid for works, manufactories, houses, cottages, and other buildings covering ninety-nine acres was 217,639l. Valuable building land at the Manchester end amounting to seventy acres cost 99,747l. If these exceptional properties were eliminated, the area of land was 4,495 acres, largely of an agricultural character, costing 777,077l., an average price of 172l. an acre, for land extending from Manchester to Eastham, including compensation for injury by severance, compulsory sale, and some building and accommodation value, at such places as Salford, Eccles, Stretford, Barton, Irlam, Warrington, Latchford, Lower Walton, Runcorn, and Ellesmere Port. The price paid, excluding foreshore lands, varied from 97l. an acre for agricultural land near Warrington, to 5,000l. an acre for building land at Manchester. The lecturer then drew attention to a few of the more important cases and gave instances of prices paid in various localities, beginning at Eastham, and following the line of the Canal to Manchester.

Mr. Arthur Vernon proposed, and Mr. Douglas Mathews seconded, a vote of thanks to the lecturer, which was supported by Messrs. F. L. Lightfoot, H. Hendricks, and W. H. Warner.

The motion having been agreed to, and Mr. Wallis having replied, the meeting terminated.

Illustrations.

ARCHITECTURE OF BIRMINGHAM.

OUR illustrations this week are entirely confined to the architecture of Birmingham, and all the buildings here illustrated are referred to in the leading article on another page.

The buildings illustrated are, on the first sheet, the Town Hall, built in the earlier part of the century from the designs of Messrs. Hanson and Welch, and the Police and Law Courts, by Messrs. Aston Webb and Ingress Bell.

On the second sheet are given some of the Birmingham churches; two views of St. Alban's, by Mr. J. L. Pearson, R.A.; the exterior of St. Augustine's, Edgbaston, by Mr. Chatwin; the interior of the parish church of St. Martin, by the same architect, and the exterior of St. Oswald's, by Mr. Bidlake.

The third sheet gives a view of the interior of the hall which forms the central point of traffic in the Law Courts, the front of some shops in Corporation-street, by Mr. Hale, and two street buildings by Messrs. Essex, Nicol, & Goodman.

On the fourth sheet are some of the buildings representing the older Birmingham fashion of Classic stone buildings: the Municipal Buildings, by Mr. Yeoville Thomason; the Union Club House, by the same architect; the Bank

of England, by Mr. Doubleday; the Cobden Hotel, by the same architect; and Lloyds Bank, by Mr. Chatwin.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The second meeting of the session was held at the rooms in Sackville-street, Piccadilly, on the 17th inst. Mr. C. H. Compton, Vice-President, in the chair. Mr. Earle Way brought for exhibition some antiquities from Egypt, consisting of two bronze figures representing Osiris and Isis and Horus, of about 700 B.C.; also a specimen of mummy cloth from a mummy recently unrolled, and two ancient bronze sheep bells. Mr. Way also submitted some Roman coins of Carausius, Constantus, and Constantine, found lately in excavating for a main sewer in Union-road, Southwark, and a shilling of Charles I. The paper of the evening was by Mr. Thos. Blashill, on "Some Illustrations of Domestic Spinning." Mr. Blashill said that spinning, except in its modern revival, might be considered a lost art, and although it went out of practice in England only some fifty or sixty years ago, it is as completely forgotten by most persons as if it had for centuries been extinct. From time to time spindle whorls discovered in deep excavations had been exhibited at meetings of the Association, and implements used in spinning were seen in the most ancient Egyptian sculptures, and spindles with the whorl attached were found in Egyptian excavations. As regards hand-spinning with spindle and distaff, there had been no progress through all the ages, and the most ancient specimens that are found might be used by women who, in remote countries, practice hand-spinning to-day. Mr. Blashill very graphically described the use of the spinning and wool wheels he had brought for exhibition. The great wool wheel appeared to have been in use as early as the fourteenth century, and lingered on in Wales down to recent times. The ordinary spinning-wheel was known as early as the middle of the sixteenth century, the wheel being at first turned by hand and afterwards by a treadle. The earliest spinning-wheel remaining in this country was believed to be in the British Museum, and was of the fourteenth century. A large number of engravings and drawings illustrated the paper. Mr. Patrick, Hon. Sec., announced that during some recent alterations at the Bishop's Palace at Peterborough, part of the great drain of the monastery had been laid open, the line of which had previously been unknown.—The next meeting will be on December 1, when a paper by Mr. A. Oliver, "Notes on the City of London," will be read.

COMPETITIONS.

HOTEL, HARROGATE.—It is proposed to build a "Palace Hotel" at Harrogate, adjoining the Spa estate. The building is to contain 300 bedrooms, and the main entrance will be directly opposite Swan-lane. London architects will be invited to send in competitive designs.

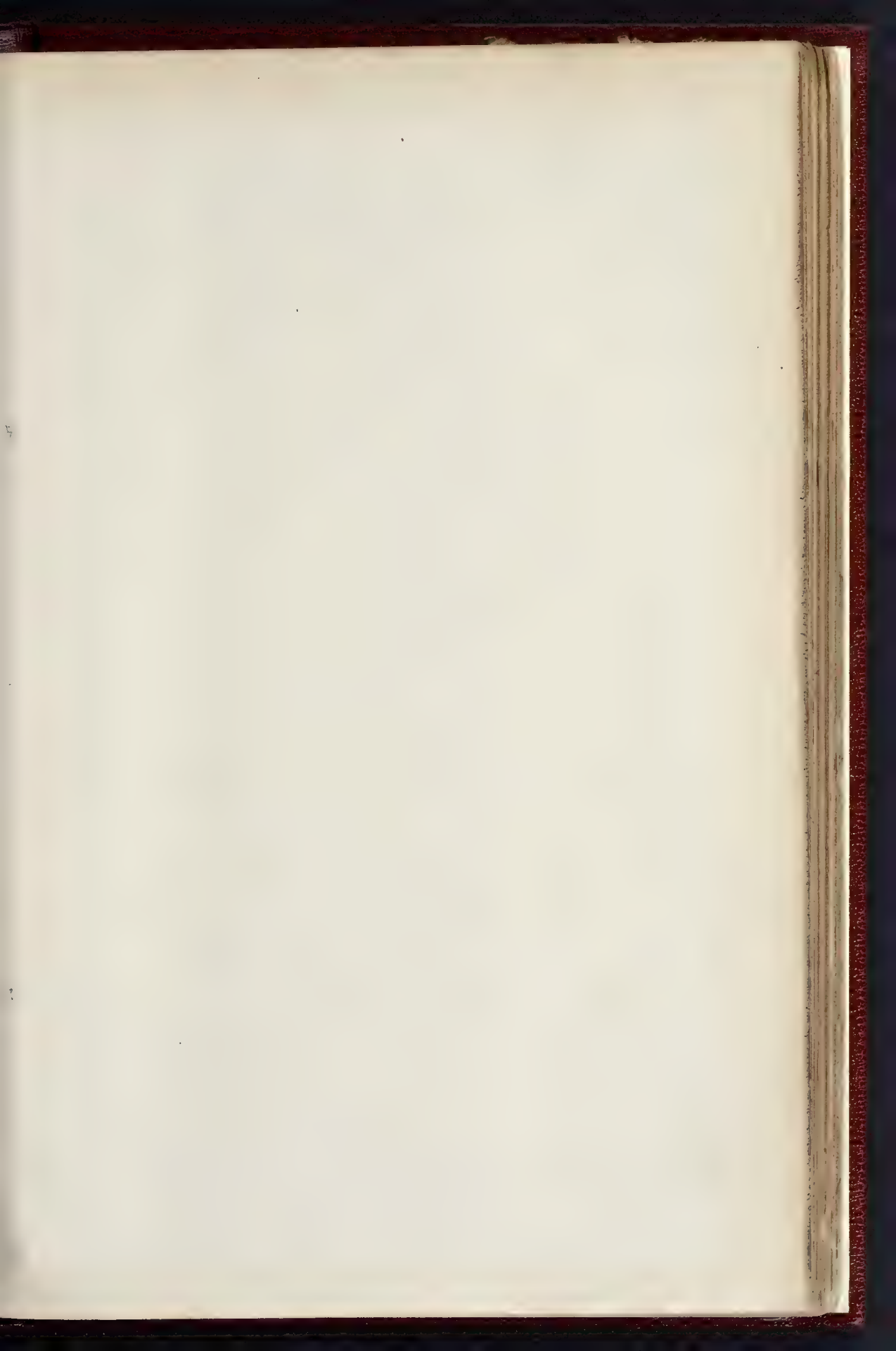
SEWERAGE SCHEME, LOWER BEBINGTON, CHESHIRE.—Some time ago the Urban District Council of Lower Bebington decided to invite designs for a proposed new sewerage scheme, involving the diversion of the various outfalls now draining into the Bromborough Pool, offering premiums of 50l., 35l., and 20l. for the three schemes, first, second, and third, according to the award of an assessor to be appointed. The award of the assessor appointed by the Council (Mr. H. P. Boulnois) has now been made, and premiums have been awarded upon such schemes in the following order:—First premium to Messrs. Beloe & Priest, of 13, Harrington-street, Liverpool; second premium to Mr. H. Bertram Nichols, of 59, Corporation-street, Birmingham; and third premium to Messrs. Goodison, Atkinson & Ford, of 11, Tithebarn-street, Liverpool.

DESIGN FOR A CHURCH AT EXETER.—Mr. Hubert C. Corlette writes to say that the plan and description appended to Mr. Nicholson's design published in our issue of the 13th were those of his own design for the same competition. The mistake arose from the fact that Mr. Corlette and Mr. Nicholson apparently sometimes act in concert and sometimes separately, and on more than one occasion, when writing to Mr. Nicholson for information about a design, we have received the reply from Mr. Corlette, so that we have not been very clear always with which gentleman's design we were really dealing.

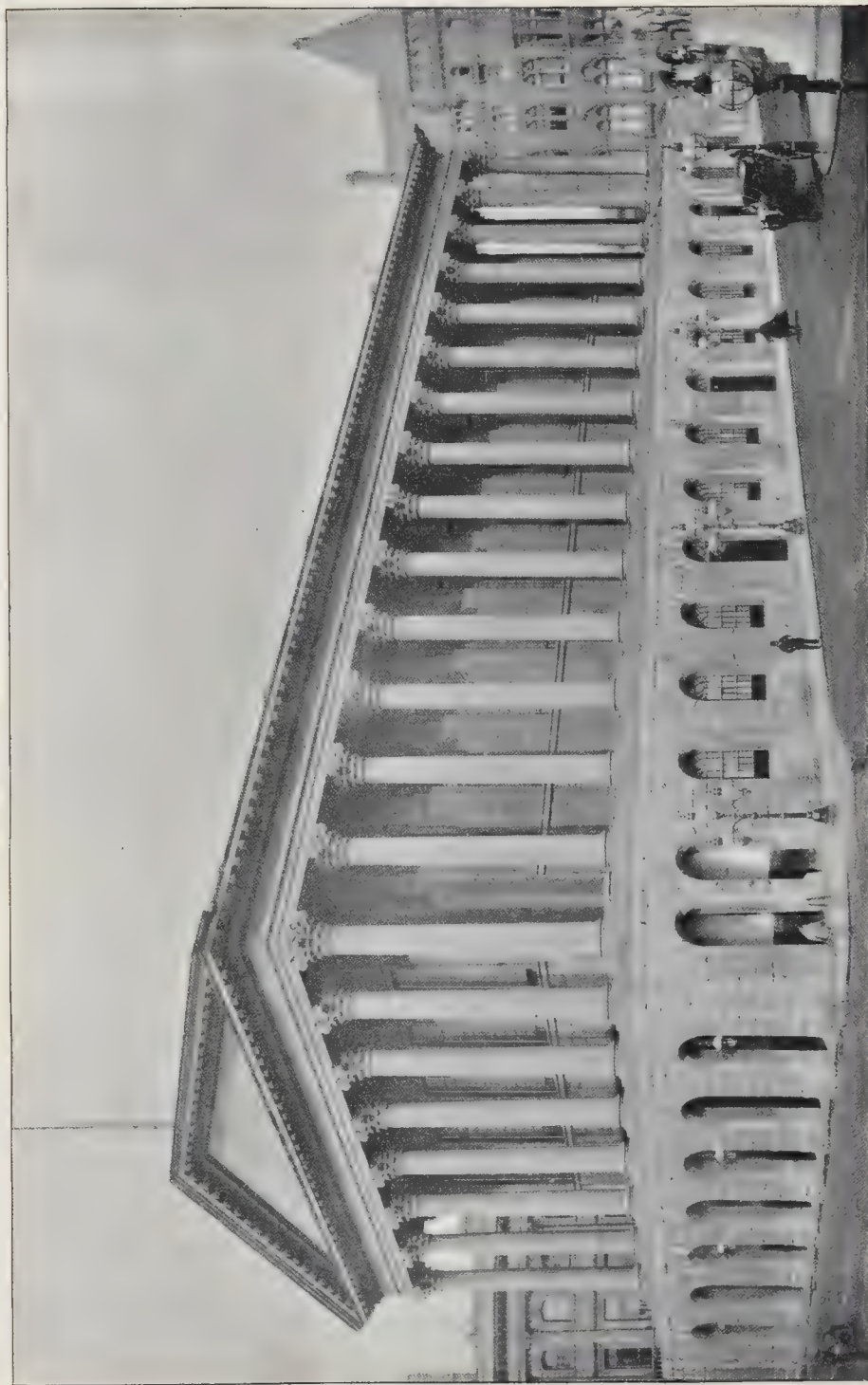
ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.—The third meeting of the Discussion Section of the Architectural Association for the present session was held on the 17th inst., when a paper was read by Mr. J. Hunt on "Ecclesiastical Vestments." Although the subject is not, strictly speaking, an architectural one, it is one of great interest to those engaged in the study of church architecture, and proved an appropriate complement to the paper on church planning and fitting read at the previous meeting. Mr. Hunt treated the subject exhaustively, describing in detail the various vestments of archbishops, bishops, priests, and deacons in the Christian Church; and he was enabled to do this in a most interesting manner, for, in addition to a large number of rubbings from brasses showing ancient vestments, which had been lent by Mr. G. H. Smith, he had brought to the meeting actual specimens of most of the vestments, some very ancient and richly embroidered. He pointed out the importance attached to vestments in the mediæval church, the lavish expenditure on silks, velvets, lace, and jewels, and the magnificent work that was done by the embroiderers of those days. It is to be regretted that more ancient examples have not been preserved. Many albs, chasubles, copes, stoles, chalice veils, &c., of elaborate and beautiful workmanship, may be seen in the South Kensington Museum. At Durham and Canterbury, too, ancient vestments are preserved, but the greater number of all those catalogued at the dissolution of religious houses in Henry VIII's time, if not quite destroyed, have passed into private hands or were hacked about to suit the tastes of the seventeenth and eighteenth centuries.—The next meeting of the Section will be held on December 1, when Mr. A. K. Jemmett will read a paper on "The Possibility of Examinations in Art."

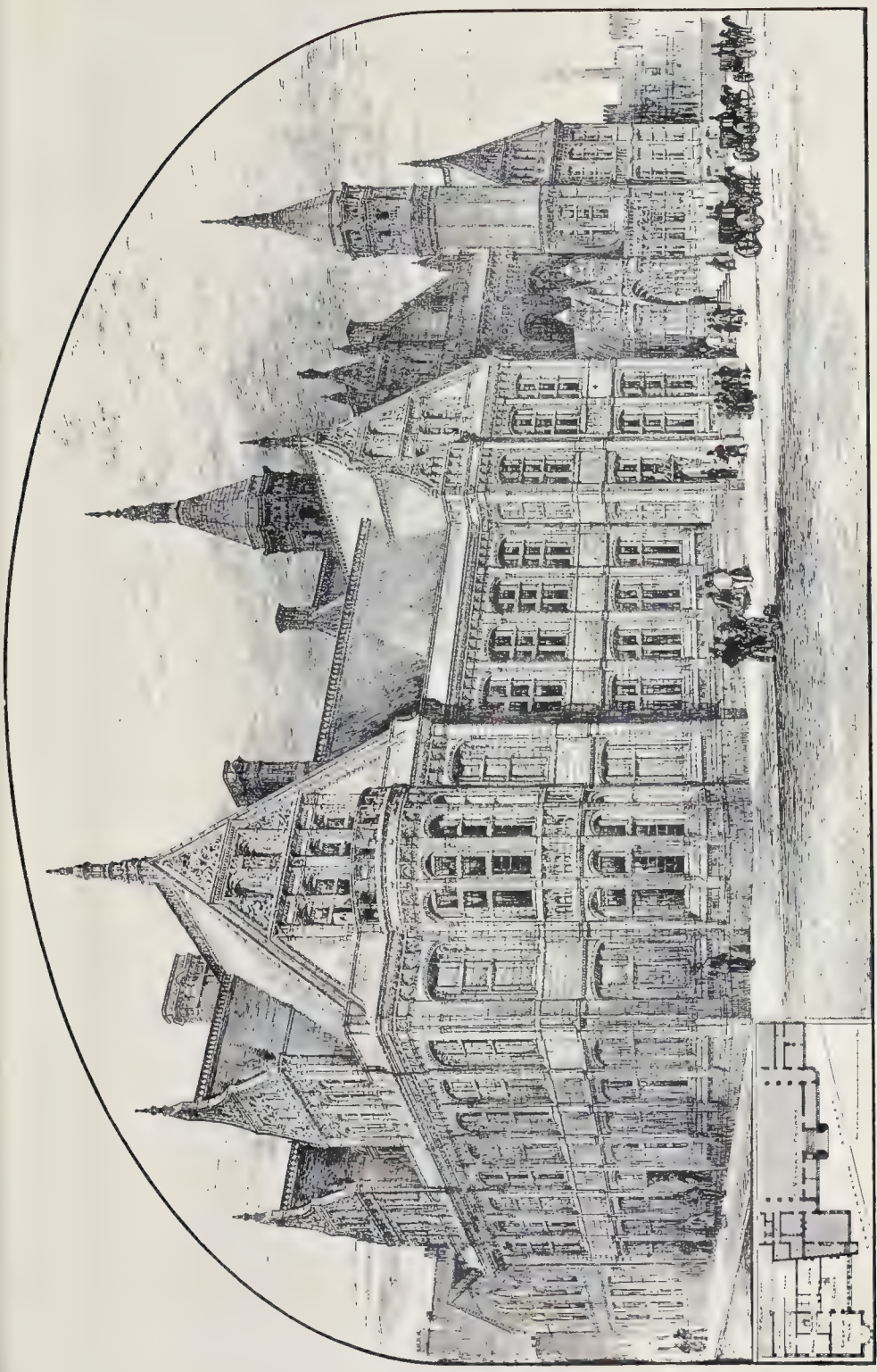
LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The session 1897-8 of the Leeds and Yorkshire Architectural Society was opened on the 16th inst. at the Queen's Hotel, Leeds. The chair was occupied by the President (Mr. George Corson). In the course of the evening there was a distribution of prizes. The Society's prize of two guineas for measured drawings of work was awarded to Mr. W. Driffield, of Leeds, and the President's prize of two guineas for sketches of old work was won by Mr. C. W. Tomlinson, of Leeds. The President said, in the course of his address, that the membership had grown from eighty in 1876 to 115 in 1897, the latter number including fifty-one full members, forty associates, and twenty-four honorary members. The result of the formation of the City-square in enhancing the value of surrounding property had already been exemplified in the recent sale of the old Post Office site. Of late there had been a "revival of dead bones" in the matter of street improvements and the erection of new buildings. Within the last two years the slow revolving wheels of municipal progress had had an electrical stimulus given them, which was very cheering to the hearts of those who had watched with impatience the tortoise-like and planless efforts of the City Council for so many years to bring about improvements in widening the streets and removing obstructions. He had in his possession a plan for the improvement of Land's-lane, which Mr. Filletter, the Borough Surveyor, thirty years ago, gave to him with the remark that the Council could not undertake so large a work. Land's-lane was the same to-day, with trifling exceptions, as it was thirty years ago. There were other examples in the city of delay in taking action in matters of improvement. The price of property, especially in business thoroughfares, was constantly increasing, and the Corporation had to pay now two or three times as much as would have been required thirty years ago. Let them hope that a younger and more enterprising spirit had been infused into the City Council, and that it would be recognised that judicious improvements always paid for themselves. After mentioning the most conspicuous of the great architectural buildings which have been erected in Leeds during the last twenty years, Mr. Corson said there were several directions in which the City Council might effect further reforms. The last Improvement Act had given powers to the Corporation to regulate hoardings and the posters with which they were covered. Nothing, however, had been done in that



THE BUILDER, NOVEMBER 27 1897.



BIRMINGHAM ARCHITECTURE.
THE TOWN HALL.



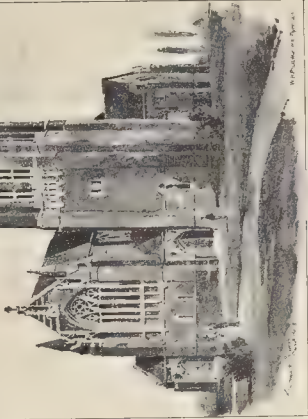
BIRMINGHAM ARCHITECTURE.
POLICE OFFICES AND LAW COURTS (MESSRS. ASTON WEBB AND INGRESS BELL).



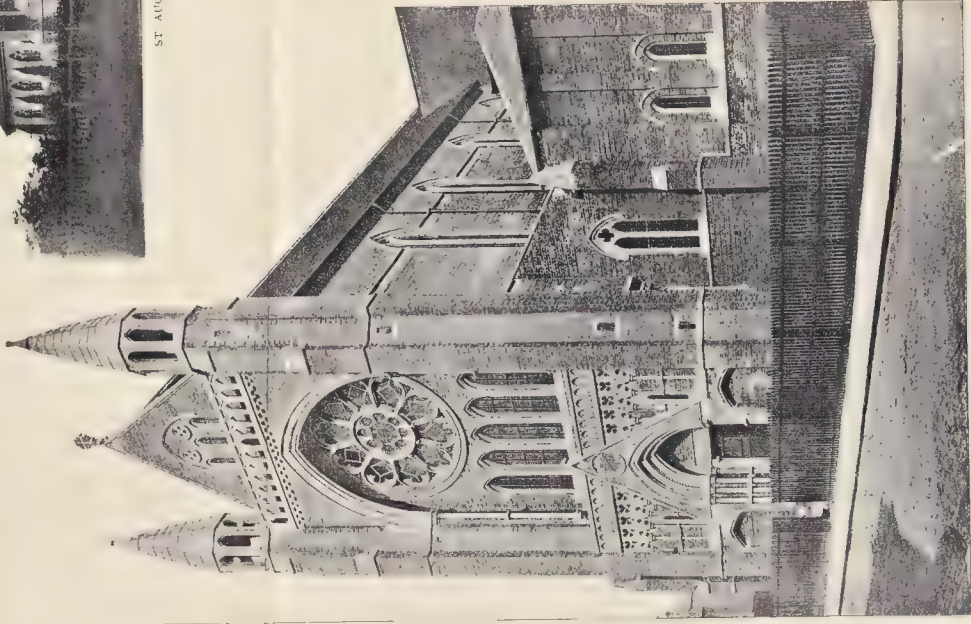
ST. ALBAN'S CHURCH, MR. J. L. PEARSON, R.A.
(From an original drawing by the architect.)



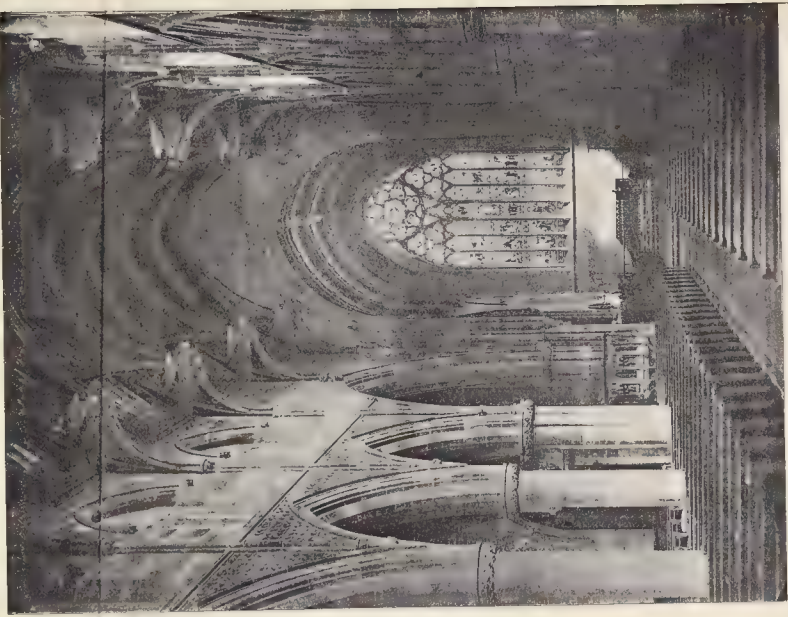
ST. AUGUSTINE'S CHURCH, MR. CHATWIN



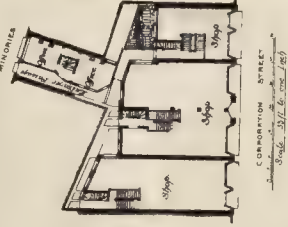
ST. OSWALD'S CHURCH, MR. W. H. BODKIN



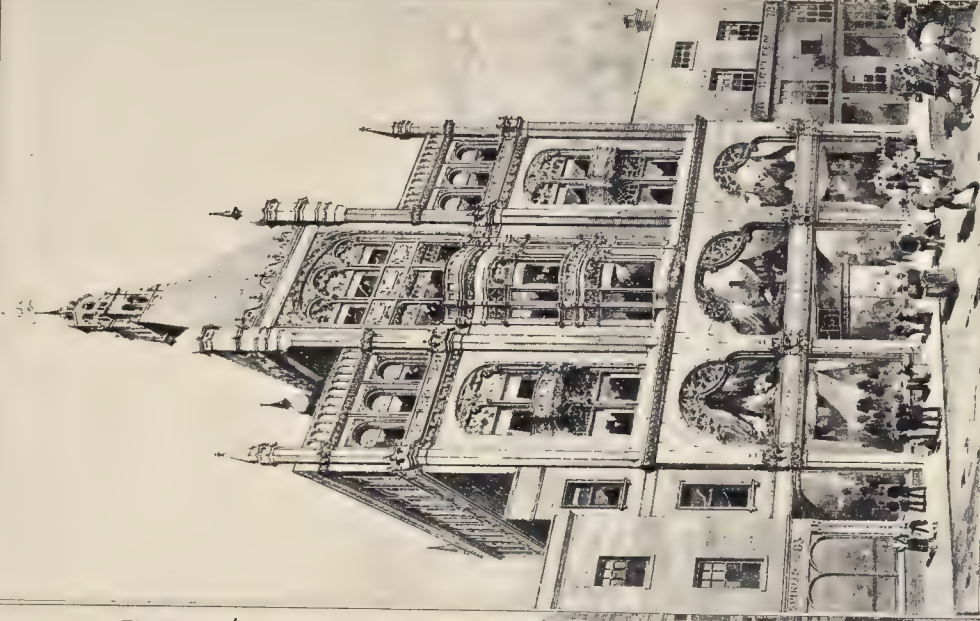
ST. ATHAN'S CHURCH, MR. J. L. PEARSON, R.A.



ST. MARTIN'S CHURCH, MR. CHATWIN



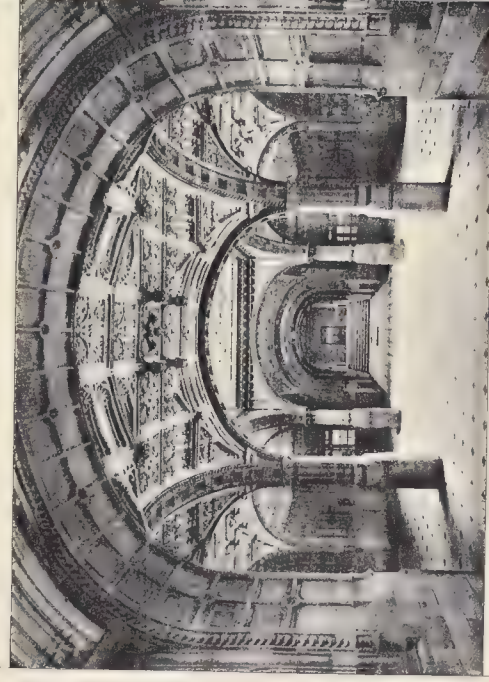
PREMISES, CORPORATION STREET, MR. W. H. HARRIS



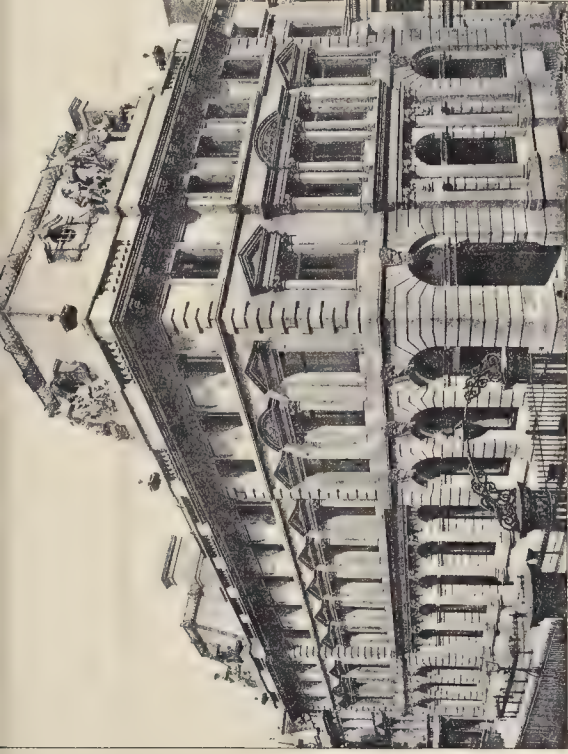
PREMISES, STEEL HOUSE LANE, MESSRS. E. W. NICHOLSON & CO.



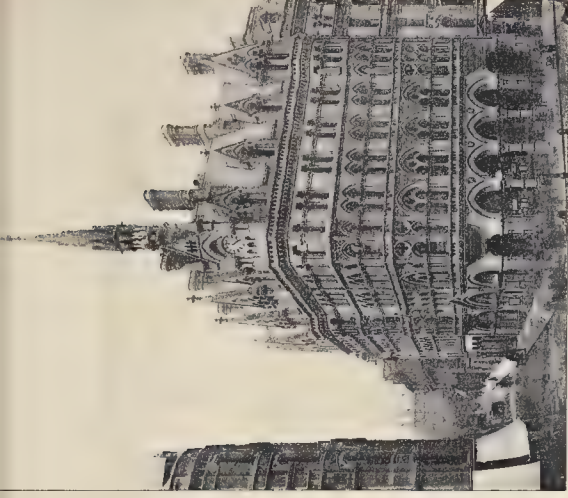
PREMISES, STEEL HOUSE LANE, MESSRS. E. W. NICHOLSON & CO.



CENTRAL HALL LAW COURTS, MESSRS. ASTON WHEAT & SONS, BUILDERS



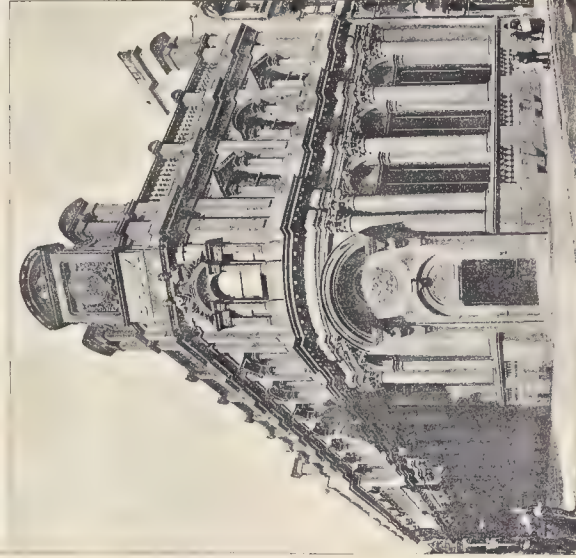
BANK OF ENGLAND (MR. LOW BURNETT)



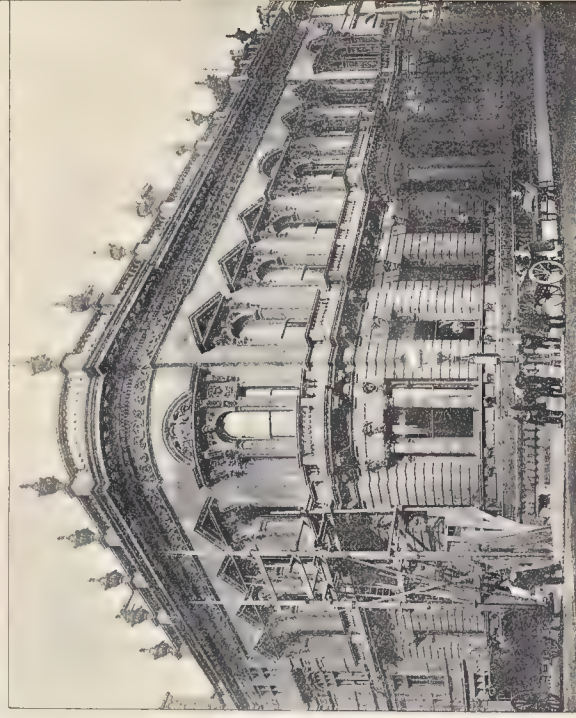
CORNHILL HOTEL (MR. DODD BURNETT)



MUNICIPAL BUILDINGS (MR. GEORGE THOMSON)



LLYD'S BANK (MR. CHURCH)



UNION CLUB HOUSE (MR. VERNER T. MACE)

respect. He thought that a regulation might be made that no hoarding should be allowed which did not leave a space between each board of, say, 6 in. This would put a stop to the disfigurement of the streets by the advertising bills which now covered those erections. In France all such advertisements were taxed. On the motion of Mr. W. E. Thorp, seconded by Mr. G. W. Bulmer, the President was accorded a vote of thanks for his address.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The opening meeting for the session of this Association was held on the 17th inst. in the Royal Institution, Princes-street. Mr. Thomas Ross, President, occupied the chair, and, after some formal business, he delivered the Presidential address, in the course of which he said that, even after all that had been done to remedy the sanitary condition of the community, much still remained to be done. The surface of the streets and the general outward appearance of things seldom presented much that was positively offensive, but every one who had experience in visiting properties for the purpose of valuation and other purposes must be aware of the scandalous condition in which back areas, back greens, sunk floors, and cellars were kept in Edinburgh, and that was not in the slums, but in the neighbourhood of the best streets. It was possible to find whole areas of back greens where a man of any refinement would shudder before he entered them. Yet it was from those places that the houses received their principal ventilation, and to such places children were sent to play. Proceeding, he said that within the last few months the Glasgow Architectural Association, evidently in the belief that there was a desire throughout Scotland to found a National Institute, took steps to test that by communicating with all the architects in the country. The outcome of a meeting in June last might be stated thus: that as the formation of a National Institute of Architects would involve the suppression of the Glasgow Institute of Architects, there did not appear to be much prospect of the success of a National Institute. Then the suggestion was made that they should try and obtain their purpose by a federation of the Architectural Societies of Scotland, and some few details in connexion with such a scheme were considered. It humbly appeared to him that that subject should not be allowed to drop, as the formation of a Scottish Institute or a federation would be of the greatest benefit to all societies in Scotland and the cause of architecture. He understood that the Council of the Glasgow Institute had reported recently that, in view of the non-success of a former National Institute, the proposal was of doubtful expediency. He thought, however, they might be favourable to some kind of extension or amalgamation with a National Institute. It was quite obvious that an Architectural Institution of Scotland could not be formed with any hope of success without the aid of the Glasgow Institute, and if they decided against such a scheme, that, so far as he could see, put an end to it. It was quite different, however, with federation. That, if carefully gone about, could only result in a strengthening of all the societies, and prove a great saving of money to all. In regard to the Junior Architectural Society, he thought there was plenty of room in Edinburgh for both Associations. A vote of thanks was given to the President for his address.

EDINBURGH ARCHITECTURAL SOCIETY.—At a meeting of this Society, held on the 17th inst.—the President, Mr. J. A. Williamson, in the chair—Mr. J. F. Matthew read a paper on "Inlay," which gave a historical sketch of the typical methods adopted in different countries—Persian, Indian, Italian, Spanish, Dutch, French, &c. He described the origin, progress, and decadence of marquetry, also the methods of executing the work. The lecture was illustrated by a large collection of woods, examples of inlay, and drawings.

ARCHITECTURAL ASSOCIATION OF IRELAND.—On Tuesday Professor Aitchison, who has been making a short stay in Dublin, delivered a lecture to the members of the Architectural Association of Ireland on "The Architecture of the Renaissance."

GLASGOW ARCHITECTURAL ASSOCIATION.—A meeting of this Association was held on the 16th inst. the President, Mr. Wm. T. Conner, in the chair, when Mr. F. H. Newberry, Head Master of the School of Art, delivered a lecture entitled "A School of Art." Mr. Newberry opened his subject by explaining that it was his intention to speak from his position as

a teacher and lay before his hearers what were his ideas as to requirements. The object of a School of Art, he said, should be to teach craftsmen how to work in any material and to engender community of thought and criticism between the different branches of study; but every one should have an elementary knowledge of craftsmanship. As affecting architects, he considered construction and design should be relegated to the office, and the art part only studied in school. On the important subject of lighting, the lecturer said that, on account of its steadiness, the north light was preferable for beginners, but south light also was often required as bringing out a variety of colour. Regarding windows he laid down the axiom: one room one window, and that in one plane, i.e., no combination of window and skylight, as thus avoiding cross or reflected lights. Mr. Newberry then considered the different rooms in detail and specified their particular requirements.

PETERBOROUGH CATHEDRAL.

At the London Institution on Monday, Mr. Arnold Mitchell delivered a lecture, illustrated by photographic views, on "Peterborough Cathedral." In the course of his remarks he said that it had been absolutely necessary to restore the exquisite west front of the Cathedral. The two great centre piers supporting a wall from four to five feet thick, were leaning forward—one being 2 ft. 5½ in. out of the perpendicular. The west front had been added to the original building, and Mr. Irving, who knew as much about the cathedral as any one, had discovered that it had replaced a structure of which the two existing piers formed part. When the present front was constructed those piers were strengthened in their substance but not in their foundation. Hence the recent failures. The wall above had stretched, i.e., openings had occurred between the stones. Through these openings, as the necessary pointing was omitted, wind, rain, and frost had found their way, reducing much of the inner masonry to rottenness and dust. On the occasion of a recent visit he put a crowbar into the inner masonry work, and the powdered material rushed out with such force that the hole had to be covered up, or the powder would have continued to come out for a long time, as it had done on a previous occasion. No doubt the little central porch was the mediaeval way of arresting the tendency of the front to fall forward. About two years ago a great gale came, and several pinnacles were blown down. Then the Dean and Chapter sought expert opinion, which showed that the two side gables must be taken down and rebuilt. A great outcry was raised, but the course recommended had to be followed; and, surely, the Dean and Chapter were justified in the course they pursued. The architect they first consulted knew more about church work and restoration than any one living, and the architect who was next consulted probably had the next largest experience. If the outcry had not been raised, and if sufficient public support had been forthcoming, a more drastic alteration would have been undertaken. The three gables and the tops of the arches would have been removed, and then, after slices had been taken from the backs of the piers, they would have been restored to the perpendicular by means of screw-jacks. If that were done, we could hand on the front of Peterborough Cathedral for 700 years to come. Whether the present restoration would be final, he could not say. The disintegrated condition of the inner masonry (evidence of which had more particularly been forthcoming since the present works were in hand) rendered impossible the project, suggested by opponents, of replacing the inside masonry without disturbing the "skin." One gable had already been taken down and rebuilt. The 2,006 stones were numbered, and 1,896 of them were put back in exactly the same places that they occupied before. Only 170 had to be discarded, new ones being substituted. That proved that the restorers were anxious to use as much of the old stone as possible. One of the great outcries was that new stone had to be built on the old front. Could any one, he asked, wonder that the fabric was not in a worse condition? The fissures in the outer west wall were not discovered until after the work of restoration had begun, and the whole of the upper surface was, he stated, filled in with rubbish. The opinion of the experts employed by the Dean was that the only way

in which the front of the fabric could be saved was to take down those portions which had been removed and to rebuild the masonry. While he did not wish to colour the facts too much, or magnify the drastic measures which had upon advice been taken, he remarked that the general consensus of opinion seemed to point to the fact that what had been recommended and undertaken had been wisely carried out. It was quite possible, however, that the opposition which had been raised to the scheme had not been without beneficial results, in making the authorities more careful as to how they proceeded with the work. A photograph of the restored gable was thrown on the screen, which showed where the new stone had been introduced.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A NORTHERN Counties district meeting of the members of this Association was held at Sunderland on Saturday last. Mr. J. Cooper, C.E., of Edinburgh, Vice-President, occupied the chair, in the unavoidable absence of Sir Alexander Binnie, and amongst those present were Messrs. R. S. Rounthwaite, Borough Engineer of Sunderland; T. Cole, Westminster, Secretary; C. Brown, Bedlington; H. F. Campbell, Stockton; F. Baker, Middlesbrough; J. W. Brown, West Hartlepool; J. P. Dalton, Ryton-on-Tyne, District Secretary; J. F. Smellie, Tyne-mouth; T. W. Stainthorpe, Eston; W. Edson, Ripon, and others.

The Mayor (Alderman Bruce) offered the members a hearty welcome to Sunderland, and said that from the programme he could assure them of a good day's work of an interesting character.

The Chairman, in acknowledging the Mayoral welcome, regretted that Sir Alexander Binnie's engagements prevented him from attending the meeting.

On the proposition of Mr. Rounthwaite, Mr. Dalton was re-elected Honorary District Secretary for the Northern Counties.

Mr. R. S. Rounthwaite, Asso. M.Inst.C.E., read a paper on the various public works of Sunderland. Dealing first with the housing of the working classes in Sunderland, he said that the adoption of the 1890 Act having reference to this subject had received the careful attention of the Council and of the Health Committee. A large number of insanitary areas in the older parts of the town were in 1892 inspected and reported on by the then Medical Officer (Dr. A. E. Harris, of Islington) and himself. The Health Committee, however, very wisely confined their attention in the first instance to one of the worst districts, known as the "Hat Case Area." This district was taken in hand as being of small area, as one occupied for the most part by working people of the poorest kind, and for the purpose of finding out by experiment how the Act would work. The total area now being dealt with comprised in streets and buildings only about two acres, of which 2,404 yds. were intended to be used for the erection of workmen's dwellings, the remainder being thrown into adjoining streets and utilised for new streets. It was proposed to erect new dwellings of three stories in height for the accommodation of the 480 persons unhoused. The necessary Provisional Order was obtained in 1894, and from fifty-three competitive designs submitted, those of Messrs. Perry & Angell, of London, were accepted by the Council. The accommodation provided in three blocks consisted of twenty-four three-roomed self-contained tenements, at a rent of 4s. 3d. per week; seventy-one two-roomed tenements at 3s. 6d. per week; and thirteen single-roomed tenements at 2s. per week. Allowing two persons to each room, provision would be made for 454 of the 480 persons unhoused, and this it was hoped would satisfy the Local Government Board, although the terms of the Provisional Order required that the full number displaced should be provided for. It was difficult to say to what extent this scheme would be self-supporting. Calculated on the rentals named, and which were such as he believed would be easily obtained, the total gross revenue would be 978l. 18s. per annum, while the outgoings, including insurance, repairs, collection, caretaker, rates and taxes, were estimated at 332l. 16s. 6d. This left a net annual income of 646l. 1s. 6d., which was sufficient to cover the interest and sinking fund on the total estimated cost of the

scheme, 16,402*l.*, over a period of forty years with interest at the rate of 2½ per cent. per annum. The principal features of the designs were plainness and substantiality. All the living rooms and most of the bedrooms abut on the wider streets, where they had the benefit of better light and air, whilst the staircases, sculleries, offices, and some few of the bedrooms abut on the narrower courtyard. All the rooms were of sufficient size and height to comply with the memorandum of the Local Government Board. Each tenement was provided with a separate scullery, a separate water-closet in nearly all cases, a copper, sink, and draining-board, ash bin, and coal bunker, as well as sufficient cupboard accommodation. In very few cases was it necessary to pass through one room to another, entry being direct from the landing. In the original design the architects had so arranged the tenements that this was unnecessary in any single instance, but owing to the modification of the plans and the increase in the size of the rooms, they had been obliged in a few cases to pass from the living to the bedroom. Floors, roofs, and stairs would all be of fireproof construction, and the entrance to each group of tenements would be by a direct stone staircase from the courtyard, thus avoiding the objectionable gallery, which tended to shut out light from the rooms below and to prevent privacy. These staircases would be well lighted and ventilated and would provide a ready means of escape in case of fire. They would be carried up to the roof level, which was intended to be used as a drying ground and playground for children. The buildings were proposed to be erected in brickwork upon cement concrete foundations, and faced on front elevations with red brick and moulded cornices. That portion of the external main walls between the pavement level and the under side of ground floor window sill would be in blue Staffordshire bricks. The construction would be fireproof throughout, the steel floor joists being completely encased in concrete, and the steps and landings would be finished with a granite surface. The open staircase walls would be built in white glazed bricks with bull-nosed angles; and gas would be provided on the stair landings only. The courtyards would be paved with granite-faced concrete, as also would be the flooring of lobbies, sculleries, &c.; and the living and bedrooms would have boarded floors secured to wood fillets laid in the concrete. With respect to the proposed technical school, Mr. Rounthwaite explained that the Council, instead of paying away the Government grant, which was received annually, in subsidising existing schools, only a very small part of such grant had been so dealt with, and the remainder had been allowed to accumulate so that a public central technical school might be established. The whole of the funds necessary for the erection and equipment of such a school had, however, not yet been obtained from the source referred to, and the question of providing the balance would probably occupy the attention of the Committee and the Council at a very early date. The probable cost of the scheme would be in round figures 20,000*l.*, and of this sum about one-half remained to be provided. So far, the Council had purchased a most eligible site, of sufficient area to allow of such extensions in the future as might be found necessary. They had also invited designs in competition, and from forty-three sets of designs submitted they had, unanimously accepted those of Messrs. Potts, Son, & Hemmings, of London and Manchester, who were awarded first place by the assessor. The plans were so arranged that all parts were readily reached, well under the supervision of the officials, and capable of easy and economical extension. The building would be lighted by the electric light and heated by means of hot-water pipes, with radiators, where necessary, beneath the window sills, and through which would be passed a current of fresh air. Ventilating grates would also be used in addition to the hot-water system. The elevation showed a type of English Renaissance, faced with red bricks and stone dressings. The foundations would be of concrete and damp courses of asphalt. Carpenters' and joiners' work would be of red wood, except internal joinery, which would be of American yellow pine. A new hospital pavilion was to be erected for scarlet fever cases, to supplement the existing fever hospital accommodation. The new pavilion was to be built pretty much on the same lines as the older

pavilions, except that each of the wards, male and female, would be 84 ft. long instead of 48 ft., and twenty-eight beds would be provided for instead of sixteen. The new pavilion would, like the others, be one story in height, and would contain two large wards for male and female patients. The wards would be heated by means of two large single hot-air gill stoves, with flues ascending directly over them to the ridge of the building. In the older pavilions the flues descended and were carried under the floors to the external walls, and up to and above the ridge level, but these were never found to be satisfactory. The estimated cost of the building, exclusive of furnishing, was 2,810*l.*

Mr. Brown, West Hartlepool, thought Sunderland was doing wrong, though it might be following the footsteps of other towns, in erecting workmen's dwellings in the centre of the town. If it was necessary to abolish slum dwellings, it was better to sell the land for offices and shops, and take the new dwellings outside the town, subsidising a railway or tramway to obtain cheap fares. He also objected to 4½-in. division walls between the tenements, and to the fact that in some of the houses they had to enter the water-closet through the scullery, which was a very objectionable thing. He thought when corporations undertook this work they should lead the way by setting an example for private owners.

Mr. Rounthwaite said he agreed with Mr. Brown in principle, but it was a difficult thing to clear a portion of a town and send the people into the outskirts, especially where they had large docks and works immediately adjacent. Most of the party-walls were 9 in., but others appeared to be 4½ in., which he did not think desirable.

Mr. H. W. Taylor, A.M.Inst.C.E., then read a paper entitled "Notes on the Specifications of Tyneside Roads." He recommended the use of tarred macadam as an unrivalled paving for back streets, comparing it very favourably with "random chip," a paving frequently employed in the North. For pavements he spoke favourably of cement concrete laid *in situ*, and composed of crushed granite and Portland cement in the proportion of about three to one, laid 2 in. to 3 in. thick upon a foundation of 4 in. to 6 in. of broken rubble, and costing from 3s. to 3s. 9d. per superficial yard. Imperial, Adamant, and Victoria flags were all first-class articles for footpaths, of light and cheerful appearance, and free from the objectionable feature of natural stone, viz., wearing unduly at the edges and corners. In conclusion, he commented upon the roads—or rather want of roads—usually found abutting upon colliery houses in the North of England.

Mr. Crumrack, Hartlepool, said that having had experience of tar macadam, he would not advise his Corporation to put it down for back streets, where it would be anything but economical. For such streets there was nothing so good and cheap as a set pavement grouted with asphalt.

Mr. Spencer, Newcastle-on-Tyne, considered random chip pavements unsatisfactory, except on the one point of cheapness.

Mr. Smellie, Tynemouth, complained of the ruthless way in which gas and water companies broke up the streets, and expressed the opinion that no one should be allowed to break up the streets but the corporations. They were responsible for the condition of the roads, and should have the right of breaking up and restoring them.

Mr. Edson, Ripon, Mr. Stainthorpe, Eston, and other gentlemen took part in the discussion.

The members were entertained to luncheon by Mr. Rounthwaite at the Town Hall, and the afternoon was devoted to visits to the important pier, dock, and harbour works which are being carried out at Roker by Mr. Wake, Engineer to the River Wear Commission; the electric generating station, where a paper descriptive of the works was read by Mr. F. J. C. Snell, Electrical Engineer; and the Corporation swimming-baths and washhouses. In the evening the members dined together at the Grand Hotel, Sunderland.

MEMORIAL MONUMENT, TUNBRIDGE WELLS.—On the 19th inst. the memorial to the late Canon Hoare in St. John's-road, Tunbridge Wells, was dedicated by the Archdeacon of Maidstone. The memorial is erected at the junction of the St. John's and Culverden Park-roads. The structure is Gothic in design. The total height of the monument, which cost nearly 1,000*l.*, is 40 ft., and Mr. Oldrid Scott was the architect. The erection has been the work of local builders, Messrs. Strange & Son.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Greenwich District Board 930*l.* towards the payment of their contribution to the Evelyn-street improvement; the Islington Vestry 2,200*l.* for wood and granite paving in Offord-road; the Wandsworth District Board 1,000*l.* for granite paving; the St. Martin's Vestry 4,300*l.* for the construction of sanitary conveniences in Charing Cross-road; and the Streatham Library Commissioners 12,250*l.* towards the cost of providing a public library.

Southampton-row Improvement.—The Improvements Committee recommended:—"That the estimate of 149,500*l.* submitted by the Finance Committee be approved, and that the Council do authorise the Improvements Committee to take all necessary steps for the acquisition by agreement of the freehold and long leasehold interests in the block of property between Southampton-row and Kingsgate-street, and also in the property on the eastern side of Kingsgate-street, and the property at the south-western corner of Southampton-row, at its junction with High Holborn, with a view to the widening of Southampton-row between High Holborn and Theobald's-road."

Mr. Ward moved as an amendment—"That, in view of the report of the solicitor dated November 3 obtained since the date of the Committee's report, expressing grave doubts as to whether it is practicable to carry out the improvement in the manner proposed, the recommendation be referred back to the Committee for further information and report as to whether it is not essential that Parliamentary powers should be sought to obtain the property on the east side of Kingsgate-street which is not owned by the Duke of Bedford, and what it is proposed should be done with any land previously bought by agreement in the event of Parliament refusing to give the powers referred to; and whether the Committee proposes to obtain Parliamentary powers to impose a betterment charge on the property on the west side of Southampton-row, and if not, why not?" He said that the recommendation of the Committee was only carried by a majority of four to three, and he thought that if the opinion of the Committee was taken as to whether the scheme had anything to do with the Strand improvement, the majority would have expressed themselves in the affirmative. If the recommendation were adopted, the Council would fix themselves to the line of the future route, and he thought this would be a very serious step to take.

Colonel Ford seconded, and after some discussion the amendment was defeated.

Mr. Campbell moved a further amendment, which was seconded by Mr. Porter, as follows:—"That, before sanctioning such a heavy expenditure on such a short piece of road, or in any way seeming at present to approve of the idea of a 90 ft. road being made to open in the very narrowest part of Holborn, the Council would, under all the circumstances, wish to be put in possession of the Committee's views as to any changes on the south side of Holborn (nearly opposite Southampton-row), with the view of improving the whole communication from Theobald's-road to the Strand."

This was also rejected on a show of hands, and the Committee's recommendation was then agreed to.

Greenwich Tunnel.—On the recommendation of the Bridges Committee, it was agreed to proceed forthwith with the Greenwich footway tunnel scheme, and the estimate of 70,500*l.*, with the probable addition of 30,000*l.*, was approved.

The Strand at Holywell-street.—On the recommendation of the Improvements Committee, it was agreed that, in compliance with Section 42 (3) of the London County Council (Improvements) Act, 1897, the seal of the Council be affixed to the specifications of lands upon which it is proposed to place an improvement charge in connexion with the widening of the Strand at Holywell-street, and of Tottenham-court-road at Bozier's-court, and that the solicitor be instructed to give the statutory notices and to take all necessary steps to comply with the Act.

Paving, &c., Tower Bridge, Southern Approach.—On the recommendation of the same Com-

mittee it was agreed that in connexion with the Tower Bridge southern approach improvement, the Committee be authorised to make arrangements for paving the carriage-way with wood, for lighting the whole thoroughfare by electricity instead of by gas, and for planting trees on each footway.

The Fire in the City.—On the reception of the report of the Fire Brigade Committee, several questions were asked in regard to the great fire in the City.

Colonel Rotton, Chairman of the Committee, said he asked the chief officer of the Fire Brigade to furnish him with certain details, which he would now read to the Council. The first call was received at Whitecross-street Station at 12.53 p.m. from a stranger. The first steamer arrived at 1.2, four minutes after the call. Four steamers had arrived in eight minutes. After this steamers followed in quick succession, until, within some thirty minutes, nineteen steamers were on the scene, with a complement of long ladders and fire-escapes. Steamers and other appliances continued to arrive until the total number reached fifty-one steamers, one manual engine, one hose-cart, three long ladders, two fire-escapes, three hose and coal vans, and the force consisted of chief officer, second officer, three superintendents, and 288 officers and men. The water supply was well maintained from the first. The extraordinary rapidity of the fire was entirely due to the nature of the buildings, the stock therein contained, the distribution of inclosed courts and well-holes, numerous communications in party-walls, and the narrowness and relative positions of the thoroughfares. Colonel Rotton proceeded to add that he was accompanied by the Chairman of the Council when the fire broke out, and they saw in what manner Commander Wells discharged his duties. They observed with great satisfaction how entirely satisfactory was the arrangement of the engines. There were eight steam-engines which were not called out, and also sixty manuals, 114 hose carts, 218 escapes, three superintendents, and 672 men were still available for further fires elsewhere. Undoubtedly a vast amount of gas was burnt, because it was impossible to get at the mains to cut them off. Of course, if electric light had been used, that would not have taken place. With regard to the roofs, he was unable to say whether they were fireproof or not. All he could say was that if they had been ten times fireproof, he believed they would have given way to that conflagration.

The Architect and his Estimates.—The Fire Brigade Committee brought up the following report:—

"On November 9 last we reported on the tenders received for enlarging and altering the Hampstead fire-engine station, and recommended that none of them should be entertained, the lowest tender being 4,955l, whilst the Architect's estimate was 4,170l. In our report we mentioned that after the advertisement inviting tenders had been issued, a further modification had been suggested in the plan for altering the engine-room and forming a recreation-room, and that we proposed to consider this before recommending which course we should recommend the Council to adopt to ensure the enlargement of the station being carried out. The Council, however, referred back our recommendation with instructions before taking any steps to alter the plans or estimate, to present a further report showing in detail the causes which had resulted in the lowest tender exceeding the estimate by so large a sum, and the amount for which the Manager of the Works Department was prepared to carry out the work. The following is an extract from a report made to us by the Architect on the subject:—

"The Committee will remember that in this case my estimate was 4,170l, while the lowest tender was 4,955l, the excess of tender over estimate being 785l. The chief cause arises from the fact that the estimate was made at the beginning of May last, while the tenders were received on October 26. Six months had, therefore, elapsed during which time the labourers' wages and the prices of certain materials had increased. For this reason, and other reasons to be mentioned, it had gradually become so difficult to get tenders from responsible contractors. My estimate of May was in accordance with builders' prices at about that date; in fact, it was in accord with the prices at which a responsible contractor actually took work under the Council, only eight weeks before the estimate was made, which work is now being carried out by him. Having looked to get tenders again, I consider that not less than 367l of the difference now in question is due to the rise in labourers' wages and materials after my estimate was made, to the fact that the work will now have to be done in the winter, and other ordinary contingencies. This still leaves a difference of 418l to be accounted for, which, I have no doubt, is largely due to the un-

willingness of responsible contractors to tender for the Council's work under the existing conditions of contract. In fact, the lowest tenderers state that, if the conditions are made similar to those of the Royal Institute of British Architects they will reduce their tender by 5 per cent., or about 250l. It is quite possible that other tenderers, and persons who were deterred from tendering by the Council's conditions, would reduce their estimates by an amount even greater than this. We ought to have had at least eight or ten tenders from firms who are usually eager to compete for the Council's work instead of four, only one of whom is known to us.

But there are other extraordinary causes of difference which may be only temporary. The cost of ironwork must have been raised by the engineers' strike. I am told that during this autumn bricks, unless previously contracted for, cannot be obtained, and bricklayers cannot be obtained even through public advertisement. Therefore even my enhanced estimate may at present prove inadequate."

The following table will show some of the chief differences between the Architect's estimate and the lowest tender:—

	Architect's Estimate.	Lowest Tender.	Difference.
Filling and carting earth, . . .	£ s. d. 89 1 6	£ s. d. 114 10 6	£ s. d. 25 9 0
Brickwork in mortar . . .	571 5 0	638 9 2	67 4 2
Centering to concrete floor . .	22 4 0	39 2 6	16 18 6
Steel joists . . .	90 0 0	170 0 0	80 0 0
Walers, including fitting, &c., to ends of same, . .	52 7 9	100 0 3	47 2 6
Framed railing and grilles . . .	23 15 8	42 13 2	19 17 6
Electric bells . . .	17 0 0	60 0 0	43 0 0
			£341 4 5

In explanation of the lapse of time between the preparation of the estimate and the receipt of tenders, we may state that the Architect's estimate was reported to us on May 20, 1897, and that we decided on May 27 to recommend the Council to refer the estimate to the Works Committee, with a proviso that, in the event of that Committee not being satisfied of the sufficiency of the estimate, tenders should be invited for the work by public advertisement. As a preliminary, the estimate had been forwarded to the Finance Committee, and consequently it was not practicable to submit our recommendation to the Council until the first meeting after the Whitsuntide recess on June 29. At a special meeting held on the previous day, June 28, the Council had under consideration the report of the Special Committee on the Works Department, when it was determined that the Works Committee should come to an end. When our report came before the Council on June 29 the recommendation to refer the estimate to the Works Committee had consequently to be withdrawn, and at our next meeting, on July 15, we referred the estimate to the Manager of the Works Department under the new standing order. The specification and quantities were forwarded to the Manager on July 19, but it was not until September 18 that he was able to intimate that he was not satisfied with the estimate. Tenders were thereupon invited by advertisement. It has hitherto not been usual for the Manager's estimates to be made public, but, in obedience to the Council's resolution we have communicated with the Manager, and have now to report that his estimate of the cost of the work of altering and enlarging the Hampstead station according to the specification, quantities, and drawings supplied by the Architect is 4,800l. Having now complied with the instruction given us by the Council, we propose at a subsequent meeting to recommend that the work shall be entrusted to the Manager, provided that he is satisfied with a revised estimate which we have referred to him under the standing order, and we now repeat the recommendation previously made, viz., that none of the tenders for the enlargement and alteration of the Hampstead station be entertained."

Mr. McKinnon Wood said that from the report it would be seen that the Works Department was sometimes justified by the tenders of contractors.

Mr. John Burns, M.P., said that the Architect's estimate was 4,170l, and the Works Committee were willing to do the work for 4,800l, and the lowest tender was 4,955l. In view of that, what became of the sacred accuracy of the Architect's estimates? He would invite the Council to compare the Architect's defence of and apology for contractors, and his criticisms of the Works Department. The Architect went out of his way to furnish contractors with excuses and arguments which they should have supplied themselves, and the same consideration was not accorded to the Works Department. Everything appeared to be set down in malice.

The Chairman said that it was undesirable to attack an official of the Council.

Mr. Burns said he would withdraw the expression.

Sir John Lubbock said that Mr. Burns had not been just to the Architect, who had done what he had been asked to do in preparing the report, and had done it quite fairly.

Mr. E. White said that this was the first case which had been brought to the notice of the Council where the Architect's estimate had been found to be insufficient. In defence of the Architect he must refer to the long list, which was submitted to the recent Committee of Inquiry into the working of the Works Department, of works refused by the Department on the Architect's estimate, and afterwards carried out by contractors. In all cases the Architect's estimate was in excess of the amount at which contractors carried out the work. It was really remarkable how carefully the estimates had been prepared. When the Works Department did accept work they invariably executed it at a loss, which the ratepayers had to bear; whereas the contractors had to bear any loss they made. Everything in the building trade was going up in price, and the longer the work was delayed the higher the price was likely to be. The trade was so much occupied just now that they were not eager to get work, as they otherwise would be, and they were not anxious to get the work of the Council owing to the onerous conditions. When contractors did tender, they put on an extra price because of these conditions.

Mr. Ward said that he agreed that the Architect's estimates had been very fair on the whole, but he objected, when an error had been made, to the excuse that the Council's conditions were the cause of it.

Mr. Roberts said he did not know why contractors were always to be attacked by certain members of the Council when the Works Department was under discussion. The Architect had generally estimated very correctly, but on this occasion he did not say whether he still considered his original estimate correct.

After some further remarks the recommendation was agreed to.

The Elephant and Castle.—Mr. Thornton moved, and Mr. Spokes seconded, the following resolution:—"That it be referred to the Improvements Committee to consider and report at an early date as to the desirableness of at once entering into negotiations with such of the local authorities as are interested, and with the freeholders or owners of the site of the Elephant and Castle public-house, situated at the junction of New Kent-road, Walworth-road, and Newington Butts, with a view to the setting back of the public-house."

Upon a show of hands the resolution was carried by a small majority.

The Council then adjourned.

THE INSTITUTION OF JUNIOR ENGINEERS.

On Saturday afternoon, the 20th inst., a large party of the members of this Institution availed themselves of the opportunity for visiting the electricity works of the Islington Vestry, at Eden-grove, Holloway. They were shown over by Mr. Albert Gay and Mr. C. H. Yeaman.

The station was opened in March of last year, and its design includes many novel features. Labour-saving devices have been introduced wherever practicable, a noticeable instance of which was observed in the coaling arrangements. The waggons are run from the colliers direct into the boiler house, and there emptied, by means of special gear, into the bunkers.

The main boilers are of the Lancashire type, but there are two water-tube boilers to meet unexpected demands arising from fogs. Meldrum's furnaces and forced draught apparatus are fitted to all the boilers. The steam-piping system also presents some unusual features, which Mr. Gay has devised with the object of retaining the advantages of the "ring" method whilst obviating many of its drawbacks.

All the engines are of the horizontal high-pressure compound non-condensing type, the latest form of Wheelock valve gear being applied. There are rope-driven alternators of the Lawrie Hall type, the field-magnets forming the rotating part; and also direct-driven alternators in which the magnets are mounted on the engine flywheel. Each of the rectifiers is capable of supplying thirty 12-ampere lamps.

Since the station was opened it has been necessary, to meet increasing demands for current, to increase the plant by the addition of four Lancashire boilers, two slow-speed horizontal engines, each of 500 I.H.P., direct-coupled to alternators, each of 300 K.W.

ST. ALBAN'S ARCHITECTURAL AND
ARCHÆOLOGICAL SOCIETY.

At a meeting of this Society held last week, Mr. W. Page said that, when the alterations at St. Michael's Church were proceeding, advantage was taken of them to make some excavations which had shown the foundation of an old Roman wall about 8 ft. below the surface. It was found on the north side of the church, and extended, they had reason to believe, under the church to the south-east corner. They found the remains of a Roman column, and from the size of the base of these columns it was probable that they had been 20 ft. to 27 ft. high, and the building itself must have been a large one. It appeared to have been a temple or some similar public building, and the direction in which the walls ran disposed of the theory that any part of the present St. Michael's Church was of Roman construction, although it stood on a Roman site. The blocks discovered had been subject to the influence of fire, and this pointed to the idea that the building had been destroyed by fire.

It was suggested by the Rev. H. Fowler that 21. should be voted for the continuation of the excavations, but Mr. Page said he did not think it would be possible to do this on account of the graves about the foundations.—The matter was referred to the committee.—*Heris Standard.*

TRADE CATALOGUES, &c.

MESSRS. HAYWARD BROS. & ECKSTEIN send us the section of their catalogue containing illustrations of their "Safford" radiator, to which we believe we have before referred, and which is a very good radiator in principle and construction, though the examples figured in the catalogue are much overdone with ornament which adds nothing to their value. The catalogue also includes a quick-opening valve for hot-water radiators, and a section of the "Daisy" hot-water boiler, in which the waterways to any section may be closed at will, in case of an accident to that section, and the rest of the system runs without it. The same firm also send us an illustrated catalogue of their various forms of ventilating apparatus, including their improved Sheringham Ventilator (Eckstein's patent), the "Kholo" vent patent inlet ventilator, for the introduction of fresh air through an external wall without draught, and the "Chooop" outlet ventilator, in which the valves are made of specially-prepared material, said to be "light, rigid, and incorrodible, and acting without noise; these are for the discharge of vitiated air from rooms into smoke flues or other shafts, while preventing back draught or entry of smoke.—Messrs. Elliott Bros. send us their new catalogue of electrical, optical, engineering, and mathematical apparatus, including theodolites, levels, and their gearing, compasses, surveying chains, sextants, current or tide meters, pentagraphs, planimeters, and drawing instruments of all kinds. Among special instruments illustrated is their tachometer, of which the catalogue says, "By means of this instrument distances and altitudes may be determined, trigonometrically and geometrically, at one operation, by means of a finely-divided tangent scale and micrometer adjustment attached to the instrument, which reads the tangent of the actual angle observed to the fifth place of decimals, equal in linear measurement to one-sixteenth-thousandth of an inch. The instrument is a complete transit theodolite, and accomplishes, in fact, the work of theodolite and level chain, with a great economy of labour, time, and expense."

Correspondence.

To the Editor of THE BUILDER.

THE INSTITUTE EXAMINATIONS.

SIR,—I am as fully alive to the dangers of examinations as Mr. Humphrey Jones; nor have I ever advocated them, excepting as a test of what Mr. Humphrey Jones rightly states to be the one thing needful—namely, compulsory, thorough, and systematic training, in place of the present loose system.

What architecture needs most of all now, in my judgment, is an assurance to the building public that those who call themselves architects have had such a training, and an examination of some kind is the only method of attaining this end.

As to the nature of the training, there would be little difficulty in coming to an agreement on this point if all architects of standing would join the Institute and bring their experience to bear in the right direction; making, in fact, what Mr. Humphrey Jones wants it to be, "a great guild comprising all who practise our art."

No one professes that the present system is perfect, but its main aim, of excluding untrained persons, is good; and if the R.I.B.A. drops the examinations as a test of training or fails soon to obtain powers to exclude others, the profession will be swamped by men who have picked up a mere knowledge of building construction and drawing in our art schools and polytechnics, but who have had little or none of the higher training which is necessary to make a good architect.

W. H. SETH-SMITH.

THE LONDON BUILDING ACT OF 1894
AND THE SPREAD OF FIRE IN THE
METROPOLIS.

SIR,—Now that attention is drawn to the danger of large fires in London, it may be well to point out through your columns that the London Building Act of 1894 is retrograde in its measures for the prevention of the spread of fire; thus, the 2nd schedule allows oak and teak 2 in. thick to be considered as a fire-resisting material, for the purposes of the Act, in doors and staircases. Section 73 (1) permits "eaves, barge-boards, and cornices to detached and semi-detached dwelling-houses and to other dwelling-houses in which the party walls are corbelled out so as to project 4 in. beyond such eaves, barge-boards, or cornices," to be constructed of combustible materials. Section 61 (1) permits "wooden cornices and barge-boards to dormers not exceeding 12 in. in depth," but the most important alteration of all is in Section 55, which permits the frames of doors and windows to be fixed flush with the face of any external wall. These alterations were introduced in the new Act with a most laudable intention from esthetical considerations. An endeavour was also made to eliminate the rules requiring party walls to be carried through the roofs, but the evidence of the Fire Office officials was so much against this that it did not succeed. Of course it will take a long time before these new rules will affect the more crowded parts of the Metropolis, but they may very much affect the rebuilding of a large area burnt down like that at the late great fire in the City, and it may be well to consider through your columns, in view of future amendments of the Building Act, whether the gain in aesthetics is worth the increased risk of fire from these alterations.

Every one who has watched a large fire may have noticed how the showers of sparks (like a rain of fire) are carried to a great distance, sometimes as much as a mile, and wherever they fall they may cause a fire. It is clear that when the above alterations are acted upon a great deal more of combustible surfaces will be exposed; the sparks will be liable to settle on the unprotected door-frames, cornices, barge-boards, &c., and the fire may break out in buildings round in consequence, distracting the efforts of the firemen, and in the case of the door and window frames—these being unprotected by a reveal of brickwork—would be liable, when burning, to fall into the street, to the great danger both to the public and the firemen.

A LONDON ARCHITECT.

THE GREAT CITY FIRE.

SIR,—One lesson of the great fire in London on the 10th inst. is this, that the proprietors of large buildings, such as warehouses and factories—especially those situated in crowded thoroughfares—should provide their own fire appliances. This fire broke out in the middle of the day, when the members of the staff were, as a rule, in attendance at the various warehouses, and doubtless, had the necessary fire extinguishing appliances been available at the establishment in which the outbreak occurred, it would have been extinguished at once, and nothing whatever would have been heard of it, except an incidental reference in the Fire Brigade report. This, however, could not be done, and the enormous traffic in the narrow streets made a rapid attendance of the public Fire Brigade a matter of absolute impossibility.

A fire in the middle of the night is apparently less dangerous than one in the middle of the day at this part of London.

The Public Fire Brigade has a right to expect that the owners and occupiers of large business premises will assist it to the extent of providing such simple apparatus as will be sufficient to cope with a fire discovered in its early stages.

MERRYWEATHER & SONS.

THE SLATE TRADE.

SIR,—I have noted the comments in the miscellaneous items of your issue of the 20th inst. in reference to the slate trade, but it seems to me that you have been misled as to the importation of foreign slates. It is not a fact that this importation has been, or is, taken up by firms out of the slate trade, or by firms who have had no experience of the past.

I represent the largest quarry owners on the Continent of Europe, viz. Messrs. G. Lartivière & Cie., of Angers, who employ 3,000 hands, and I anticipate no abatement in the demand, either in the immediate or distant future.

Any firm in the slate trade will corroborate me

when I assert that foreign slates have been regularly imported into England, from the Continent, for the last thirty years. If, however, your remarks have reference to American slates, the facts are, of course, different.

My firm has on its books most of the original slate merchants of London and the provinces; I mean those firms which are entirely devoted to the slate trade.

C. H. BROODBANK.

London, November 24.

OBITUARY.

MR. CHARLES J. SHOPPEE.—Mr. Charles John Shoppee, Past President of the Surveyors' Institution, and Fellow of the Royal Institute of British Architects, died on the 18th inst., at his residence, 41, Mecklenburg-square, in his seventy-fourth year. Mr. Shoppee represented the Surveyors' Institution as a delegate at two Congresses of Surveyors of different nationalities held in Paris in 1879 and 1880. He had had considerable experience as an arbitrator and umpire in references and compensation cases. He was the architect for the restoration of the old Hall of the Barber Surgeons' Company and for the development of their estate in Monkwell-street, and represented that Company upon the Committee for the Irish Estates; he also acted for the Bakers' Company in conjunction with the late Mr. Joseph Clarke, and for many years prior to his election upon the Court of the Company held the appointment of Architect and Surveyor to the Armourers and Brasiers' Company. He was Chairman and Treasurer of the Chromo-Lithographic Art Studio. Mr. Shoppee served on three occasions as Master of the Armourers' and Brasiers' Company. He was also a Past Master of the Barbers' and of the Glovers' Companies. He was a member of the City and Guilds of London Institute for the advancement of technical education. He was also a Vice-President of the London and Middlesex Archaeological Society, a member of the American Numismatic Society, and also of the Société des Géomètres de France, and a Vice-President of the "Ex Libris" Society. Mr. Shoppee was born at Uxbridge, Middlesex, on December 9, 1823, and was educated at Uxbridge School. He commenced practice on his own account at 61, Doughty-street, Gray's Inn, in 1851. Having, in 1853, passed the examination for District Surveyors, he was admitted an Associate of the Royal Institute of British Architects in 1862, and as a Fellow in 1880. Mr. Shoppee was elected a Fellow of the Surveyors' Institution in 1868, and a member of the Council in 1870. He was appointed Vice-President in 1886, whilst he was elected to the Presidency in 1892, which office he held for two years. In connection with his Presidency of the Institution he served on the Tribunal of Appeal under the London Building Act. For several years he has been annually re-elected Deputy-Governor of the French Hospital ("La Providence"), incorporated A.D. 1718, as representing the Huguenot family of "Chapuis," the original name of his great-grandfather. Together with his son, Mr. C. H. Shoppee, the deceased gentleman acted for the Home and Colonial Schools Society, as architect, in the erection of the Reynold's Memorial School, and the Evan's Memorial Chapel. He was also architect of residences at Priest's Hill, Old Windsor; the business premises, Idoll Lane House, Eastcheap; No. 24, Southampton-buildings, W.C.; No. 304, High Holborn; the Exeter premises of Messrs. Lloyd & Sons; and for many other residences, offices, buildings, and factories. We understand that the practice will continue to be carried on by Mr. Charles Herbert Shoppee as heretofore.

MR. ALDAM HEATON.—We regret very much to record the unexpected death of Mr. Aldam Heaton, the well-known decorative artist, who, though he was not a young man, had only in rather recent years commenced his career in London. Not very long ago he had started an atelier for carrying out almost every kind of work which is comprised under the head of decoration, and with an extensive knowledge of technical processes, he not only directed all this himself, but designed most of the detail, we believe, with his own hands. In the *Builder* of December 30, 1893, we published a sheet of illustrations of work from his atelier, which, though all for one commission (the decoration of a steamship interior) illustrated several different types of work—carved figures in wood, marquetry and inlay, and modelled and painted friezes. Mr. Heaton also took much interest in the design of textiles and hangings, and read a paper on the subject before the Institute of Architects which contained not only æsthetic criticism but a good deal of valuable practical information as to the technique and capabilities of various stuffs. He also took a great deal of interest in furniture design generally, and produced a valuable illustrated work on "Furniture and Decoration in England in the Eighteenth Century," one of the foremost modern works of its class.

SIR HENRY DOULTON.—Sir Henry Doulton died on Wednesday, last week, at his residence in Queen's Gate-gardens, South Kensington. The deceased, who was the second son of Mr. John Doulton, of Lambeth, was born in 1820, and educated at University College School. At the age of fifteen he began his technical training for a potter, and in 1870 commenced the manufacture of art pottery and

Doulton ware, and ultimately became the senior partner in the firm of Doulton & Sons, which has since been succeeded by Messrs. Smith, St. Helena, Burslem, and Paisley. He was knighted in 1887, having already been created a Chevalier of the Legion of Honour. The Albert Medal of the Society of Arts was conferred on him at Lambeth by the Prince of Wales. He had also received 105 diplomas of honour and gold medals and 102 silver medals. He married, in 1849, Miss Kennedy, and was left a widower in 1888. During the whole of his business life he identified himself with most of the philanthropic and charitable works started for the benefit of South London.

MR. EDWARD WALFORD.—Mr. Edward Walford, journalist, and joint author of *Thornbury and Walford's "Old and New London,"* died on Saturday last at Ventnor, in his seventy-fourth year. He was at different times editor and proprietor of the "Court Circular," sub editor of "Once a Week," editor of the "Gentleman's Magazine," and editor of "The Register."

MR. J. BELLWOOD.—The death has just taken place of Mr. John Bellwood, for many years builder and contractor in the Kensington district. The deceased gentleman was in his eighty-sixth year.

GENERAL BUILDING NEWS.

NEW CHURCH, NORTH ELSMALL.—St. Margaret's Church, North Elmsall, near Doncaster, was consecrated on the 9th inst. It consists of nave and chancel under one continuous roof, 70 ft. long, 20 ft. wide, and 35 ft. high, to the apex of the boarded ceiling, terminating at the east with a semi-hexagonal end. The walls are of Calverley stone, lined internally with red Carlisle stone, the frieze under wood cornice, dressings, strings, copings, &c., being of the same stone. The chancel is decorated in the Early English style, and the nave windows have a double order of tracery, the inner order being supported on Pennant stone shafts, the other windows having drop inner arches and Pennant stone shafts. On the south side is a chapel separated from the chancel by an arcade. The fittings are all of wainscot oak; between the stone and the oak roof screen, having iron gates. An oak pulpit is fixed on the north side of the church against the roof screen, and designed to harmonise with it. The windows in the sanctuary and the two easternmost ones in the chapel are filled with stained glass from the studio of Mr. Kemp. The contractor was Mr. Robert Hudson, of Sunderland, the oak screens, choir stalls, high altar, and retable, were executed by Messrs. Earp & Hobbs; the altar for chapel, lectern, and altar desks, by Messrs. Whippell; the gasfittings were supplied by Messrs. Benham & Froud. The whole of the works have been carried out from the designs and under the supervision of Mr. A. H. Heale, architect, of Leicester.

ST. ANSELM'S CHURCH, REDLAND, BRISTOL.—The new Church of St. Anselm, which was opened on August 8, was consecrated by the Bishop of Bristol on the 10th inst. This church, which has been erected as a chapel of ease to St. John's, Redland, is situated on a piece of ground next the Free Library, on the Wilton road side. The church, which is in the design of Mr. W. V. Gough, architect, Bristol, will consist of tower, nave, chancel, transepts, and aisles, and will hold about 700 worshippers; but all that has been built at present is the nave and chancel, which give accommodation for about 400. The south aisle will for present purposes be separated from the church, and will do duty as a series of class-rooms, which eventually will be provided underneath the north aisle. The style is late Early English. The walls are built of pink stone taken from the site, with dressings of Bath stone.

ALTERATIONS TO ROSEWELL PARISH CHURCH, EDINBURGH.—Rosewell Parish Church, after having been closed for seven months to permit of alterations, has just been reopened. The architects were Messrs. Hardy & Wight, Edinburgh.

PROPOSED CHURCH, FLOORKBURGH, LANCASHIRE.—It is intended to provide the parish of Floorkburgh, near Carnforth, with a new church. Messrs. Austin & Paley, of Lancaster, will be the architects of the proposed structure, for which they have prepared plans.

CHURCH, SEATON HIRST.—The Bishop of Newcastle recently consecrated the new Church of St. John, Seaton Hirst, with the burial-ground attached. The architects of the church were Messrs. Hicks & Charlewood, Newcastle, the contractors for the brickwork being Messrs. Craignigs, of Blyth, and for the nave Mr. Carse, of Amble.

UNITED PRESBYTERIAN CHURCH, EDINBURGH.—A new United Presbyterian Church in Fountainhall-road, Edinburgh, has just been opened. Situate on the south side of Fountainhall-road, the new church has been built to the designs of Mr. Graham Fairley, architect, Edinburgh. Included in the plan are nave, aisles, transepts, and chancel; and while the nave is wide in span, the aisles are narrowed to the width of side passages. There is no gallery. The chancel, in which is a communion-table of oak, is reserved for the use of the elders; and the choir are accommodated in the east transept, where accommodation for the organ is also found.

PROPOSED RESTORATION OF BRECHIN CATHEDRAL.—It is proposed to restore Brechin Cathedral,

from plans prepared by Mr. John Honeyman, architect, Glasgow. The plan provides for a complete restoration of the choir, the rebuilding of the aisle walls, the roofing of the aisles and re-roofing of the nave, the building of a north porch and of a small transept on the south; while the interior will be entirely restored and reslated, the north, south, and east galleries removed, and a small one substituted for the present one in the west. The plan provides sitting accommodation for over 600 people.

ALTERATIONS TO CHURCH, NEW MILLS.—St. George's Church, New Mills, has been closed since Easter for renovation and improvement. The alterations embrace the removal of the old pews and the substitution of new ones; the re-flooring of the nave; the removal of the font to the south-west corner, and the formation of a baptistry; the removal of the organ from the gallery to a position at the east end adjacent to the choir; the formation of a new choir, with stalls, opposite the sanctuary (between which points a marble floor has been laid), and the decoration of the church. The structure has also been furnished throughout with gas, electric lighting and arrangements for heating, the work being under the direction of Messrs. T. Thomson & Co., of Manchester and Birmingham, whilst Messrs. Preston & Vaughan, architects, of Manchester, have carried out the scheme of restoration.

WESLEYAN SCHOOLS, SHEFFIELD.—The foundation stones have just been laid of new Sunday-schools in connexion with Carver-street Wesleyan Chapel. The building will be entered from Rockingham-street, and on the ground floor will be two meeting rooms and four class-rooms, with a central hall, available for physical exercises. The greater portion of the first floor will be occupied by the lecture hall, 50 ft. square. On this floor will also be the infants' class-room and a lavatory. On the second floor will be the mixed boys' and girls' school, consisting of a central hall 50 ft. by 25 ft. by 27 ft. high, having on each side eight class-rooms. Alterations and additions are to be made to the old buildings. The buildings throughout are to be heated on the low-pressure water system. The structure externally is of red brick. The total cost, including heating, lighting, and furniture, will be about 4500. The contractors for the mason and brickwork are Messrs. Malthouse & Ward; the carpenters and joiners' work, Mr. Enos Moore; the slaters' work, Messrs. Stanforth & Lee; the plasterers' work, Messrs. Hudson & Dore; the plumbers and glaziers' work, Mr. Hickson; the painters' work, Mr. Woodley; and the heating, Messrs. Newton Chambers, & Co. The architect is Mr. Herbert W. Lockwood, of Sheffield.

CONGREGATIONAL CHAPEL, TWYFORD.—The foundation stones were laid recently of a new Congregational chapel at Twyford. The dimensions of the chapel are 63 ft. by 41 ft., and there will be seating accommodation for about 200. At the rear will be a schoolroom and offices for Sunday School purposes. The building is of red brick with stone dressings. The chapel and schoolroom will be heated by hot water. Mr. W. G. A. Hambling, Reading, is the architect, and Mr. Wigmore, of Twyford, the builder.

SCHOOL, WALTHAMSTOW.—A new school has just been opened in Waltham-street, Walthamstow. The buildings, which provide accommodation for 1,556 children, in three floors, occupy a site immediately adjoining the public recreation ground in Balaam-street. On each floor the class-rooms, cloak-rooms, stairs, &c., are grouped on each side of a central hall, the latter being lighted (except on the upper floor) entirely from the ends of the hall. The hall is 90 ft. in length, by a width of 35 ft., the walls being lined to a height of 4 ft. with Brown's glazed bricks. Four class-rooms are arranged on each side of the hall, two of those on the ground floor having an extension outward beyond the main walls, these rooms being divided by sliding partitions, whereby two additional class-rooms are obtained. The cloak-rooms, lavatories, and staircases are placed at opposite corners of the buildings, the teachers' rooms being situated on mezzanine floors over the cloak-room, and although the two staircases are intended for boys and girls' use respectively, both are available from either floor in case of need. The class-rooms vary in size, two ends of the boys' and girls' floors being for fifty children, and the remainder on these two floors for sixty children each, whilst on the ground floor the accommodation varies per class-room from fifty to seventy-five. Immediately adjoining the Barber's-alley entrance is a separate block of buildings, which comprises a caretaker's residence, a music instruction room, a dressmaking class, and laundry, this block being on two floors. Covered playgrounds are provided for each department. A separate playground and entrance have been provided for the very young children. Broseley tiles are used for roofs, and steel girders and concrete for floor, on which wood block flooring is laid. The entire cost of the premises, including furnishing but excluding site, is about 22,000. The various contracts have been carried out from the designs and under the supervision of Mr. William Jacques, the Board's architect, by the following firms:—Buildings, &c., Kirk, Knight, & Co.; furniture, Wake & Dean; gas fittings, Fingean & Co.; blinds, Yarrow & Sons; fireguards, Himples.

SCHOOLS, ABERDEEN.—The Buildings Committee of the Aberdeen School Board have adopted a

scheme for the enlargement of Rosemount School, and the building of a new school in the Mile-end district to replace the old Rublaw School. The proposal with regard to Rosemount is to add a story to the existing school. This would provide about 400 additional places, and bring the accommodation of the school up to something like 1,240 places. The proposed heightening of the school has been placed before Mr. James Scottar, the original architect. The site for the new school further west has been selected in view of the projected enlargement of Rosemount.

BOARD SCHOOLS, MELBOURNE.—New Board Schools have just been erected at Melbourne. The building consists of a central hall, 58 ft. by 25 ft., with five class-rooms opening from it, four of which are 28 ft. 8 in. by 24 ft. 4 in., and one 25 ft. by 20 ft. The infants' department consists of a school-room 43 ft. 6 in. by 24 ft., with a class-room for babies 22 ft. 6 in. by 21 ft. 6 in., affording accommodation for 180, making a grand total of 530 scholars. The whole of the building is heated by hot-water apparatus. A caretaker's house is erected on the premises, and a Boardroom is also provided, which will be available for Parish Council and Parochial committee meetings. The total cost is 7,650. The designs were by Mr. Beck, architect, Burton-on-Trent, and the work has been carried out by Mr. W. Barton (builder), Mr. J. Bullock (woodwork), and Mr. M. Jeaynes (plumbing, painting, and glazing).

SCHOOL, TARLETON, LANCASHIRE.—The new Holy Trinity School at Tarleton was opened on the 15th inst. The new school has been built by Mr. Henry Alty, from plans prepared by Messrs. W. & C. A. Bassett-Smith, architects, London. Accommodation has been provided for 232 children.

SUNDAY SCHOOLS AND PARISH ROOMS, WALTHAMSTOW.—The memorial stone was laid recently of the new Sunday Schools and Parish Rooms in connexion with St. James' Church, Walthamstow. The buildings are being erected from the designs of the architects—Messrs. Cutts of London—by Mr. S. J. Scett of Walthamstow, the amount of the contract being 1,997. On the ground floor are three rooms, one of which will be used as the boys' school, club, and gymnasium, and the other two as infants' school-rooms. A tea kitchen is planned in conjunction with the latter. The girls' school will be held in the upstairs large hall. Each department has a separate entrance and separate offices. The staircase to the hall is of stone. Besides the main staircase, there is a second stone staircase up to the platform end of the hall. The boys' room is 33 ft. by 28 ft. The infants' rooms are 32 ft. by 16 ft., and 27 ft. by 16 ft. The hall will be 61 ft. by 33 ft. The same architects have prepared plans for a church on the adjoining ground.

WESLEYAN SCHOOL, HOTWELLS, BRISTOL.—The memorial stones have just been laid of a new Sunday School in connexion with Grenville Wesleyan Chapel, Hotwells. The buildings are designed for the accommodation of between 300 and 400 children. They will occupy a site contiguous to the chapel, with which they will be connected. The buildings will contain a large school-room, and four small class-rooms opening into the school-room, with offices. The buildings will be erected with local red facing bricks, relieved with Bath stone dressings. The architects to the new buildings are Messrs. S. Paul & James, and Messrs. Eastbrook & Sons have been entrusted with the contract.

CONVALESCENT HOME, MANCHESTER CHILDREN'S HOSPITAL.—A new convalescent home has just been erected at St. Annes-on-the-Sea. The home, which has been constructed from plans prepared by Mr. Alfred Steinthal, architect, of Manchester, is situated about a mile from St. Annes railway station. The home has accommodation for twenty-five patients, as well as for matron, two nurses, and two domestic servants.

COTTAGE HOSPITAL, RAMSBOTTOM.—The first story of the New Cottage Hospital, Nuttall-lane, Ramsbottom, was cut recently by Mrs. Aitken. The new hospital will be built of red brick, with Yorkshire stone dressings. The three wards have been planned upon the ground floor. The entrance for outpatients is placed on the Nuttall-lane side and close to the operating and bath rooms, and the operating-room has a northern light. The male and female wards have accommodation for nine beds, and are placed at the extreme right and left of the front entrance, with a small ward in the centre for special or isolation cases. The matron's sitting-room will be next the front entrance, and the four front rooms will have large bay windows. There will be wide corridors leading through the block and to the various rooms, with a staircase hall. A visitors' room is situated in the centre of the block. On the ground floor is also the kitchen, with its adjoining scullery, pantry, stores, and tradesmen's entrance. On the first floor are bedrooms for the matron, nurse, and servants, bath-room, box, and linen rooms, &c. The floors of wards are to be of polished oak, and those of bath-rooms, lavatories, kitchen, scullery, and operating-room and various entrances are to be tiled. The walls of operating-room will be tiled to a height of 6 ft., and the walls of all wards will have a cement dado for painting 6 ft. 6 in. high, all angles in these rooms being cemented. The contract has been let to Messrs. Platt & Castle, of Ramsbottom. The whole of the work is being carried out from plans,

and under the superintendence of Messrs. Haywood & Harrison, architects, of Accrington and Lytham.

THE COUNTY LUNATIC ASYLUM AT WINWICK.—The erection of the new county asylum at Winwick is now actively in preparation. The first portion of the work is to be completed in two and a half years—in other words, eight blocks, including the administrative blocks—and the remainder of the work in three and a half or four years. A railway station is in contemplation at Winwick Quay, and it is intended to build cottages outside the park for the convenience of some of the workmen, whilst others will reside in Warrington. The old hall, once the residence of the late Canon Haywood, has been converted into an asylum for boys, twelve of whom are already in residence. Mr. Thomas Beaman, of Chatham, is the clerk of works engaged. The architects are Messrs. Crisp, Oatley, & Skinner, of Bristol; the contractors for the supply of bricks are Messrs. Batley & Co.; and the contractor for the cottages is Mr. Hewitt, of Warrington.

BUSINESS PREMISES, ST. PAUL'S CHURCHYARD.—New buildings are being erected for Messrs. Spence & Co. on the site of Mr. Maskelyne's Jubilee grand stand in St. Paul's-churchyard. They have been designed by Messrs. Banister Fletcher & Sons, and will consist of a basement, ground floor, and four upper floors. The front, which is Elizabethan in style, will be faced with Portland stone, and the ground floor will contain four large bay shop windows. Five Ionic columns, with consoles over, crowned with groups of statuary representing the main features of the Queen's Jubilee (the centre piece being a statue of her Majesty) ornament the front. The basement will contain the packing-room, country order-room, a buyers' order-room, and lavatories. The show-room on the ground floor has been constructed without any division walls, and the first floor will also contain large show-rooms. The country order-house and offices will be placed on the second floor, whilst the third floor will contain dining-rooms for the staff and for the partners, and serving-room from the kitchen. On the fourth floor will be situated the housekeeper's accommodation, a kitchen and scullery, bed-rooms, lavatory, bath-room, &c. The construction will be fireproof, the floors and partitions being of steel and concrete. The different floors will be approached by a circular staircase formed of teak. The roofs will be covered with green Westmoreland slates in graduated courses, and the ridge finished with ornamental lead and copper work. The builders are Messrs. Greenwood & Co., Southwark; the shop fronts have been fitted by Messrs. Francis & Co.; and the shop fixtures and fittings and electric light by Messrs. Frederick Sage & Co.

MEETING-HOUSE, HULME, LANCASHIRE.—The York-street Meeting-house, Hulme, was opened by the Lord Mayor of Manchester (Mr. Alderman Gibson) on the 16th inst. Mr. Samuel Crowcroft, of Manchester, was the architect.

UNIONIST CLUB, ASKAM, LANCASHIRE.—A Unionist club has just been opened at Askam by Lord Cross. The architects were Messrs. Grundy & Son, of Ulverston.

PUBLIC OFFICES, SOUTHALL, MIDDLESEX.—The foundation stone of the new public offices at Southall was laid recently by the Countess of Jersey. The buildings are being erected by Mr. C. F. Kearley, of Uxbridge and Kensington, from designs prepared by Mr. T. Newell, architect, of Southall.

CHAPEL EXTENSION, HIGHFIELD, SHEFFIELD.—Alterations are being carried out for the congregation of John-street Primitive Methodist Chapel to their place of worship. Several new class-rooms are being erected as well as a vestry, an enlarged choir room and organ loft, and various other extensions. The whole of the new buildings, which are being erected from the design of Mr. C. J. Innocent, will cost over 2,000l.

JUBILEE MEMORIAL HALL, CONSETT, DURHAM.—The new church and schools hall, at Consett, which has been erected in commemoration of Queen Victoria's long reign, was opened on the 17th inst. The building, which adjoins the National Schools and the church, will cost about 800l. The hall itself is 60 ft. long by 24 ft. wide. There are also two waiting-rooms and a vestibule entrance. The building, which communicates directly with the boys' department of the National Schools, will seat 350 persons. Mr. W. S. Shell was the architect.

ROYAL INFIRMARY EXTENSION, GLASGOW.—At a meeting of the sub-committee of the Royal Infirmary Jubilee Extension Committee, held in the Glasgow City Chambers on the 12th inst., ground plans of the proposed extensions and alterations, prepared by Mr. James Thomson, L.A., were submitted.

HALL AND GYMNASIUM, HANOVER-SQUARE, W.—Viscountess Portman laid the memorial stone, on the 19th inst., of a new hall and gymnasium, presented by Mr. Howard Morley, as a Jubilee gift in memory of his father, the late Mr. Samuel Morley, at the headquarters of the Young Women's Christian Association, 26, George-street, Hanover-square. The new building, which has been designed by Messrs. F. W. Porter & Son, will be erected on the site of some stables in the rear of the premises. The hall will be provided with a gallery, and will contain accommodation for about 500 persons. The gymnasium will be in the basement.

MASONIC HALL, BRAINTREE.—A new Masonic Hall has just been opened at Baintree. A kitchen, tea and committee room, with a class-room and

lavatories, have been provided in the basement. The interior of the hall has been divided into two portions by a moveable partition—one half being fitted up as a lodge-room and the other as a dining-room. Messrs. Letch & Bowtell, builders, Braintree, carried out the structural alterations, from plans prepared by Mr. Frank Whitmore, of Chelmsford.

RESTORATION OF BALQUHAIN CASTLE, ABERDEEN.—It is proposed to restore Balquhain Castle, and in the course of excavations that are being carried out in the vicinity of the structure some archaeological discoveries have been made. The ancient fabric, which stands near Inveramsay, belongs to the third period of Scotch Castled architecture, dating from the beginning of the fifteenth century, and the excavations have revealed the remains of what must have been a large and fully-equipped stronghold. The building seems to have consisted of three wings, and to have enclosed a spacious courtyard. To all appearance the square keep, the ruin of which can be seen from the railway as the train nears Inveramsay, had been the principal wing. At the south-west corner is a projecting turret, and the work of excavation in this wing has laid bare traces of a very large fireplace, presumably that of the old kitchen. Remains of walls, which, however, do not seem to have formed part of the castle, but may have been enclosing walls, have also been discovered. A great quantity of rubbish has been cleared away, but a deal of work will still have to be done before the ruins are all brought to light. Mr. G. Bennett Mitchell, architect (Messrs. Davidson & Garden), is in charge of the work.—*Aberdeen Journal*.

WESLEYAN DAY AND SUNDAY SCHOOLS, SPRINGHILL, ACCRINGTON.—These buildings are to be erected at Springhill from plans prepared by Mr. Henry Ross, architect. The schools, when completed, will accommodate over 400 scholars.

NEW BATHS AT PLAISTOV.—The West Ham Corporation have instructed Mr. A. Saxon Snell, architect, to prepare plans for the erection of public swimming and private baths at Plaistov, E.

EXTENSION OF PREMISES, DUBLIN.—A block of buildings has just been completed in Hawkins-street for the Junior Army and Navy Stores, the entrance to which is from D'Olier-street. The new premises are built of red brick, with stone facings, and are four stories high, with a basement. On either side of the building is a passage, one being used for the reception of goods and the other for their dispatch. The architect was Sir Thomas N. Deane. The building work has been done by Messrs. Bolton & Son, of Dublin and Rathmines.

POST OFFICE, THURSO.—A new post office is to be erected at Thurso, from plans prepared by the architect, Mr. Sinclair McDonald.

NEW BUILDINGS, ABERDEEN.—A meeting of the Plans Committee of the Aberdeen Town Council was held on the 18th inst., when twenty-eight plans of new buildings and alterations on buildings were submitted and approved. The plans passed for new buildings included the following:—Warehouse on south-east side of Shoe-lane, for Mr. principal wing. At the south-west corner is a projecting turret, and the work of excavation in this wing has laid bare traces of a very large fireplace, presumably that of the old kitchen. Remains of walls, which, however, do not seem to have formed part of the castle, but may have been enclosing walls, have also been discovered. A great quantity of rubbish has been cleared away, but a deal of work will still have to be done before the ruins are all brought to light. Mr. G. Bennett Mitchell, architect (Messrs. Davidson & Garden), is in charge of the work.—*Aberdeen Journal*.

JUBILEE FOUNTAIN, WOOLHAMPTON.—The new Jubilee Fountain at Woolhampton, Berks, has just been opened. The fountain is placed within a building of red and white brick, with stone-work, granite shafts and carved capital. The water is obtained from an artesian well, bored 160 ft. deep by Mr. E. Margrett, of Reading. The building work and the laying of the water mains have been carried out by Mr. T. James, of Midgham, from plans prepared by Mr. Newman, of Sandown.

APPOINTMENTS.

LIVERPOOL.—A special meeting of the Health Committee of the Liverpool Corporation was held on the 18th inst., under the chairmanship of Alderman Cookson, for the purpose of considering certain rearrangements of the staff of the department consequent upon the resignation of Mr. H. F. Boulnois, City Engineer and Building Surveyor. After some discussion, it was decided to recommend the City Council to promote Mr. William Goldstraw, Deputy-Building Surveyor, to the position of Building Surveyor to the Corporation, and to increase his salary from 350l. to 450l. per annum. The meeting also resolved that a successor to Mr. Boulnois as City Engineer be advertised for, a salary at the rate of 1,000l. a year being offered. A sub-committee was appointed to deal with the applications, and make recommendations to the general committee.

BOMBAY.—Mr. Fairlie Bruce, who had charge of the Blane Valley section of the Glasgow Waterworks, has been appointed Engineer for the Municipality of Bombay Waterworks. Since leaving Glasgow Mr. Bruce has had charge of the staff

engaged on the Staines Reservoir scheme for the supply of London, under the chief engineers, Messrs Hunter & Hamilton.—*Glasgow Herald*.

SANITARY AND ENGINEERING NEWS.

WATER SUPPLY, CHELTENHAM.—The Cheltenham Town Council, who obtain most of their water from the River Severn, decided on Monday to apply to the Local Government Board for power to borrow 30,000l. for the extension of their water undertaking.

DRAINAGE SCHEME, PORTSLADE.—At the Clarence Rooms, Portsmouth-by-Sea, recently, Mr. G. W. Willcocks, Local Government Board Inspector, opened an inquiry in reference to the application of the Steyning East Rural Council (in whose district is included the parish of Portslade), to borrow 10,100l., and of the Steyning West Rural District Council to borrow the sum of 9,100l. for the purposes of the scheme for draining the districts of Portslade and Southwick. Mr. C. O. Blaber, the Engineer, gave evidence.

PREVENTION OF THAMES FLOODS.—On the 22nd inst. a new channel, constructed by the Thames Conservancy at Teddington Lock for the purpose of relieving the Thames of storm-water in case of floods, was formally opened by the Chairman of the Board of Conservators, Sir F. D. Dixon-Hartland, M.P. This work, by means of which it is hoped to prevent a recurrence of the floods of 1894, which did so much damage in the Thames Valley, has been in course of construction since the month of May. The work was carried out under the superintendence of Mr. More, C.E., engineer to the Thames Conservancy. The channel, which practically cuts the island at the Lock in two, is 80 ft. wide, and the sills, of which there are three, are constructed 6 ft. 6 in. below the level of the flow of 1894.

ELLAND SEWAGE WORKS.—On Saturday the 13th inst., these works were publicly opened by the chairman of the Council, Mr. Mackrill. They consist of outfall and other sewers; settling tanks holding 600,000 gallons, with the buildings and the necessary machinery; and twelve acres of gravelly land laid out for filtration. The scheme provides for the treatment of a present flow of 600,000 gallons of sewage, and trade refuse from woollen mills and dye works, &c. The works were designed and carried out under Mr. Malcolm Paterson, at a cost of about 15,000l., exclusive of land; the contractors being—Messrs. A. Graham & Sons, sewers and tanks; Wm. Foster, land filtration works; and Mr. Jno. Wolstenholme, machinery. The Council have decided to admit all trade liquid refuse to the sewers; and the chemical treatment before filtration will be by lime and aluminio-ferrie

ELECTRIC LIGHTING NEWS.

CHELTENHAM.—An inquiry was held at the Municipal offices, Cheltenham, on the 10th inst., by Lieut.-Colonel Albert C. Smith, one of the inspectors of the Town Council for sanction to the raising of an additional loan of 18,385l. for the purposes of electric lighting. The Town Clerk (Mr. E. T. Brydges) explained that sanction had already been obtained for loans amounting to 47,405l., of which sum 41,137l. had been spent, whilst the unexpended balance would have to be applied to the specific purposes for which the loans were obtained. Mr. H. Kilgour, electrical engineer, gave evidence in support of the application, and said the Council had been obliged, in order to meet the demands for the winter, to incur beforehand liability for practically the whole amount now under request, by ordering the requisite additional machinery, &c.

LIVERPOOL.—The Lighting Committee has passed a resolution instructing the Town Clerk to include in the Parliamentary notices for their next Bill power for the Liverpool Corporation to borrow, from time to time, such amounts as may be required for extension of the electric lighting works in the city, not exceeding in the whole 200,000l.

DUBLIN.—On the 19th inst. the Dublin Municipal Council, sitting as a committee of the whole house, were engaged with the electric lighting question. Two matters of special importance had to be dealt with. One was a letter from the Local Government Board refusing to sanction the intended loan of 20,000l. for the renewal of the electrical mains, cables, &c. The other was the supplemental report of Professor Kennedy upon the question of the site best fitted for the new central station. This report will in due time come before the Council. Meanwhile it is known that the expert has declared that it is impossible that the present central station in Fleet-street can ever be made to pay.—*Freeman's Journal*.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOWS, NEWPORT UNITARIAN CHRISTIAN CHURCH, ISLE OF WIGHT.—Two stained glass windows have been placed in the south wall on either side of the pulpit in the Unitarian Christian Church at Newport. That on the left-hand side has a representation of "The Good Shepherd," while that on the right-hand side represents "Christ Blessing Little Children." Both windows were erected by Mrs. Thomas Chatfield Clarke, and her

sons as memorials of the late Thomas Chatfield Clarke, and Abraham and Jane Chatfield Clarke. Messrs. Campbell, Smith, & Co., of London, executed the work.

WINDOW, NURSING CHURCH, HANTS.—A stained-glass window has just been erected in this church as a memorial to the late Mr. C. C. Barton, of Upton House. The window, which is on the south side of the church, immediately to the east of the porch, is of two lights, with quatre-foils opening in the space above. The old mullion jambs and tracery have been partially restored to fit them to receive the stained glass, the subject of which is a figure of St. Peter on the eastern side, and of St. Paul on the western, whilst in the quatre-foils space is placed the emblem of the Holy Spirit, the dove. Beneath the figure of St. Peter is a panel bearing the arms of the Barton family, whilst the arms of the See of Winchester occupy a similar position beneath the figure of St. Paul. The window has been supplied and erected by Messrs. Garrett & Hayson, Southampton.

MEMORIAL TABLET TO JUSTICE KAY.—A mural tablet in statuary marble has recently been placed in the church of SS. Peter and Paul, Brockdish, Sciole, in memory of the late Lord Justice Kay, which is sculpted in relief in form, with the arms of the deceased judge carved and emblazoned in colours. The monument in the churchyard, which Mr. J. K. Colling designed some short time back in memory of Lady Kay, has simply had an inscription added to it. Both of these works were executed by Messrs. J. Forsyth, of London.

FOREIGN.

FRANCE.—The jury of the competition organised by the "Société Nationale des Architectes" has awarded premiums to M. M. Claudius Auclair, Emile Brunet, Auguste Chailier, Bellile, Palanti, and Victor Chabaut. The subject was "A Hotel for Learned Societies in a Provincial Town." M. Bouvard is to submit to the Paris Council, shortly, a statement of the repairs to the Madeleine which are urgently required. The administration of the Ecole des Beaux-Arts has made a formal demand to the Ministry of Fine Arts for the formation of ateliers for women. A new Cour des Comptes building is to be commenced shortly on a site forming an official possession of the Ministry of Finance, in the Rue de Cambon, behind the Hotel Continental. The cost of the building is estimated at 4,500,000 francs. The Pavillon Marsan at the Tuileries has been conceded to the Union Centrale des Arts Decoratifs, for fifteen years, as a place for the organisation of their museum. The Art Society of "Paris-Provence" has opened its tenth exhibition at the gallery in 10, Rue Caumartin. An exhibition of the works of the late landscape-painter, Français, is to be organised shortly at the Ecole des Beaux-Arts. The French Government proposes to undertake the completion of the railway from the Rhone to Mont Cenis, which will form part of the system of the Paris, Lyons, and Mediterranean Company. M. Frémiet, the sculptor, has just completed the head for the colossal statue of Desseps, which is to be six times the size of life, and is to be placed at the entrance to the Suez Canal, on a granite pedestal ornamented with portraits of the Khedives who gave their support to the work. The statue will be exhibited in the Salon of 1900.

The death is announced of M. A. Lévy, the well-known art publisher and founder of the *Gazette Archéologique*. The death is also announced of M. Henri Contamine, architect, and former Professor of Architecture in the Academic School at Lille, and President of the local branch of Société des Architectes du Nord. He was eighty years old. The death is also announced of M. L. Hubert Clemence, architect and member of the Société Centrale, and who carried out the restoration of the Palais de Justice at Dijon. He was an Inspector in the department of "Bâtiments Civils."

GERMANY.—There has long been some talk as to a canal between the river Main and the Danube, and the question of connecting the Danube with the Oder and the Elbe has also been under consideration. The Bavarian Society for Inland Water-communications, who have promised to contribute to the preparation of the scheme the sum of 3,500, on condition that the authorities subscribe another 5,000, for preliminaries.—The post of Director in the Arts and Crafts schools at Nuremberg has been given to Professor Franz Bröcher, who is well known in South Germany as an architect of considerable standing.

The *Deutsche Bauzeitung* states that ober Bau-Director Hinkeldey and Baurath Von der Hude, the Presidents of the two leading architectural societies at Berlin, have been elected honorary corresponding members of the Belgian Society of Architects, in connexion with their participation in the work of the recent International Congress at Brussels. The same journal notices the death of Herr Otto Klette, who was primarily responsible for the general design of the extensive railway stations at Dresden, and who has long been associated with the leading railway works of Saxony. The question of re-modelling the Dresden railway stations was a particularly difficult one, and involved an expenditure of two millions sterling.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. Ashwell & Nesbit, warming, ventilating, electrical, and hydraulic engineers, have converted their business into a limited company under the style of "Ashwell & Nesbit, Limited." The manufacturing part of the business will be continued at Victoria Foundry, Leicester, which will be the registered address of the company, but the head office will be at 12, Great James-street, Bedford-row, London.

STUDENTS' COLUMN ARTICLE.—We have been obliged to defer the Students' Column article this week in consequence of the number of competitions which required notice and which have taken up our space. It will appear next week, and the articles will then be continued consecutively until concluded.

SCARBOROUGH MASTER BUILDERS' ASSOCIATION.—The annual meeting of this Association was held on Wednesday, last week, at the Albemarle Hotel, presided over by the President, Councillor James Bland. The annual report and balance-sheet were read and unanimously adopted. It was decided that this Association become affiliated with the Yorkshire Federation of Building Trade Employers. The officers for the ensuing year were elected as follows: President, Mr. Councillor J. Bland; treasurer, Mr. J. Jaram; secretary, Mr. R. H. Carr; vice-president, Mr. J. Barry; clerk, Mr. M. Sinclair; and Mr. Morris as Treasurer. It was proposed to hold an annual dinner in connexion with the Association, and that the next repast should take place early in December.

TECHNICAL EDUCATION FOR ARTISANS.—Sir John Wolfe Barry, President of the Institution of Civil Engineers, visited on Monday evening the Trades' Technical School, carried out by the Company of Carpenters and other City guilds connected with the building trade, in Great Titchfield-street, Oxford-street. Among the other visitors present were Mr. J. H. Gibbins, the Master, Mr. J. C. Preston and Professor Roger Smith, Warden, and Mr. S. W. Preston, the Clerk of the Company of Carpenters. Dr. W. G. Adams, Professor and Master Elector, chairman of the school, the Hon. R. Parsons, M.I.C.E., and representatives of the following companies which are associated with the Company of Carpenters in carrying on the school.—The Joiners' Company, the Painter Stainers' Company, the Plasterers' Company, the Tylers' and Bricklayers' Company, and the Wheelwrights' Company. The party visited the various workshops of the school, in which the classes were engaged from 7.30 to 9.30 p.m.

A MANCHESTER STREET IMPROVEMENT.—During the coming session of Parliament power will be sought by the Manchester Corporation to make a new street. A memorial received by the Corporation some time ago, proposed that although the district between Collyhurst-street and Charter-street was in close proximity to Market-street, yet the ascent of Charter-street was so difficult for luries and vans that it practically shut out the district from the advancement which it ought to share with other districts so near to the centre of the city. The suggestion of a new street should be constructed was favourably received, and eventually a scheme was drawn up by the Building and Improvement Committee, which subsequently received the assent of the Council. The scheme provides for demolition of a number of dilapidated cottages and the construction of a street 100 yards long by 16 yards wide from Long Millgate, at its junction with Ashley-lane to Charter-street, opposite Little Nelson-street. The gradient of the new street will be 1 in 81, as against 1 in 20 in Charter-street, and 1 in 16 in Ashley-lane. The cost of this improvement will be about 16,000.

YORKSHIRE BUILDERS' FEDERATION.—At a recent meeting of the Yorkshire Federation of Building Trade Employers held in Bradford the President of the Federation (the Mayor of Huddersfield), occupied the chair, and representatives attended from Leeds, Huddersfield, Bradford, Sheffield, Barnsley, Hull, Spen Valley, Mirfield, Scarborough, and Halifax. After the executive work the President gave an address, in which he stated the objects of the Federation, which he said, had been formed simply to protect the interests of the members, and not for aggressive purposes. A similar federation in Lancashire had proved very successful, and had been the means of putting an end to disputes between masters and men. He hoped that this federation, which numbered upwards of 350 members, would prove equally successful. Addressing the members on behalf of the builders of Bradford, welcomed the federation. Mr. Radcliffe (Huddersfield) considered that in federating the employers were only placing themselves on an equal footing with those they employed. Mr. Henry Waddington (Bradford), legal adviser to the federation, presented a memorial delivered upon the Workmen's Compensation Act. In explaining Section 7 of the Act, he observed that the building trade was not an employment within the Act unless the work was being executed on, in, or about a building over 30 ft. high, but there was no guide for the determination of the height of a building. Every one (except a workman who tumbled off a 20 ft. wall into a 20 ft. basement) would agree that the height ought to be measured from the ground level and not from the basement. What the ultimate definition would be could not be said, but

as the object appeared to be to limit the application of the Act to the most dangerous work of the building trade, there seemed no reason why the measurement of a building should always be taken from the centre of the building. Moreover, the mere fact that a building in course of construction or repair was over 30 ft. in height did not bring it within the meaning of the Act; scaffolding must be in use. The last section was a curiously-worded section. Apparently a workman might still contract himself out of the Employers Liability Act of 1882, or agree to forego any right of action at common law existing on July 1, 1898. But no contract agreeing to forego any right of compensation would be operative to deprive a workman of his rights under this Act. Mr. Waddington stated that, in his opinion, the companies insuring under this Act would be compelled to raise their premium 50 per cent., and this would be a considerable item to large employers. In the course of the discussion which ensued Mr. Spink (vice-president) said that he thought the masters in the building trade should promote a scheme for mutual insurance, and thereby save a large part of the sum paid in premiums to the insurance companies. Alderman Holdsworth, in proposing a vote of thanks to Mr. Waddington, stated that he felt the time had come when it would be necessary for him to adopt some method of insurance. Mr. Dawson, considering the proposition, said that at Huddersfield mutual insurance had been effected in the building trade, and it had been of great benefit. He strongly advocated an enlarged scheme, either by the Yorkshire Federation or by the National Federation of Builders. Mr. Waddington having suitably responded, the meeting terminated.

GLASGOW CATHEDRAL.—The new session of the Architectural Section of the Glasgow Philosophical Society was opened on the 15th inst., when Mr. Macgregor Chalmers, the President, delivered an address. This was in the form of notes taken from a sketch of the history of Glasgow Cathedral which, according to the *North British Mail*, the President intimated he had in preparation for publication. In narrating the connexion of St. Ninian, St. Columba, and St. Mungo with Glasgow, a description of the two earliest of early churches was given, and it was shown that St. Mungo's Church was definitely identified at the end of the twelfth century. The earliest fragment in the present cathedral was of the time of Bishop Ingelham (1164), and although it was very small it yet lent its aid in the recognition of the structure dedicated in 1136. Bishop Jouin, of the nave, which, however, he had to stop, as the choir was burned down. He then, at the end of the twelfth century, rebuilt the choir, and of this work the wall of the north aisle remains, and all the south aisle, with its walls and vaulting. The old pillar which was retained was carved at this time also. The nave was again started, and again stopped, after the erection of the present beautiful choir. The special features of this work were described, with the sarcophagi and the effigy at the east end. These, with the fifteenth-century slab in the chancel, were all the medieval memorials. The sarcophagi were specially compared with that in Govan, which was illustrated from the President's drawings published by the Regality Club. The old thirteenth-century hill town, regarding which interesting documents are preserved, was found to be the north-western town which was destroyed about fifty years ago. The three stones which belonged to it are still lying in the Chapter House, and they show that they were part of Bishop Lauder's restoration.

NEW INFIRMARY SITE, NEWCASTLE.—A joint meeting of the Town Moor Management Committee, Town Improvement Committee, and the stewards of the freemen was held on the 15th inst. in the Newcastle Town Hall-buildings, for the purpose of considering a plan for the new infirmary site, which had been submitted by the Infirmary Committee. This plan showed a site of 10 acres, triangular in shape, on the Leazes. The land is situated at the top of St. Thomas's-crescent, and is bounded on the south by the Leazes Park-road, on the east by the footpath running from the crescent to the top of Eldon-street, and on the north-west by the footpath which cuts across from the top of Eldon-street to the Leazes Park gates. The triangle indicated embraces exactly 10 acres of land. On the motion of the Mayor (Councillor T. B. Sanderson), seconded by Alderman Sir C. F. Hamond, M.P., it was unanimously agreed to grant this site, subject to the condition that the Infirmary Committee (divert the newly asphalted footpath crossing from the top of Eldon-street to St. Thomas's-crescent and to leave the piece of ground running in the same direction to a width of 60 ft., for purposes of making a new street that would form from the top of Eldon-street to the crescent should the Council so require it at any future time. Plans from Mr. Alfred Waterhouse, R.A., were also placed before the joint meeting showing the buildings of the new infirmary, and are to face due south, and are to have an entrance from the top of St. Thomas's-crescent.—*Newcastle Journal*.

DISCOVERIES OF ANCIENT LIVERPOOL.—Recently some interesting discoveries connected with the past history of Liverpool have been made during the excavations which have been going on in the west parts of the city. The latest have been made in Tithebarn-street, owing to the laying of the underground telephone wires, where some hollowed-out

trunks of trees, supposed to be water-pipes, have been unearthed. The "pipes" are said to have been laid about two years ago, and are trimmed at the ends to fit into each other socket fashion, and although they have been so long underground, they are in a wonderful state of preservation. The bore of the trees is about 4 in. in diameter, and several of them are to be kept as curiosities of the past.—*Liverpool Post.*

LIVERPOOL ENGINEERING SOCIETY.—The second ordinary meeting of the session in connexion with this Society was held on the 17th inst., when Mr. Sherard Cowper-Coles read a paper, entitled "Electro-Zincing." The President, Mr. George Farren, occupied the chair. Mr. Coles said that amongst the noteworthy changes of late years in the materials employed for constructional and engineering purposes was the very extensive substitution of steel for wrought iron. The age of iron was giving place to an age of steel, but with its many advantages over iron, steel unfortunately possessed one serious drawback, it corroded more rapidly. He pointed out that electro-zincing had been used by the Government for the protection of torpedo-boats, and it was also extensively used for water-tube boilers.

LOWER RICHMOND-ROAD, PUTNEY.—We understand that the plans have been approved for an improvement of this thoroughfare. It is proposed to widen the road to 45 ft.—it is now 15 ft. wide—at the junction with the road leading to the bridge. The project includes the removal of the Star and Garter tavern, well known to boating men, which claims to have been established there nearly three hundred years ago. It is stated that the proprietor will rebuild the premises upon an extensive scale, and add a dining-room with a capacity for 300 persons.

PERSHORE ABBEY.—The first meeting of the Birmingham and Midland Institute (Archæological Section) for the present session was held on the 17th inst., when Mr. Francis B. Andrews read a paper on "Pershore Abbey." Mr. Andrews described in detail the remaining buildings, and to elucidate the architectural details comparative views of Tewkesbury and of other abbey churches had been prepared, and it was stated that the two towers of Salisbury and Pershore agreed so completely, even in minute details, as to leave little room for doubt that they were the work of one and the same architect.

WITLEY, SURREY.—It is stated in the *Daily News* that Lord Edward Pelham-Clinton, Master of the Queen's Household, has bought "The Heights," at Witley, for a residence. The house was for a while the country home of "George Eliot," who purchased it in December, 1876, after the publication of "Daniel Deronda." There she had for neighbours Lady Holland (Lord Macaulay's niece), the Du Mauriers, and the Allinghams, and the Tennysons at Haslemere.

THE SANITARY INSTITUTE.—At an examination held at Newcastle-upon-Tyne, the following candidates were certified as competent to discharge the duties of Inspectors of Nuisances:—W. Almond, Gateshead; G. Beatty, Willington Quay; J. W. Davison, Newcastle-upon-Tyne; T. H. Downes, Sunderland; T. Gregory, Newburn-upon-Tyne; W. Jameson, Northallerton; D. Rutherford, Edinburgh; E. M. Short, Newcastle-upon-Tyne; A. E. Tait, Blyth.

WEST OF ENGLAND AND SOUTH WALES FEDERATION OF MASTER BUILDERS.—The first half-yearly meeting of this Federation was held on the 15th inst., under the presidency of Mr. August Krauss, at the Guildhall, Small-street, Bristol. A letter was read from Mr. T. F. Rider, President of the National Association of Master Builders, in which he advocated the continued and increasing importance of the members being bonded together. The Chairman announced that it was very gratifying that a master builder, in the person of Mr. Alderman Jessop, had been elected to the mayoralty of Huddersfield. It was now six months since the Federation was formed. At that time Plymouth and Weston-super-Mare were in trouble with their employes, but the differences had been settled. He was glad to say there had been peace in the building trade in the other towns which formed the Federation, and he hoped it might continue, as peace meant prosperity to both sides. They wanted to do justice to the men, and to see that justice was done to themselves, not only by their own men, but by those who employed them, in relation to quantities and conditions of contracts and other matters which might come up from time to time, and, further, so that a closer and firmer fellowship should exist between themselves as builders and contractors. Having made a few observations in reference to the engineering strike, the Chairman said that they all agreed to give a fair day's wage for a fair day's work, and they knew that from an underpaid or overworked man they could not expect much; but the question was, were fifty-four hours per week too many for a workman, considering the hours worked in other countries and the freedom of the man to turn out as much work as he liked? Let him give them an example. A short time ago there was an advertisement issued for twenty-two miles of cast-iron water-pipes for the neighbourhood of Abbridge, and one of their American cousins sent the lowest tender. Steel rails were imported here from America at a much less price than English

rails were, to say nothing of the amount of rails that came here from Belgium and Germany. If they got beaten here in the staple trade, it was time to look out or they would get beaten all along the line. They might be surprised to hear that at Manchester a large granary was being built by a Chicago firm. They had no objection to trades-union or a union man; they knew well that union had done a great deal of good for the working classes. What they said was, let trades-union be carried on as a peaceful union and not a fighting union.

FOUNT FOR ST. JOHN'S CATHEDRAL, NEWFOUNDLAND.—A font has just been despatched for the new cathedral at St. John's, Newfoundland. It has been designed by Mr. J. Oldrid Scott, of London, under whom Newfoundland Cathedral, which was consumed by fire a few years ago, is being rebuilt in sections. The font has a central shaft surrounded by columns of polished Levanto (Greek) marble. The bowl is circular and of the same mottled marble. The font has been made in the studios of Messrs. Harry Hems & Sons, of Exeter, by whom the carved oak fittings in the choir were executed.

ELECTRIC TRACTION, DOUGLAS.—At a special meeting of the Douglas Town Council on Monday, the question of electric lighting and electric traction was considered. The tramways company had offered in consideration for being allowed to substitute the trolley system of electric traction for horse traction on the Douglas Bay Tramways to light by electricity free the Douglas Bay promenades and principal thoroughfares, and to supply electric light to consumers at a fixed price. On Monday a letter was read from the company intimating that, in consequence of feelings on the subject expressed by certain councillors, the offer was withdrawn.

COURT OF COMMON COUNCIL.—On Tuesday a meeting of the Court of Common Council was held at the Guildhall, the Lord Mayor presiding, when the Court proceeded to discuss a report of the Bridge House Estates Committee, relative to the mode of dealing with some eighty premises in Finsbury-circus, West-street, Finsbury-pavement, Albion-place, London-wall, and Blomfield-street, at the expiration of the present leases at Midsummer, 1899. The present rental received from the property is 3,480*l.* The Committee recommended that a road 30 ft. wide should be carried through from Albion-place to West-street, that the premises in Finsbury-pavement and the buildings at the rear should be pulled down, and the site let on building lease for eighty years by public auction; that the remainder of the area should be divided into four blocks and dealt with in a similar manner at such times subsequent to the letting of the first block as might seem to the Committee advisable, and with a minimum of inconvenience to the present occupiers. If so dealt with, the ground rent to be created would exceed 20,000*l.* per annum.

At a recent meeting of the Court the leaseholders and occupiers of the property affected petitioned against these recommendations, and submitted an alternative scheme with the suggestion that those tenants who desired to rebuild should be offered larger sites. The committee, having considered those views and the alternative scheme, stated that they could not advise their adoption, but they had no objection to the Court giving an express direction that the Court should not allow the remainder of the area, either before or after dealing with the first block, and either including or excluding the proposed street in a greater number of blocks than four, and deal with it in such a manner and at such times, extending over a period of not less than three years, as the Committee deemed expedient.—Mr. W. H. Pannell, the chairman of the committee, moving the adoption of their report, said it was the most important scheme affecting the property since the erection of the Tower Bridge. Mr. H. T. Gordon moved an amendment that none of the houses having frontages to Finsbury-circus be pulled down, but be re-let at rack rentals until the expiration of the lease of Nos. 25, 26, and 27, Finsbury-circus, in Midsummer 1920, and that it be an instruction to the Committee that the remaining building sites be offered in the first instance to the occupying tenants at a rental value to be fixed by such experts as the Committee might select. He said that the universal opinion of those unconnected with the Corporation, and the view of a good many of the members themselves, was that it was a shame to demolish the houses in Finsbury-circus, which were good for another fifty years at least. The proposed new buildings, however handsome, would destroy the symmetry of the circus, which was one of the few places in London built on a uniform plan, and was really an oasis in a wilderness of bricks and mortar. Mr. Hudson seconded the amendment. A long discussion ensued. In the result the amendment was lost by a majority of ninety-one votes, and the recommendations of the Committee were adopted.

The Visiting Committee of the City of London Lunatic Asylum brought up a report asking authority to proceed with the improvements at the asylum required to be done under the provisions of the Lunacy Acts in accordance with the report agreed to by the Corporation in April last, notwithstanding that from various causes the tenders received showed a considerable increase on the estimate then given of 40,770*l.* The total expenditure now being computed at 70,000*l.* Sir Stuart Knill moved the adoption of the report. Mr. Alderman

Halse, as an amendment, proposed that in the opinion of the Court, it was not right that any outlay not required by the Lunacy Commissioners as essential should be cast on the ratepayers, and accordingly that the conversion of the existing chapel into a recreation-room, and building a new chapel at an approximate cost of 13,000*l.* be excluded from the contract. After a long debate, the amendment was carried by six votes. It was eventually decided to refer the whole matter back to the Visiting Committee for reconsideration, and also to consider the powers of the Corporation under the Lunacy Act to avoid immediate payment for permanent works at the asylum, and with a view to spread the payment over a defined period.

NEW FORM OF WATER-CLOSET.—Messrs. C. O. Ellison & Son send us a description of what they call "the O. B. closet," the special feature of which is that the flush of the basin is set in action by the lowering of the lid over the seat, so that it takes place when the lid is down, with less noise than when it is up. The flushing cistern is filled by raising the lid over the seat when the closet is to be used. The arrangement would not be suitable for public latrines, as the result would probably be that many persons, either from ignorance or carelessness, would not close down the lid at all; but for private houses it seems to have advantages.

NEW ELECTRIC LAMP.—The Edison & Swan Electric Company are promising the public a new electric lamp capable of burning at a very high efficiency and realising an economy of 25 per cent. We have no particulars, however, as yet.

MONUMENT, SANDAL, WAKEFIELD.—A monument will shortly be erected at Sandal to indicate the spot where it is said Richard Duke of York fell at the battle of Wakefield in connexion with the Wars of the Roses. It will be about 15 ft. high, is of carved Bolton Wood stone, and the work has been executed from the designs of Mr. Hawksley, of London, by Mr. Thresh, Wakefield.

PROPOSED STREET IMPROVEMENT, RICHMOND.—It is proposed to increase the width of George-street, Richmond, to 21 ft. 6 in. roadway, with 7 ft. footways, making a total width of 35 ft. 6 in. The present width is 27 ft. 6 in.

PRESENTATIONS TO AN ENGINEER.—The members of the Liverpool Engineering Society on the 20th inst. presented to Mr. H. Percy Boulois, M.Inst.C.E., who retires from the position of City Engineer, a silver tea and coffee service. Accompanying was an illuminated framed address on vellum, with a floral border, surmounted with Mr. Boulois's crest and motto. The address was as follows:—"To H. Percy Boulois, Esq., M.Inst.C.E.—We, the undersigned members of the Liverpool Engineering Society and the United Club, Liverpool, ask your acceptance of the accompanying service of plate, as a mark of our esteem, and as a memento of our friendly relations with you during the time you have been resident in Liverpool. The able manner in which you have fulfilled the duties of City Engineer for nearly eight years past has won our respect and admiration, and we feel that the best traditions of an honourable profession have been exemplified by you both in your public office and in your social life. We confidently believe that your high reputation as an engineer will grow in the future as it has done in the past, and we take this opportunity of your departure from our city to wish you health, happiness, and prosperity in your future life." Mr. H. West (President) occupied the chair, and in asking Mr. Boulois's acceptance of the presentation, spoke of his high professional ability and his valuable services to the Society during his occupancy of the present chair. Mr. Boulois, in reply, referred to the kindly reception given by the Liverpool Engineering Society when he first came to the city. Since his resignation he had accepted an appointment in the Government service, but if his duties in his new office were not what he anticipated, he would carry out his original intention and go into private practice.—At a meeting of the staff of the City Engineer's Department (more than one hundred officials being present), held in the Municipal Buildings, Mr. James Morgan, Assoc.M.Inst.C.E., Chief Surveyor of Roads, presiding, Mr. Boulois was presented on behalf of the staff with a solid silver inkstand, ivory paper-knife, and accessories. Following on this presentation, a deputation from the crews of the steam hopper barges *Alpha* and *Beta* was introduced, and Captain Griffiths, of the *Beta*, asked Mr. Boulois to accept a stationery cabinet from hearts that felt the kindest sympathy that man could feel to man.

CAPITAL AND LABOUR.

YORK CORPORATION AND THEIR WORKMEN.—At the adjourned quarterly meeting of the York City Council on the 15th inst., the Streets and Buildings Committee reported that a sub-committee had considered the application from a number of the workmen in their employ for an increase in the rate of wages, and had made recommendations, the net result of which was as follows:—Four gangers to receive a rise of 2s. 1d. per week; thirty-one labourers, including drainers, bricklayers' labourers, and sewer-men, to receive an increase of 1s. 7½d. per week. The committee recommended that the report of the sub-committee be adopted. An amendment was submitted by Mr. Hibbet, and

also a barn, I.

#05

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Prize.	Designs to be delivered.
Offices, Council Chambers, &c.	Aldershot U.D.C.	200. 100.	Dec. 31

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Form of Tender, &c. Supplied by.	Tenders to be delivered.
House, &c. Bridlington Quay, Yorks	J. Jefferson	J. Barnshaw, Archt. Bridlington Quay	Nov 30
Sewage Disposal Works.	Clayton (Yorks) U.D.C.	J. Waugh, C.E. Sunbridge-chambers, Bradford	do.
York Stone Flags	Folkstone Corp.	J. White, Boro' Regr. Town Hall	do.
Levelling, Paving, &c. Back Type View-terrace	Willington Quay U.D.C.	J. F. Davidson, Surv. Ter-ter-st. Willington Quay	do.
Three Houses, Northland-road, Londonderry	Buchanan Bros.	W. Barker, Archt. 3, Richmond-st. Londonderry	do.
Reat Works (2 miles), Limerick	.....	J. W. Grundy & Son, Archt. Limerick	do.
Stabling, Carriage-house, &c. County Hotel, Ulverston	.....	W. Barker, Archt. Richmond-st. Londonderry	do.
Sis House, Newenden-avenue, &c. Londonderry	.....	W. Barker, Archt. Richmond-st. Londonderry	do.
50 in. Main Surface Drains	Aldershot U.D.C.	Lennon & Blizard, S. Vico-st. R.W.	Dec. 1
Main Sewerage Works	.....	W. E. Corbett, C.E. City Surveyor	do.
Sewerage Works, Aspin	Orswaldtwistle U.D.C.	R. H. Hunter, Town Hall	do.
Completing Seymour-road	Litherland (Lancs) U.D.C.	W. E. Garton, Surv. Bedford-road, Litherland	do.
Alteration to White Hart Hotel, Kendal	R. & P. Hartley	R. Shaw, Archt. Kendal	do.
Laying Water Main, Whitwell	Isle of Wight R.D.C.	F. Stratton, Council Offices Newport, Isle of Wight	do.
Road Materials	Dalkey (Ireland) Corp.	H. O'Neill, Town Commr. Office, Dalkey	do.
Cottage Home, Swinton	Manchester Union	A. Morley, Archt. 20, Strutt-street, Manchester	do.
Road Works	Spilling U.D.C.	G. C. Coad, Council Offices Spilling	do.
Cottages, Wall Gates, &c. Sewage Works	Lancaster Corp.	A. E. J. Caterlin, Regr. Baldwin-street, Bristol	do.
Sewage Disposal Works, Langley Park	.....	J. R. Parker, C.E. Post Office-chambers, Newcastle-on-Tyne	do.
Lighting Conductor, &c. Parish Church, Montgomery	.....	J. Davies, Church Bank, Montgomery	do.
Addition to "Woodfield," Brighouse, Yorks	.....	Sharp & Weller, Archt. 32, Bradford-road, Brighouse	do.
Erection of Electricity Works	Plymouth Corporation	J. Paton, Municipal Offices, Plymouth	Dec. 2
Footpaths, &c. Lwyrypyla, Pentre, Glam.	Rhondda U.D.C.	J. H. Rider, Boro' Elect. Officer, Pentre, R.S.V.	do.
12 Transformer Chambers	Plymouth Corp.	Richr. Eng. East-street	do.
Driving Borehole from Well	Ashford U.D.C.	W. Terrill & Son, North-street, Ashford	Dec. 3
Two Blocks Almshouses, Aldridge, near Wall	Trustees Walker's Gift	The Rector, Aldridge	Dec. 4
Concrete Retaining Wall, Fife for Engine	Sheffield United Gas Light Co.	F. W. Stevenson, Eng. Commercial-st. Sheffield	do.
Writing Chambers, &c. Maroon-street, Bucks. N.B.	A. B. Hendry	J. Perry, Archt. 41, Church-street, Bucks.	do.
Stores, Bindpool-road, Barrow-in-Furness	.....	J. Butler, Archt. Corn-wall-street, Barrow	do.
Farmhouse, West Haugh Farm, Cusap, Angus, N.B.	.....	Mr. Reid, Archt. Cusap	do.
Supply of New and Purchase of Old Stores	Gl. Northern Ry. Co.	Mr. Martin, Stores Dept. Doncaster	do.
Paving Flagging, &c. Halliday-street and others	Dewsbury Corporation	Boro' Surv. Town Hall	do.
Pair of Semi-detached Villas, Nursery-road, Hampton-up-Thames	J. J. Draper	F. R. Pate, Archt. County Bank House, Epsom	do.
Villa, Stottfield, Lissle-mouth	.....	Co's Archt. Cavendish House, Derby	Dec. 5
Erecting 100 Cottages at Childs Hill, and Goods Warehouse, Leicester	M. R. Co.	R. Loftus & Sons, Archt. 62, Albert rd. Middlesex	Dec. 6
Additions to Workhouse Infirmary	Middlebrough Union	Jackson & Fox, Archt. 22, George-street Halifax	do.
House, Kell-lane, Shildon, Yorks	.....	Burg Surv. Town Hall	do.
Paving, &c. Wardle-road	Leith (N.B.) Town Council	W. Middlebrook, Gasworks Birtall	do.
Contract, &c. School-street and others	Birtall (Yorks) U.D.C.	The Silcock & Ray, Archt. Milnour-st. Bath	do.
Municipal Buildings	Llandudno U.D.C.	Surveyor's Office, Board's Office, Llandudno, S.E.	Dec. 7
Kerbing, Tarpaving, Metalling, &c. Merritt-road	Lewisham Bd. of Wks.	G. W. Woodbridge, Surv. Bank-chambers, Woking	do.
Public Offices	.....	Bridge Master, 19, Broad-pose-st. Manchester	do.
Bridge Works, Eirby, Irish	Lancs C.C.	.....	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Form of Tender, &c. Supplied by.	Tenders to be delivered.
*Pipe Sewers	Shoreditch Vestry	J. Rush Dixon, Town Hall, Old-street, E.C.	Dec. 7
*Gates, Railings, Standards, &c.	do.	do.	do.
Nurses' Home, Pavilion, &c. Northern Hospital, Wincoburne Hill	Met. Asylums B. and	Pennington & Son, Hastings House, Norfolk-st. W.C.	Dec. 8
*Erection of Infirmary	Newhaven Union	Eleven Houses, Christchurch Park, Clayton, Yorks	do.
Schools, Herbert-rd. Malin-croft, nr. Neth	Llandwit Lower Sch. Bd.	Clayton & Black, 119, North-st. Brighton	do.
Additions to Hospital	Gt. Yarmouth U.S.A.	J. C. Rees, Archt. Neath	do.
*Stores and Materials (various)	Nottingham Corp.	J. W. Cockrell, Archt. Twa Church, Fulkirk	do.
Villa, Tolcarne Building Estate, New Quay, Cornwall	W. L. Northway	A. Brown, Guildhall, Nottingham	Dec. 9
*Extension of Lunatic Asylum	Dept. of Works	W. Square, Archt. Davis	do.
Two Blocks Houses, Marshall-street, &c. Grangemouth	Nottingham Corp.	W. Square, Archt. Davis	do.
Baptist Chapel, Neyland, Pembroke-shire	Co-op. Soc.	O. T. Hine, 36, Parliament-street, S.W.	Dec. 11
Alterations to St. John's Fowls Castle, Tipperary	Castellar (Ireland)	G. D. Page, Archt. Old Glabe Church, Fulkirk	do.
Water Supply Works	Walton-on-Thames U.D.C.	W. H. Radford, Angel-row, Nottingham	do.
*Sewerage and Sewage Disposal Works	County Boro' of West Ham	Lewis Aspin, Town Hall, Stratford, E.	Dec. 14
*Cast-iron Pipes	Barking Town U.D.C.	C. J. Dawson, Public Offices, Boro'-street, Barking	do.
*Making up and Paving Streets	Sutton National Sch. Bd.	W. J. Moore, Archt. White-hall-bldg, Angel-st.	No date
*Hot water Heating, Cold water Supply, and Fittings to Swimming Bath	St. Helen's	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Additions to Schools	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Sixteen Houses, Broadway, Falls-road, Belfast	H. Murray	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Laundry and Boiler House	Kingsliffe Union	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Infectious Diseases Hospital, Welford	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Public Sanitary Centre & Laboratory, Park-road	Kingsliffe U.D.C.	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Warehouse, Gt. Victoria-street, Belfast	W. Strain & Sons	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Victoria Hotel, Allerton, Bywater, Co. Durham	W. Pickersgill	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Alterations to Church, New Mills, Tyne	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Four Houses, Lytham-rd., Blackpool	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Alterations to Fife Arms Hotel, Bransford	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Stone Walls, &c. Bradon, Isle of Man	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Houses, Astley, Balop	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
*Erection of Isolation Hospital	Corwall County Asy.	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Sewerage Works	Amble U.D.C.	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Additions to George Hotel, Harrogate	O. Barber	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Kerbing, Channelling, &c. Stevens-rd. and others	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Re-erecting (if part of Furness Paper Mills, Liverpool, Lancs)	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Pier Extension, Tenby	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.
Additions to "Cedars," Gt. Horkesley, Essex	.....	W. J. Moore, Archt. White-hall-bldg, Angel-st.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applicants to be in.
*Estate Surveyor and Valuer	Bristol Corp.	£100. increasing to £1,000. per annum.	Dec. 2
*Outdoor Manager	Ryde Corp.	£2. 2s. per week	Dec. 3
*Clerk of Works	Towcester R.D.C.	£2. per week	Dec. 4
	Barnton-upon-Irwell Union	£2. per week	Dec. 8

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & x. Public Appointments, pp. xviii. xix. & xxi.

1, 2, and 3, Yew Tree-ter., and house and shop adjoining, f., r. 52, 108	4,295	November 16.—By DEBENHAM, TEWSON, & CO. Commercial-rd. East—No. 538, f., r. 504	4,750	69 to 75 (odd), Buckingham Palace-rd., and 20 and 21, Brewer-st., u.t. 91 yts., g.r. 281, r. 656	46,000
New-rd., five freehold houses (two unfinished) and a plot of land adjoining	1,285	By FIELD & SONS. Herne Hill—Milkwood-rd., &c., i.g.r. 742, 108, u.t. 684 yts., g.r. 24	1,540	51 to 59 (odd), Buckingham Palace-rd.; 22, 23, and 24, Brewer-st.; 1, 3 to 9, Buckingham-pl.; 20 and 21, Princes-rd.; and "Sevells" Stabling, u.t. 91 yts., g.r. 156, 115, 40, r. 9,100	13,200
November 12.—By VALENTINE FOWLER (at Snaithon), Snaithon, Yorks.—"The New Inn" and 2 a. o. r. 18 p. f.	1,820	Milkwood-rd., the "Milkwood Tavern," i.g.r. 621, u.t. 684 yts., g.r. nil	1,360	By VERNON & SON. Beaconsfield, Bucks.—High-st., "The School House," f., r. 1201	2,750
Various enclosures, 202 a. 3 f. 37 p. f.	5,880	621, u.t. 684 yts., g.r. nil	6,550	By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern). Stratford—The Broadway, "The Swan Tavern," u.t. 57 yts., r. 2501, with goodwill	30,000
Cottage, barn, &c., and 3 a. o. r. 36 p. f.	760	Southwark—4, Summer-st., and "The Hat and Feathers" p-h., u.t. 34 yts., g.r. 401, r. 1501	1,880	By W. ROSE (at Masons' Hall Tavern). Kensington—Queen's Gate-mews, "The Queen's Arms" p-h., u.t. 50 yts., r. 1001, with goodwill	13,385
November 13.—By FRANKLIN & JONES (at Oxford). Godstow, Oxon.—"The Trout Inn" and 2 a. r. 31 p. f., with fishing rights	4,250	Three Tuns" p-h., u.t. 87 yts., g.r. 1451, r. 2601	1,600	By WHITHELY & HASLETT (at Masons' Hall Tavern). Brixton—Pulross-rd., "The Queen" p-h., u.t. 65 yts., r. 1001, with goodwill	33,55
F.g.r. 56, reversion in 98 yts.	180	Old Kent-rd.—51, 53, and 55, Ruby-st., f., r. 851, 168	850	November 17.—By ALDER & WRIGHT. Norwood—2, The Avenue, u.t. 40 yts., g.r. 201, 108, r. 1001	920
November 15.—By G. HEAD & CO. Regent's Pl.—26, Albany-st., u.t. 242 yts., g.r. 41, 45, r. 651	520	Blackfriars—5, Queen's Arms-st., c., r. 181, 45	195	By H. E. FOSTER & CO. Chelsea—King's-rd., &c., one-third of one-fourth of f.g.r. 3701, reversion in 35 and 45 yts.	1,820
100, Albany-st. and 59, Little Albany-st., u.t. 27 yts., g.r. 131, 108, r. 621	560	Maida Vale—50, 54, and 55, Clifton-gardens, u.t. 51 yts., g.r. 451, r. 2351	2,000	Tottenham Court-rd.—No. 36, a profit rent of 501 for 5 yts.	150
Regent-st.—1, Conduit-st., u.t. 222 yts., g.r. 54, r. 3001	3,975	12 and 15, Dorset-sq., and 12 and 15, Taunton-mews, u.t. 113 yts., g.r. 661, 158, r. 3151	1,360		
By TOWERS, ELLIS, & CO. Baywater—54, Westbourne Pl. Villas, u.t. 384 yts., g.r. 91, 158	460	Pimlico—2 and 4, Eccleston Houses, u.t. 204 yts., g.r. 281, r. 2101	3,150		
By WEATHERALL & GREEN. Newington Butts.—Wesley-pl., f.g.r. 501, reversion in 45 yts.	1,510	Belgravia—72, Eccleston-sq., and 72, Eccleston-sq.-mews, u.t. 204 yts., g.r. 15, r. 3401	1,775		
Kennington—42, 44, and 46, Bolton-st., f., r. 701, 45	960	Pimlico—3, 4, 6, 7, 8, 9, and 10, Trinity-mews, u.t. 16 yts., g.r. 451, r. 2351	4,000		
Camberwell—3, Mansion House-sq., u.t. 63 yts., g.r. 44, 108, c.r. 444, 45	900	148 and 150, Grosvenor-rd., also "Cambridge Wharf," u.t. 312 yts., g.r. 1301, r. 5001	6,200		

PLYMOUTH.—For the erection of poultry, vegetable, fruit, and fish market, &c., being Contracts Nos. 8 and 9 of the Plymouth Corporation Markets. Messrs King & Lister, architects, 2, Filadelfia-square, Plymouth. Quantities by the architects:—
J. Funch £12,500
A. W. Coleman 11,400
Marchant & Co. 11,400
J. Goad & Son 11,400
* Accepted.

PONTEFRAC.—Accepted for Workhouse extensions, Pontefract Union, for the Board of Guardians. Messrs. J. Holmes, Graves, & Co., architects, Leeds, Pontefract, and London.—
See many of addres.

Excavating, Bricklaying, and Masonry.—Jackson Bros., Goole £1,600 0 0
Carpentry and Joinery.—Jackson Bros., Goole 311 0 0
Plumbing and Glazing.—G. Thompson, Leeds 90 0 0
Painting.—Jackson Bros., Goole 109 10 0
Plastering.—O. Lister, Hildesley 73 7 4
Painting.—H. Butler & Sons, Pontefract 61 5 6
Hot Water Engineering.—A. Weygill & Co., Leeds 51 0 0
Laundry Machinery.—T. Bradford & Co., Manchester 507 0 0
Ironfoundry and Smithing.—Jackson Bros., Goole 412 0 0
Engineers, Builders, &c.—Marsden & Co., Heckmondwike 491 10 0
Male and Female Pervent Hards.
Excavating, Bricklaying, and Masonry.—Jackson Bros., Goole £6,754 10 0
Carpentry and Joinery.—Jackson Bros., Goole 317 0 0
Plumbing and Glazing.—G. Thompson, Leeds 413 0 0
Painting.—Jackson Bros., Goole 110 8 0
Plastering.—O. Lister, Hildesley 88 13 3
Painting.—Jackson Bros., Goole 77 0 0
Hot Water Engineering.—J. King & Co., Liverpool 52 2 0
Ironfoundry and Smithing.—C. Avey & Sons, Leeds 21 14 9
See many of addres.

Excavating, Bricklaying, and Masonry.—Jackson Bros., Goole £10 18 0
Carpentry and Joinery.—Jackson Bros., Goole 1 10 0
Plumbing and Glazing.—D. Gibson, Leeds 1 10 0
Painting.—Jackson Bros., Goole 1 10 0
Plastering.—O. Lister, Hildesley 1 10 0
Painting.—H. Butler & Sons, Pontefract 10 11 6
Mechanical Engineering.—S. Dawson & Co., Stalybridge 14 0 0
See many of addres.

Excavating, Bricklaying, and Masonry.—Jackson Bros., Goole £199 11 0
Carpentry and Joinery.—Jackson Bros., Goole 123 0 0
Plumbing and Glazing.—Geo. Thompson, Leeds 119 0 0
Painting.—Jackson Bros., Goole 19 3 6
Plastering.—O. Lister, Hildesley 5 0 0
Painting.—Jackson Bros., Goole 8 10 0
Ironfoundry and Smithing.—Chas. Avey & Sons, Leeds 2 5 3

PYRFORD.—For the erection of teachers' house, for the School Board. Mr. C. Welch, architect, London-street, Chertsey. Quantities by architect:—
G. Wells £306 0 0
W. Greenfield 372 0 0
G. Christmas 349 10 0
[Architect's estimate, £1,350]

RUSHDEN.—For alterations to factory, for Mr. R. Smith. Messrs. H. Knight, architects, Rushden. Quantities by the architect:—
H. Knight £183 0 0
T. Smith 180 10 0
Whittrinton & Tomlin 170 0 0
T. & C. Smith 125 0 0
* Accepted.

RUSHDEN.—For the erection of new shops, warehouse, &c., for Mr. C. G. Ward, Newton-road, Rushden. Quantities by the architect:—
Mr. H. Knight, Newton-road, Rushden £1,350 0 0
D. Henson 1,318 0 0
T. Wilmott 1,308 0 0
[Architect's estimate, £1,330]

SALISBURY.—For the erection of offices and works, for the Salisbury Electric Light and Supply Company, Limited. Mr. E. Dorman Webb, architect:—
Webb & Co. £1,777 10 0
C. Trank & Sons 1,399 0 0
H. Hale, 73, Castle-street, Salisbury (accepted) £1,395 0 0
C. Tryhorn 895 0 0

C.B.N. SNEVIN

MAHOGANY, WAINSCOT, WALNUT, EAK, VENEER, and TIMBER MERCHANT, Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, BAY STREET, FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, and FIT FOR IMMEDIATE USE. Telephone No. 574 Holborn. Tele. Address: "SNEVIN, London."

STONEHAVEN (N.B.).—Accepted for the erection of a lodging-house, for the Town Commissioners. Messrs. J. & J. A. Senior, architects, 42, Union-street, Aberdeen. Quantities by architects:—
Masonry.—Wm. Smith, Stonehaven £345 0 0
Carpentry.—Mitchell & Son, Stonehaven 260 0 0
Plumbing.—E. Hume, Stonehaven 173 10 0
Painting.—R. Burgess & Son, Stonehaven 63 15 0
Plastering.—A. Connack, Stonehaven 35 5 8
Painting and Glazing.—Barron & Son, Aberdeen 31 10 0
£992 2 8

TUNBRIDGE WELLS.—Accepted for the erection of proposed house in Frant-road, Tunbridge Wells. Mr. H. C. Lander, architect, Elingham House, Arundel-street, Strand, W.C. Quantities by Mr. J. A. Jacques, 30, Dartmouth Park-avenue, N.W.:—
Strange & Sons, Tunbridge Wells £3 40 0

TUNBRIDGE WELLS.—Accepted for fixing cooking range at High-street, Tunbridge Wells, with patent boiler, installing heating apparatus, in conjunction with hot-water domestic supply.—
T. Fenton £105

WANSTEAD (Essex).—Accepted for the erection of two pairs of villa residences. Mr. J. Walter Wyle, architect, 27, Finsbury-pavement, E.C., and Manor Park, E.:—
T. Young, Woodford £3 0

WHITEY.—For the erection of shop and café. Skinner-street, for Mr. J. Gray, J.P. Mr. E. H. Snodgrass, architect, 5, Flowergate, Whitey. Quantities by architects:—
W. Langdale & Sons £2,450 0 0
John Brailin (accepted) £2,090 0 0
Thos. Fletcher 1,883 0 0
Robinson Harland 1,804 0 0
A. Falcman [Withdrawn]
[All of Whitey]

WRENHAM.—For the erection of latrines at the boy's school, Grove Park, for the Governors of Wrenham County School. Messrs. J. Morton & Son, architects, 10, King-street, Wrenham. Quantities by architects:—
B. Owen £157 0 0
Davis Bros. (accepted) £143 0 0
W. Owen £29 0 0
Turner Bros. (accepted) £28 0 0
[All of Wrenham]

TO CORRESPONDENTS.

NOTE.—Your letter will hardly assist the cause of R. H. B. (the same answer applies to S. W. 3—J. C. amounts should have been stated).—A. W. G. W. (Below our limit).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors. We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED. We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

J. J. ETRIDGE, Jr.

SLATE MERCHANT, SLATER and TILER. ESTIMATES GIVEN FOR SLATING AND TILING.

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor, Oakeley - Portmadoc, And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to BETHNAL GREEN SLATE WORKS, BETHNAL GREEN, LONDON, E.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 10s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 12s. per annum. Remittances (payable to DOUGLAS FOURDRINER) should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, (by prepaying at the Publishing Office, 10s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by *Deliver Hereby's Post*.

THE BATH STONE FIRMS, Ltd.

BATH, FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE DOULTING STONE.

The Ham Hill and Doulting Stone Co. (Incorporating The Ham Hill Stone Co. and C. Trank & Son The Doulting Stone Co.). Chief Office:—Norton, Stoke-under-Ham, Somerset. London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO. LITHOGRAPHERS AND PRINTERS.

Estate Plans and Particulars of Sale promptly executed. 4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON (8 PRINCES STREET, ST. GEORGE'S WESTMINSTER). "QUANTITY SURVEYORS' TABLES." For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

THE French Asphalte COMPANY.

Suffolk House, Cannon-street, E.C. SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOFS, WASHHOUSE AND DAIRY FLOORS, &c., &c.

This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

CYLINDERS FOR HOT-WATER CIRCULATION.

Particulars on application.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL: 6 and 8, HATTON GARDEN.

GLASGOW: 47 and 49, ST. ENOCH-SQUARE.

BRISTOL: ASHTON GATE WORKS, CORONATION-RD.

The Builder.

VOL. LXXIII. No. 2862.

DEC. 4. 1897.

ILLUSTRATIONS.

Cappella Palatina, Palermo.—Drawn by Mr. A. E. Henderson	Double-Page Ink-Photo.
Study for Municipal Buildings.—By Mr. Horace R. Appellée	Double-Page Ink-Photo.
The Heights, Hindhead, Surrey.—Mr. W. A. Pite, F.R.I.B.A., Architect	Single-Page Ink-Photo.
"Maison Rouge," Buxton.—Mr. Lerner Sugden, F.R.I.B.A., Architect	Single-Page Ink-Photo.
Church of St. John the Divine, Ford, Wilts.—Mr. C. E. Ponting, F.S.A., Architect	Two Single-Page Photo-Lithos.

Blocks in Text.

Sketches of London Street Architecture.—XXI. No. 185, Queen's Gate. Mr. R. Norman Shaw, R.A., Architect.	Page 465
"Maison Rouge," Buxton. Plan	Page 472
Church of St. John the Divine, Ford. East Elevation	Page 472

CONTENTS.

The Union of Employers	459	The Cappella Palatina, Palermo	470	The Slate Trade	473
Modern Opera Houses and Theatres	450	Study for Municipal Buildings	470	Students' Column: Quantities and Quantity Taking.—XVII. ..	473
Notes	451	The Heights, Hindhead, Surrey	470	General Building News	475
The Society of Water Colours Exhibition	459	Maison Rouge, Buxton	470	Sanitary and Engineering News	477
The Royal Institute of British Architects	464	Church of St. John the Divine, Ford, Wilts	470	Stained Glass and Decoration	478
The Architectural Association Conversations	464	Architectural Societies	471	Foreign	478
Competitions	464	Builders' Benevolent Institution	472	Miscellaneous	478
Sketches of London Street Architecture.—XXI.	465	Birmingham Master Builders' Association	472	Capital and Labour	479
The London County Council and Contracts	465	Trade Catalogues	472	Legal	479
The London County Council	468	Trade News	472	Meetings	479
Applications under the 1894 London Building Act	469	Birmingham Town Hall	473	Recent Patents	481
Archæological Societies	470	Sarbiton Municipal Buildings	473	Some Recent Sales of Property	481

The Union of Employers.



MUCH public attention has recently been attracted to the federation of employers which has been in conflict with the Amalgamated Society of Engineers. This complete and systematic union of employers is a comparatively new feature in industrial struggles; it is in an early stage, it will certainly be largely developed, and it must have very important consequences. The unions of workmen have shown the force of combination. The individual workman was quite powerless to fight the individual capitalist, whether in the shape of a person or a company; but as soon as the workmen made common cause, formed themselves into unions, and brought different unions into sympathy with each other, their strength was immeasurably increased. A cause may be good, but that is not sufficient, and without this union of individuals the artisan would never have reached the state in which we now find him. Union of interests may, as we have seen, give those who are united not only a power of resistance, but of attack; a capacity not only of defence, but of offence.

But the fact must be recognised that to a large extent and for many years the workmen have been more or less united and the masters in most cases have been isolated. It is obvious that, under such circumstances, labour has an undue power—that is to say, it becomes a stronger element in industrial conflicts than, having regard to the importance of capital, it has a right to be. But it is equally obvious that such a condition of things could not continue; it was clear that sooner or later employers must also band themselves together. To do so was found to be less easy and simple than to unite workmen. There is less community of interests; the interest of each individual employer is more complex; there is not the personal touch which exists so largely among individual workmen.

Clearly, therefore, the union of employers must necessarily be more difficult to create, and to keep in a state of efficiency. But

preservation is the first law of nature, and the only way to preserve capital from the attacks of labour is that it should be well organised, that there should be unions of employers as of workmen. Once such a union becomes an accomplished fact, it becomes obvious that, generally speaking, employers must be in a stronger position than workmen. No doubt there will always be weak brethren, some who, even with assistance, cannot stand throughout an industrial battle; some who think that at such a time they may obtain a personal advantage out of the general conflict. But it is not to the interest of any employers in the long run to separate themselves from a general body. So, once employers in a particular trade are properly organised and united, they become a strong force capable of enduring through a long struggle. It becomes equally obvious, too, that when once a union of employers exists, the opposing trade union is in quite a different position to what it was before this event occurs. An industrial war is now largely a question of money, and it is a very different thing for a trades-union to fight against a union of employers, as compared with fighting one individual or one firm, however important.

The capacity of the workmen's trades union to go through an industrial war has largely increased of late years; the increase of members is synonymous with an increase of funds, and this gives a union an aggressive power which it would not otherwise possess.

The Amalgamated Society of Engineers was established in 1851. In 1855 it had in round numbers twelve thousand members; in 1860, twenty thousand, and it has gone on increasing until in 1890 it had sixty-seven thousand. It is clear that if a workman's union can increase its members and grow financially stronger, a federation of employers can do the same, and once embarked in an industrial struggle, it becomes obvious that a union of employers is as strong if not stronger than one of workmen. It is unquestionable that to a large extent the success of trades unions in many strikes has been caused, not so much by their strength as by the weakness of their opponents. They have again and again vanquished employers in a particular trade one by one; when these employers band themselves together in a single society with

a wide and definite organisation, the power of the trades-union is much decreased.

It must not, of course, be supposed that the masters have never attempted organisation among themselves. It was in 1873, for example, that a National Federation of Associated Employers of Labour was formed, which included such great shipbuilding firms as Messrs. Laird and Messrs. Harland & Wolff, and such well-known builders as Messrs. Trollope, of London. But such an Association as this was obviously too general for really defensive purposes. Nor should the Central Association of Master Builders be forgotten. But it is only of late that capitalists have begun to recognise the absolute need for binding themselves together in definite and workable organisations, if any defence worth talking of was to be made against trades-unions.

If, however, we are right in regarding the union of masters as only now really taking a practical form as a fighting force, what are we to think of the future? We feel no doubt that the number of well-organised bodies of masters will increase: it is a vital necessity for the trade of England that they should do so. As we have over and over again pointed out, the character of workmen's trades unions has changed of late years: they have so far done well that they have put the workman in a fair and a safe position; but they have latterly been endeavouring to usurp functions which did not belong to them, as by interfering in the internal arrangement of manufactories; they have become offensive rather than defensive bodies; they have given no consideration to the position of British trade. Under such circumstances the union of capitalists becomes a necessity. The English workman is fairly sensible and reasonable, and when he perceives that capitalists have determined to make a stand, and are capable of doing so, we may certainly expect industrial peace. In a sense, the two industrial forces will be something in the same position as the great Continental powers—when both are fully armed each respects the other; weakness on one side or the other leads to conflicts. We believe, therefore, that the efficient organisation of capitalists makes for peace, and will in the end benefit workmen by preventing conflicts. When there is good ground for complaint we do not believe that the union

of employers will prevent desirable changes. No union of employers, however strong, can stop necessary legislation by Parliament. But the union, both of employers and workmen, will enable Parliament and the country to understand the position of each side fairly. One of the greatest industrial struggles of modern times has taken place during the present year, and we shall be much mistaken if the next coming years are not as definitely marked by the organisation of employers as the last quarter of a century has been by the growth of trades-unionism.

MODERN OPERA HOUSES AND THEATRES.

THEN the introduction to the second volume of his monumental book on theatres* Mr. Sachs enters into some generalisations as to the grouping of theatres in reference to racial influence, which seem to us to be a little far-fetched. He had intended to devote the second volume to theatres of the Latin countries, but found that the recent or what could properly be called modern theatres in these countries were comparatively few; and accordingly the volume is divided into two sections, the one comprising France, Italy, Monaco, and Spain; the other dealing with typical recent theatres in Austria, Germany, Great Britain, Greece, Holland, Roumania, and Switzerland. But we fail to see any ground, in the examples, of racial influence on theatre planning. It might have existed once, but its boundaries have surely all been wiped out by this time in the levelling effect of modern travel and intercourse. Apparently the author connects the square or oblong plan and the central staircase with the Latin theatre, and the partly circular line and radiating plan of staircases with the Teutonic form; but in this very book we find the plan of the Rotterdam Theatre a symmetrical and formal cube with a central staircase, and the theatre of Bilbao showing a plan on partly circular lines similar to those of the Laibach theatre and of the Raimund theatre at Vienna. Local or national customs rather than racial proclivities may influence the plan of a theatre now, so far as it is influenced at all by other considerations than those of site, but we should say this influence is rather imaginary. For instance, in connexion with the theatre at Bilbao it is mentioned that in Spain the public are rather in favour of attending one or two of several performances given on one evening in the same theatre, each lasting about forty minutes, and for which tickets are sold separately. This custom would be likely to influence very strongly the form of dramatic writing for such theatres, but we do not see how it would influence the planning, unless in regard to the provision of extra facility for an audience entering and leaving the house, and in this respect the Bilbao theatre is in fact very deficient, even for the ordinary conditions of providing for the entrance and exit of a single audience in one evening. Perhaps one may regard the large lounges or crush-rooms—one on each side of the auditorium—as specially called for in this case, to act as waiting-rooms for the audience intending to enter for the next piece.

The fact that in Italy the theatre is a

* "Modern Opera Houses and Theatres." By Edwin O. Sachs. Volume II. With one hundred plates and nine illustrations in the text. London: B. T. Batsford, 1897.

rendezvous as well as a playhouse may also explain, in the plan of the Palermo theatre, the meaning of the two large circular vestibules, one on each side of the house and flanking the auditorium portion, which appear very badly planned if regarded in the light of means of access, and which should rather be called saloons or foyers; they give a special character to the plan of this theatre, and can only be explained or justified on the supposition above made. In the Paris Opera House what may in a sense be called the useless space—useless as far as the actual accommodation for witnessing the spectacle is concerned—is still greater in proportion to the area of the auditorium, only with this difference, that it is, all so to speak, on the road to the auditorium, whereas in the Palermo plan the circular "vestibules" referred to are a kind of side adjunct, not on the main route between the external entry and the auditorium, and this is the case also with the large side "lounges" in the Bilbao theatre; they might be let off for shops, and the approaches to the auditorium would remain just the same. This is the only direct influence of custom on plan which we can trace among the plans given in the book.

The first theatre illustrated in this volume of Mr. Sachs's book is the Paris Opera House, to which a considerable number of plates are devoted. The enormous proportionate space here devoted to mere approaches and accessory apartments, as compared with the auditorium, which is in fact a very small portion of the whole plan, is characteristic of a theatre erected for the sake of display and pomp rather than for art; and it is a significant fact that contemporaneously with the erection and the use of this pompous theatre the position and prestige of the Paris "Grand Opera" in the world of art has proportionately waned. It was once the great ambition of a composer of opera on a grand scale to get accepted at Paris; it is now no longer so, and the performances in this sumptuous building no longer enjoy the reputation of superiority which formerly belonged to the Paris Opera. The building is the reflection and almost the explanation of these conditions. It is a house built more for social display than for art; viewed in that light, the planning of the grand staircase and the entrances is magnificent—it is one of the finest things ever done, and in an architectural sense is the highest honour to the architect; only it is putting the cart before the horse, as far as the main purpose of a theatre is concerned. Another point to be noticed in the plan, and which does bear on the main objects of a theatre, is the immense extent of the stage sideways, on either side of the proscenium opening, which in fact occupies less than one-third of the wall between the stage and the house. In spectacular opera on a grand scale this side-space on the stage is of the greatest importance, as it gives such facility for the marshalling and gradual bringing into view of a great number of performers and stage supernumeraries, and it is a point to be remembered in planning a large opera house.

No design for a theatre can ever, to our thinking, attain real architectural expressiveness and character which does not make a point of exhibiting in the exterior design the fact that the auditorium is an arrangement of seats on a curve in order to seat an audience so that their attention can be conveniently centred on the stage, the action on

which is the ostensible reason at least of their assembling. The more the theatre is built for show and the less for dramatic art, the more will this condition be evaded, as at Paris; theatres which are laid out for an immense foyer and staircases naturally require a large space in front of the auditorium, the true form of which is swamped behind these accessories of approach. It is unfortunately not often that we find the attempt even made to give this true and characteristic architectural expression to the theatre exterior; there are only a minority of examples in the book before us. Among them is the theatre at Bilbao already referred to, which in its exterior design is a very meritorious building, and suggests nothing but a theatre, which cannot be said of some of the larger and more sumptuous designs in the book, such as the Frankfort Opera House and the Court Opera House at Vienna. The latter is a fine building and has all the aspects of a place of artistic recreation, but it might just as well be a large concert-hall as a theatre, as far as its external architectural treatment is concerned. The same criticism applies to the new Opera Comique house at Paris, which indeed, whether in regard to its plan or its architectural treatment, is a very poor result from an important architectural competition. The exterior expression of the auditorium can, however, always be realised when the object of the building is essentially to provide a theatre and not a fashionable lounge. It is done very well in the Municipal Theatre at Laibach, and in a still more marked manner in the Raimund Theatre, a popular house, in Vienna. This is a kind of experiment with an auditorium in horseshoe form and a wide concentric passage round it as a lobby and cloak-room; the plan is somewhat naive, but it looks as if it would answer its practical purpose very well. We quite agree with the author that, considering the shape and plan of the proscenium opening and the relation between that and the general seat lines, the proscenium boxes would have been much better omitted. But the theatre is a very interesting experiment on what we regard as the true lines of theatre architecture, and should be studied.

The author bestows great praise on the Frankfort opera house, which is an exceedingly symmetrical plan with the approaches admirably arranged; but the shape of the auditorium, long and narrow, seems rather open to question, as putting some part of the audience very far back from the stage, though it must be admitted that it keeps them all very centrally in front of the proscenium as far as seeing is concerned. And it must be admitted also that in the case of opera proximity to the stage is of less importance than in drama, as singing is more easily heard at a distance than speaking, while spectacle in opera is generally of considerable importance. For drama, such a plan as this would be absolutely inadmissible; and even for opera one would not much care to occupy one of the back seats in the parterre, between the sides of the boxes.

The English theatres illustrated are the new one in the Haymarket, "Her Majesty's," the Lyric, the Garrick, the Empire and Oxford Variety Theatres, the Shakespeare memorial theatre at Stratford, the Grand Theatre at Leeds, and the New Theatre at Cambridge. Her Majesty's theatre is much praised, and we quite concur in the author's remark about the admirable plan-

ning of the box office, whereby the tickets for all the entrances, which externally appear to have no kind of connexion with each other, are sold out of one room; it is quite a little conjuring trick in planning. In regard to this and other English theatre plans, however, we must say that the access staircases often have the fault of exhibiting more ingenuity than simplicity in planning (partly often on account of insufficient space to plan them better). It is not sufficient that a staircase, in, however "dodgy" a manner, should conduct the visitor to and from the part of the house in which he sits; it ought to be obvious to him in which direction he is going; and in some of these cleverly-planned staircases compressed into a small space it is not obvious. Now people coming into or leaving a theatre ought not to have any puzzle put on them; access should be arranged on such simple and symmetrical lines that it is obvious to the visitor in what direction the staircase or passage is leading him. In some modern London theatres it almost seems as if the object were to confuse his sense of place and direction; and that is not good planning, however ingenious the dovetailing of staircases may be. Mr. Sachs makes one significant remark in regard to the late well-known architect of Her Majesty's Theatre; he thinks Mr. Phipps could have done better things in an architectural sense with his numerous theatres, but he says that had he made the attempt "his large practice would have dwindled, and he would not have retained the support of those whose financial aid was necessary for the development of his schemes." This is plainly put, and we believe it is perfectly true. All that the promoters of theatres want from an architect is to organise a financial success for them; and if he showed any disposition to think of architectural effect they would immediately have a suspicion of him. Whether Mr. Phipps had really any architectural ambition beyond what his theatres exhibit we should rather doubt; but it is certain that if he had it would have been no use his trying to indulge it, as theatre building is carried on in this country. Mr. Runtz's small theatre at Cambridge is instanced as one in which the architect has succeeded in achieving something a little more refined than the ordinary run of theatre architecture; he has managed to keep clear of geegaw details, which are the besetting curse of theatre architecture (interior especially), and to substitute something more restrained and architectural in taste; possibly he was more fortunate in his clients than theatre architects usually are; at all events the building is a highly creditable one.

Messrs. Fellner & Helmer's plan of the Municipal Theatre at Salzburg is one which architects ought to look at, for the cleverness with which the plan is arranged on an awkwardly shaped plot of ground, and the at once ingenious and effective planning of the entrance and staircases.

It would have been a convenience to the reader if the plates had been numbered, and referred to by their numbers in the separate descriptions. As it is, it is rather troublesome to find the plate if one wants to refer to anything mentioned in the descriptive article. It would have been better also if some of the letterpress had been revised in regard to English style; the author's long residence in Germany may of course be regarded as a valid excuse for any little defect

of this kind, which however might have been avoided by the revision of a friendly colleague. But these are only minor and unimportant defects.

NOTES.

THE problem of determining the dates of foundation of the earliest Greek temples is of the

Orientation of Greek Temples.

highest importance; and it has been occupying the attention of Mr. Penrose, with interesting results. The method of calculating the period of foundation from the orientation of the building, first employed by Sir Norman Lockyer (and carried by him to rather absurd lengths) in reference to Egyptian temples, has been followed; and the results have been communicated in a paper that has recently appeared in the Philosophical Transactions of the Royal Society—a supplement to Mr. Penrose's original paper on the subject printed in the volume for 1893 of the same Journal. The general principle of the method may be thus briefly explained. A star rises heliacally when it is so close to the sun's position on the celestial sphere that it has time to rise and be sighted only, before being extinguished in the sun's rays. The chief festival day of the temple was that on which the rising sun sent its rays straight through the building; and the priests, to make the necessary preparations, required to observe a heliacally rising star in order to have warning of the sun's approach. Consequently, if the orientation of the temple be calculated, and a conspicuous star noted whose rising could be observed from within, the date when that star rose heliacally was the date of the foundation of the temple. For, owing to the precession of the equinoxes, the star does not rise heliacally for more than a certain number of years. Within those years Mr. Penrose places the period of the temple. In all cases which he has investigated he has found but one star that satisfies all the conditions necessary for heliacal rising within reasonable archaeological limits. This is the strongest testimony in support of the thesis, valuable in the absence of all literary evidence of its truth save some obscure hieroglyphic inscriptions. The chief objection to the method is the absence of exactitude; a slight variation in the assumed dip of the sun would make a considerable variation in the date deduced. Another objection that might be urged rests on a consideration of the fact that the oldest temple at whose date Mr. Penrose arrives—the archaic Athenæ* Temple at Athens—is ascribed by him to B.C. 2,020, and the latest in which the principle is exactly observed dates from about the fifth century; that is, the Greeks, notwithstanding their mental activity, continued to orient their temples to stars for sixteen hundred years without noticing that before a century was up the star would no longer be of any use as a chronometer. In the latest temples, it is true, some allowance seems to have been made for this defect, but sixteen centuries is a long time for the vitality of a system with so elementary a flaw.

It is unquestionable from recent speeches of members of the Government, more especially of Mr. Ritchie, that a measure will

* Mr. Penrose calls this the "Temple of Minerva"; but Minerva was a Latin divinity and, surely, had nothing to do with Greek buildings.

be introduced next session to deal again with the government of London, in the direction of forming a number of systematic local bodies or municipalities in place of the different Vestries and Boards of Works which now exercise functions which are not vested in the County Council. It is not probable that there will really be any great alterations. The County Council is not likely to have its duties increased or decreased. The result will, therefore, probably be little more than nominal. For example, the important and useful body now called the Kensington Vestry will, no doubt, be the Corporation of Kensington, with a Mayor as the chief official; but it is not easy to see how its duties will be altered.

LAST week the employers secured at the Conference a distinct and most important concession from the workmen. The representatives of the latter agreed to the clause as to the functions of trades unions in regard to the management of the employers' business. The employers, so runs the essential and crucial part of the agreement, "will admit no interference with the management of their business, and reserve to themselves the right to introduce into any federated workshop, at the option of the employer concerned, any condition of labour under which any members of the trades-unions here represented were working at the commencement of the dispute." It has been said throughout the struggle by the representatives of the men that the result of it must vitally affect the future relations of masters and men in all trades. The employers in the engineering trade have established as a general principle that they will admit no interference in the management of their business. That principle is sound and right; it is one which of late years the trades-unions have been endeavouring to destroy. Now that it is admitted by the most powerful body of trades-unionists in England, it must be admitted by every similar body in every other trade, where the masters hold together.

It is seldom that cases bearing on sections of the Metropolis Management Act come before the House of Lords as the final Court of Appeal. But last week this tribunal had to give a decision in the case of the Vestry of St. Matthew, Bethnal Green, v. The School Board for London. Both the Queen's Bench Division and the Court of Appeal had decided the case in favour of the School Board, and we think that the Vestry would have shown a greater regard for the public interest by accepting those decisions as final rather than by spending more money in continuing the litigation. We have already commented on this case when it was previously decided. The simple question was whether a certain line of pipes was a sewer, and so repairable by the Vestry, or a drain, and so repairable by the School Board, who were the freeholders. The line of pipes in question was made in 1866, and it connected the drainage of some houses with the main sewer. One essential element wanting to establish that this was a drain was an order of the Vestry at the time that the work was done, under the provisions of Section 74 of the Metropolis Management Act. To a considerable extent, therefore, the question depended not so much on law

as on fact, and cannot be regarded as of great importance.

WE have received a communication from Messrs. H. Bray & Co., one of the oldest of the manufacturers of Fletton bricks in the neighbourhood of Peterborough, calling our attention to the fact that the firm's name was not included in the list of makers which we gave in our issue of November 20. We did not give, and it was not our intention to give, a complete list of makers, but only a number of names to show that the trade was increasing, and we wish it to be distinctly understood that this and this only was our object. Messrs. Bray also give a quotation of a test at Kirkaldy's on one of their bricks, which is so very high, viz., 230·7 tons (being, we observe, in excess of that given in the table published in the Royal Institute of British Architects' *Journal* for Staffordshire blue bricks) that we are rather sceptical about it; but if correct, it goes to confirm our observations on this point—that, given the necessary care in the production, these bricks are of excellent quality for carrying heavy loads. But on the other hand, so many have been used in the Metropolis with which this care has not been taken, that we can only remark again that "it would be to the advantage of the manufacturers if they took pains to turn out first-class goods," to quote the words of our article.

On the 26th ult., as reported in the *Times*, the Commissioners of the Board of Trade concluded their inquiry into a boiler explosion which occurred at Devonport Dockyard on September 23, and by which two men were killed, with the extraordinary result that it was found that the safety-valve of the boiler was inoperative, and must have been fastened down by some one. It might have been expected that by this time, and after all the accidents that have happened from the explosion of boilers with no safety-valves or inadequate safety-valves, that a high-class firm of contractors would have recognised the absolute necessity of taking means to ensure that a safety-valve could not be meddled with or put out of working order. The Commissioners "could not find that responsibility attached to any one." Surely in such a case the responsibility should attach to the heads of the firm. It is idle to suppose that they could not take means to keep the safety-valves out of the possibility of being meddled with if they gave proper attention to the point.

A BILL has been prepared for the incorporation of a Company to construct an embankment or river wall, with roadway, from Victoria Tower to Lambeth Bridge, and a new street from the tower to a point in Horseferry-road 70 yds. west of the bridge, with a street therefrom to the east end of Great Peter-street, and another from the latter to Horseferry-road. It is proposed to widen Marsham and Church-streets, and the north side of Horseferry-road between the bridge end and the Gas Light and Coke Company's premises, and to stop up and discontinue, in whole or in part, nearly every street in the area affected. The Company will arrange with the London County Council and the Vestry for the carrying out of the intended works. The Bill will author-

rise the vesting thereof in the Council or the Vestry, and provide for the extension of Victoria Embankment being done by the Council on certain prescribed terms. We may add that these and other improvements were suggested in an article, with sketch plan, in the *Builder* of September 21, 1878.

THE Corporation of London, as "governors of the hospitals of Edward VI. of Christ Bride-well and St. Thomas the Apostle," are promoting a Bill to be introduced during next session for uniting the ecclesiastical parish of St. Thomas to, and merging it in, that of St. Saviour, Southwark, as one benefice and cure of souls. Under the Bill, the Governors will convey to the Ecclesiastical Commissioners their entire estate and interest in St. Thomas's Church, with some adjoining land held therewith, and the fittings, &c., of the church, the communion plate excepted. The Commissioners will be empowered to appropriate the fabric as a chapter-house for the Collegiate Church of St. Saviour, or to pull it down and sell the materials and site; the Governors will also, under certain terms, be relieved from all liability to maintain the church or a minister for the parishioners. The church has replaced the chapel of the former St. Thomas-à-Becket's, or Holy Trinity, Hospital, which became the parish church temp. Edward VI. It was built of red brick, at a cost of 3,000*l.*, in 1702, and, with the treasurer's house, formed the south side of the (old) hospital's middle court, whose gateway may still be seen in St. Thomas's-street. See the drawing by B. Cole in Maitland's "London."

THE demolition of this church, which has for more than eighty years occupied such a prominent site in the town of Birmingham, being now irrevocably settled, and the offers for the site to be shortly considered, all that is left is to urge the importance of treating this site in a manner worthy of its architectural importance. It is reported that the site will most probably be sold for the erection of shops. It is to be regretted if that is so, because we know what that will probably mean; and we would urge that the applications for the site should *not* be considered, as is apparently threatened, solely on the basis of the highest bidding, but also with some regard to the use which it is proposed to make of it, and that such a course would be in the best interests of the city. The building to be removed is a fine and dignified one as far as its west elevation is concerned. If it is to be replaced by one of the newest Birmingham style of terra-cotta fireworks, that important portion of the city will suffer a serious architectural injury. The church ought to be replaced by a building of a high class, with a central feature which will give something worthy in exchange for the old tower.

THE office of City Engineer, Building Surveyor, and Surveyor to the Urban Sanitary Authority, at Liverpool, has become vacant by the resignation of Mr. Boulnois, and it appears from the Liverpool papers that there has been some kind of attempt to fill up the berth by what may be called "private treaty," in favour of a gentleman who was a *persona grata* for political rather than

engineering reasons. It is now determined, however, to advertise for the best candidate who can be attracted by a salary of 1,000*l.* The duties of Surveyor of Buildings and Surveyor to the Sanitary Authority are now to be separated from those of the Engineer, and put into the hands of another official; but even with this alteration a salary of 1,000*l.* hardly seems adequate for the City Engineer of such a town as Liverpool, at least if it is desired to attract the highest class of professional man.

THE National Sculpture Society of America, in connexion with its exhibition in 1898 (before referred to in our columns), proposes to display a comprehensive collection of photographs and other illustrations of sculpture and sculptured monuments in America. The collection will include commemorative monuments, memorials, statues, groups, reliefs, busts, original works in museums, and architectural monuments adorned with sculpture. There will probably be some rather curious things in it; but it may, perhaps, be retorted that an English collection of the same kind would be nearly as curious. At all events there will be some interest in seeing a collection representing the progress of American sculpture for some time back, which we presume is the intention.

To the new issue of the *Bulletin de Correspondance Hellenique*, Dr. Dörpfeld contributes a paper on the theatre at Delos, in which he controverts the opinions expressed by M. Chamonard (*Bulletin*, xx., p. 256) as to the proskenion. M. Chamonard's account was written before the appearance of Dr. Dörpfeld's book on the theatre, reviewed September 4. Dr. Dörpfeld's present monograph must therefore be taken in conjunction with his general statement of the case there expressed. As regards the theatre at Delos, he holds that far from containing evidence for a raised logeion from which the actors ordinarily spoke, the peculiarities of its plan and structure support and confirm his own view that actors and chorus alike spoke from the orchestra. The argument is far too complex to be resumed in a note, and can only properly be appreciated in conjunction with the diagrams given in the text of the paper, which should be read by all those interested in the theatre controversy. The same number contains an important Report on the Delphi excavations, which will be summarised later.

AN exhibition of engravings, etchings, photographs, and photo-gravures, at present on view at the New Gallery, affords a pleasant reminiscence of many fine paintings, ancient and modern, as well as an opportunity of comparing various methods of reproducing pictures. The successful effect of photography in reproducing some of the drawings of old masters is very well seen in some of the examples in the South Gallery, such as Raphael's "Head of the Virgin" in silver point heightened with white (26), Donatello's similar study for the figure of St. George (44), Raphael's red chalk study for the Three Graces (70), which in an artistic sense are almost as good possessions as the original drawings. As to reproductions of finished pictures, there are two points of view; that in which we are attracted partly by

the method and execution of the reproduction, and that in which we are more led to regard it as a reminiscence of the original work. In the former way line engraving has an interest entirely its own; the management of line by which the effect of the picture is simulated is in itself a separate art, very well displayed in M. Jacquet's beautiful and highly finished engraving from a picture by Mr. Schmalz (127). M. Blanchard's engraving of Mr. Tadema's "Sculpture Gallery" (173) is another example, not quite so successful in every point, for Mr. Tadema's refinements in the representation of material surfaces are almost beyond the power of line to convey. Mr. Hole's etchings after Constable and Millet in the same room (177, 198, 202) are examples of another kind, in which the effect is produced by masses and not by lines, and in which the etcher makes us think rather of the original picture rather than of his own work. This is perhaps in some sense the more true aim in reproducing pictures; but Mr. Hole's style will not do for all classes of pictures; it suits the broad work of Constable and Millet. Among the photographic reproductions in the north room the well-known one of Leighton's "Bath of Psyche" (293), by the Berlin Photographic Company, is pre-eminent for delicacy, and Mr. Holley's large photograph of Mr. Bates's bas-relief of the "Story of Psyche" (221) is pre-eminent for boldness and reality of effect; it almost produces the illusion that it is actually in relief.

M. Lisley's
Exhibition.

M. ALFRED LISLEY, one of the most prominent of contemporary French painters of the impressionist school, is exhibiting a collection of his landscapes and seapieces at the Georges Petit Gallery in Paris, chiefly representing scenes in Wales or off the Welsh coast. These works are remarkable for truth of effect, and are considered in Paris to be the best things this artist has produced.

Drawings by
Count
Androuzou.

AT Mr. McLean's Gallery in the Haymarket there is a collection of water-colour drawings by Count Nicolas Androuzou (who we presume, from his name, is a Greek artist), mainly occupied with architectural subjects, and which in their combination of broad effect with architectural realism are of no ordinary merit. They are chiefly studies of ancient architectural remains at Pompeii, Venice, and Pæstum; of the Temples at Pæstum there are two large views, and a good many very bright and effective illustrations of various portions of the remains of Pompeii. A large drawing of the lower portion of the Palazzo da Ponte, Venice, with the dirty green canal water beneath it, is perhaps the most real thing in the collection; but there are a good many others that are worth a look from those interested in the artistic treatment of architectural subjects.

The
Architectural
Association.
Conversazione.

THE annual Association play or operetta has been transferred from the Members' Soirée to the ladies' night or Conversazione, with the idea that a performance of this kind is more entertaining to the ladies than a mere promenade through a suite of rooms to look at drawings and decorative objects on loan. The crowded of the rooms indicated that the opinion

was correct, but at the same time suggested the conclusion that St. George's Hall was too small for the occasion; it is not in fact either a convenient or an attractive room for a large number to meet in; but it is said to be the only place available where there is a properly constructed theatre on a small scale. The musical play, briefly described in another column, was amusing and effective and very well done; Mr. Butler's music is very clever and bright, and some of the singing, notably that of Mr. Constanduros, was excellent. Perhaps one might have expected the Architectural Association to have secured a rather better architectural background for the outdoor scene in the second act; but this may have been a stock scene borrowed for the occasion. It is understood that the Members' Soirée, no longer the occasion of the musical play, is to be transformed into a smoking concert; which also will probably not be an unpopular move.

THE SOCIETY OF WATER-COLOURS EXHIBITION.

THOUGH there are no prominent works in the thirty-sixth winter exhibition of the Society which can be regarded as constituting the special attraction of the collection, there has seldom been an exhibition in these rooms of such generally high character and including such a large proportion of interesting and beautiful landscape studies. In regard to some of these there is a special interest in the fact that they represent work which is out of the usual path of their authors. No one should at first sight put down to Mr. Eyre Walker, for instance, the study of morning light in a snow landscape under the title "Winter Daybreak" (2), nor would one easily recognise Mr. Herbert Marshall in the charming little country landscape, "Chorleywood Common" (10). Mr. Walter Crane in "Old Salts" (182) a drawing of two old boats on a flat shore, or Sir E. Burne-Jones in the graceful study of the woman in "Vain Waiting" (60), half kneeling to look through a low oblong window, through which a bit of landscape is seen. One does not expect, either, to find Miss Montalba painting "A Swedish Fortress" (8) or "The Market Place, Stockholm" (29); though in this latter case we may say "cælum non animum mutant," &c., for the general colour effect is much the same as in her Venetian scenes. The most striking, though not the largest drawing contributed by Mrs. Allingham, "On the Downs near Westerham" (17), is also rather different from her usual compositions in wanting the element of the cottage and the cottage folk, being a broadly treated little scene of open country with an undulating mass of thick wood on the left; a work remarkable for its fine composition and that unity of impression which belongs to the highest class of landscape art. The "Cottage near Freshwater" (32) is a larger drawing, more in the same artist's usual style of subject and treatment, but not equal in interest or power of design to "Westerham Common." A work which may be grouped with this latter, as a small landscape in a large style, is Mr. Eyre Walker's "Morning—moving the hurdles" (48).

Of the larger works which hold central positions Mr. Tom Lloyd's "An Evening I Remember" (74) is the kind of garden scene with dark trees relieved against a golden evening light of which he has given us a good many, and in which the effect rather inclines to be a mannerism, though of so charming a quality that it is hard to tire of it; two lovers talking at the garden gate suggest the title for the work. The same old situation suggests the title "Good-night, Sweetheart" for his other large work (121), though here the figures, a mounted man and a girl standing in the road by him with her back to the spectator, are more prominent and important—there is a charming sentiment in the figure of the girl, and the whole work is finer and broader than the one first named, though it will perhaps not be so popular precisely because it has not the peculiar effect and treatment which the public have learned to look for in this artist's pictures. Mr. A. Goodwin's "Sunset Light on the Mountains of Sinai" (99) is mainly a seapiece, a deep

purplish sea with the crimsoned mountains as a background; an effect probably not a bit stronger than the reality as far as colour goes, but the method of treatment of the sea is hardly a success. Mr. Phillip's "Melting of the Snows, Ben Achallader" (149) is a grand study of the foreshortened side of a mountain, in the broadest style of execution, and one of the most powerful things in the room. Mr. J. W. North's one-work, "Startled Herons" (144), suggests a puzzle, i.e. to find the herons; not that this is of any consequence to the picture, which however is hardly one of its author's best.

The exhibition suggests reflections as to the extraordinarily diversified aims and practice which are possible in water-colour. Mr. Phillip's work just referred to seems hardly to belong to the same form of art as Mr. Pilsbury's "By Mead and Stream" (27) for instance, an exceedingly pretty bit of "nigging" in which attention is more attracted to the cleverness of the means employed in imitating nature than to nature herself. Among the works which belong to the broader school of water-colour art may be mentioned those by Mr. R. W. Allen, especially "The Way to the Village" (1), noteworthy for a very fine sky, and "A Freshening Breeze" (78), a small but admirably true sea picture; on the other hand we must say that his "Paris" (138) does not convey the colour and effect of Paris, and in fact he has applied to Paris his usual scale of colour for North Scottish towns, just as Miss Montalba applies her Venice colouration to Stockholm. "Morning Mists" (85), by Mr. Eyre Walker, and "North Yorkshire Woodlands" (46), by the same hand; "More Showers" (66), by Mr. Walter Field; "Dartmoor" (137), by Mr. Hale, a powerful scene of Dartmoor gloom; "Grey Weather" (167), by Mr. Henry; "A Heath" (186), by Mr. C. Davidson, with something of Rembrandt about it in composition and feeling; "Market Day, Crail" (157), by Mr. Waterlow; all these are works which impress us by general effect and broad massing of colour; in fact, the best and most genuine water colour style. Yet one must not be narrow in one's sympathies, and there are other works which are charming and most delicate in their art in a very different manner. Mr. Albert Goodwin's "Clovally" (132), with the very blue rippled sea seen from the heights above the little town, a part of which just comes into the foreground, is a truly exquisite bit of work of its kind, though both this and "Canterbury" (125) impress one as a little too much of the "Vignette" school (of which Turner himself was not guiltless), very delicate effects and very white buildings got up according to a scheme of the artist's rather than according to actual facts of colour and effect. During many visits we have never seen Canterbury look like that, and cannot imagine it looking so; though perhaps Mr. Goodwin may put us off with Turner's reply—"Don't you wish you could." "Spiez, Lake Thun" (201) is another charming architectural picture by the same artist, to which the same criticism might apply; what a picturesque collection of buildings it is, by the way. Mr. Herbert Marshall's "On the Border of Holland" (119), a most beautiful work, strikes one also as rather an artificially refined effect, with its enamelled kind of look and the mass of warm-tinted clouds against which the picturesque outlines of the Dutch steeples are seen; but there is charming artistic unity about the whole.

Among other works dealing with architectural subjects is Mr. Rooke's beautiful little view of the Carthusian Chapel of St. John of the Liget, Touraine (3), the small building shown in the midst of a small landscape, which is as well treated as the building. Mr. Rooke sends also a large drawing of the wall paintings in this chapel, which is of considerable interest, but not exactly water-colour art—more a thing we should expect to see in the architectural room at the Academy. Mr. Wallis sends a drawing of "The Door of a Mosque at Cairo" (25) also rather an architectural drawing—hard, clean, and precise; Mr. Evans, a small and carefully painted scene in Bruges (103); Mr. Rooke, a view in Hammersmith High-street; Mr. S. J. Hodson one of a street in Abbeville; but the most effective architectural subject in the room is the same artist's view of "Vitruvian morning" (147), with the old medieval towers dark against the morning sky.

Figure subjects are never very numerous at the Society's exhibitions. On the present

occasion there are several studies by Sir E. Burne-Jones, hung together at one angle of the room; and there is a very fine chalk study of a woman by Mr. E. R. Hughes (229), a half-reclining figure in white bodice and sleeves and a dark dress; a work interesting both in regard to design and feeling. Mr. Walter Duncan exhibits a little work entitled "Beauty and the Beast" (54), as fine in colour as his larger drawing "Windfalls" (191) is the reverse; it is a pity he is so unequal, for at his best he is an artist of no ordinary power.

We have devoted more space than usual to this exhibition of the Society, for it is impossible to class such a collection as a "minor exhibition." It is to be wished, however, that some old members whose art was never of the highest class and has not advanced with time, could have a hint to limit their efforts a little more; as to space, at all events. They may have a right to take up the line with inferior drawings of a large size, and cause small drawings of far higher quality to be thrust down to the floor or up too high to be properly seen; but it is a right more honoured in the breach than the observance.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The third general meeting (business) of this Institute for the session 1897-98 was held on Monday, when Mr. W. M. Fawcett, Vice-President, occupied the chair.

The minutes of the last meeting having been taken as read, the following gentlemen were elected:—*As Fellow*—J. J. Burnet, A.R.S.A., President of the Glasgow Institute of Architects. *As Associates*—G. H. Grayson, B.A. Cantab., Liverpool; C. D. Rochester, Manchester; A. J. S. Shaw, Oldham; Osgood Smith, Crouch Hill, N.; P. W. Meredith, London; H. C. Trimmell, London; R. H. E. Hill, London; P. Morris, Lewes; G. W. Hatcher, London; E. W. Marshall, London; H. C. Sinnott, Bristol; J. H. Coram, London; W. S. Bates, London; S. S. Reay, Bath; J. R. Fleming, London. *As Hon. Corr. Members*—Conde de San Juanaro, President of the Royal Association of Portuguese Architects, Rue St. Francisco de Pacula, Lisbon; Johan Louis Ussing, Professor at the University of Copenhagen, Copenhagen; Settimio Fedele Gerardo Giampietri, Cavaliere of the Crown of Italy, Rome; Arnaldo Rodondo Adas Bermudes, Lisbon.

The Secretary announced the results of the Preliminary and Intermediate Examinations held in London, Manchester, and Bristol, and of the Final and Special Examinations held in London during November, and read the names of the following candidates who had passed:—

The Preliminary.

Archer, E. P., Finchley; Bax, E. G. G., Catford; Binney, W. L., Hampstead; Birchenall, C. A., Prestwich; Blanc, L., Edinburgh; Boden, L., Bowdon, Cheshire; Briggs, G. H., London; Caldwell, R. W., Glasgow; Chenells, E. W., Hemel Hempstead; Clarke, J. D., London; Cooke-Yarborough, A. C., Ramsgate; Craig, W., London; Cubitt, H. W., Lowestoft; Dadd, C. J. T., London; Dean, W. S., Boscombe, Bournemouth; Edmond, H., Lincoln; Elms, E. F. M., London; Ewing, J., Berwick-on-Tweed; Ferrier, C. W., London; Forster, F. J., Darlington; Goldsmith, H. L., New Southgate; Good, D., Highbury Hill; Greig, B., London; Grundy, C. F., Loughborough; Gulley, F. E., Wrexham; Heaton, C. H., Wigan; Henderson, H. E., Leeds; Hewitt, S. G., Birkenhead; Hill, T. J., Longsight, near Oldham; Holstead, A., Halifax; Horth, F. J., Shustoke, near Birmingham; Hosking, R., London; Jaques, T. A., London; Jones, R. C., Menai Bridge; Knight, F. W., Wimbledon; Ling, F. A., Winton, Bournemouth; Longhurst, A. H., Barnes Common; Mackenzie, J. A. K., Bournemouth; Martin, W., Buxton; Meldrum, A. R., Aberdeen; Morley, F. L., Merion, co. Dublin; Moss, C. P., Crouch Hill; Nathan, P. P., Notting Hill; Naylor, J. J. S., London; New, C. E., London; Norman, G., London; Onions, G. H., Tipton; Page, G. M., Nottingham; Petch, J. H., Scarborough; Procter, P., London; Reynolds, H. M., Lincoln; Rider, F. V., Notting Hill; Roberts, R. M., Warrington; Rollo, A., Glasgow; Rothwell, E., Walkden, near Bolton; Royds, G. F., St. Mary Bourne, near Andover; Haas, Russell, G. L., London; Taunton; Searle, N. O., London; Sheppard, G. H., Newport, I.W.; Simpson, H. D., Kilmarlock; Smart, J. G., Edinburgh; Smith, H. F., London; Stratton,

F. E., Salisbury; Stubbs, R., Winsford; Sturdy, P., Bournemouth; Swarbrick, J., Manchester; Tanner, A. S., London; Tebbutt, H., Bedford; Thacker, A. D., Walsall; Twizell, R. P. S., Newcastle-on-Tyne; Walker, G., Barrow-in-Furness; Walker, J. W., Aberdeen; Warwick, S., London; Wiles, R. C., Richmond; Wilson, C. B., Kendal; Wilson, R. G., Aberdeen; Wood, J. J., Leeds; Woodward, C., London.

The Intermediate: Newly Registered Students.

Adshad, C. T., Stockport; Hayward, G. W., Manchester; Nobbs, P. E., Edinburgh; Bird, L. G., Chatham; Mould, S. M., Gosforth, Newcastle-on-Tyne; Mills, J. P., Tapport; Harding, G. R. C., Beckenham; Green, L. W., Datchel; Hamp, S. H., Wembley; Knight, E. F., London; Gregory, L. C., London; Gibbins, A. E., Brighton; Mac Gibbon, A. L., Edinburgh; Franck, J. E., London; Bensted, S. W., London; Honan, M., Liverpool; Botterill, A. B., Weston-super-Mare; Rodway, E. G., Weston-super-Mare; Newcombe, C. F., Gosforth, Newcastle-upon-Tyne; Bennett, C. H., Macclesfield; Allen, F. H., Kettering; Anson, H. P., London; Bates, E., Thornton Heath; Biggs, A. E., London; Bishop, J. P., Forest Hill; Bourne, W. H., London; Copland, G. D., Glasgow; Gilford, H. E., Edwalton; Jardine, H., London; Merille de Colleville, H. L. E., Brighton; Roe, A. H., Brockley; Salmon, N. T., Reading; Smith, F. J. O., London; Spalding, R. H., London; Torrance, A. M., London.

The Final: Qualifying for Candidature as Associate.

Duthoit, J. F., Dover; Hobson, L., Liscard; Hulbert, W. C., Wimbledon; McCulloch, W., St. Andrews, Fife, N.B.; Maynard, D. C., London; Morton, R. H., London; Ormrod, J., London; Pearson, H. J., London; Shepherd, H., Richmond.

The following table shows the number of failures among the relegated candidates in each subject of the Final Examination:—I., Design, 9; II., History of Architecture, 6; III., Mouldings, Features, &c., 6; IV., Principles of Hygiene, 3; V., Materials, 2; VI., Strength of Materials, 1; VII., Construction, 2; VIII., Specifications, 1; IX., Professional Practice, 1.

Mr. Wm. Woodward referred to the intention of the London County Council to apply to Parliament for an Act to amend the London Building Act, 1894, and suggested means by which the views of members concerning portions of the Act requiring amendment might be ascertained and brought to the notice of the County Council. The Chairman undertook that the suggestion should be brought before the Institute Council, and considered by them in due course.

A special general meeting was then held, to consider the following change in the by-laws proposed by the Council:—

"That in the last line but one in By-law 30 the word 'last' be substituted for 'first.'" The alteration was agreed to. By this change the Council will remain in office until the close of the last general Meeting in June of the year following that in which they are elected.

The meeting then concluded.

THE ARCHITECTURAL ASSOCIATION CONVERSAZIONE.

THE annual conversazione of the Architectural Association was held on Friday last week in the Matinée Theatre, Langham-place, W., when, after a reception by the President, Mr. H. W. Pratt, a musical play was given. This is the first occasion on which a play has been given at a conversazione of the Association, and we are informed, the departure is due to the desire of a large number of ladies to be present.

The play, in two acts, and entitled "The Broken Contract; an Egyptian Enigma," was written by Mr. F. D. Clapham, the music being by Mr. Leonard Butler. Only a few words are necessary to describe the play, which depended for its success mainly upon stage accessories and the spirit with which the *dramatis personae* carried out their respective parts. "Just 4,000 years ago"—to use the words of the opening chorus—a party of Egyptian builders and decorators (ladies and the King's daughter included) were entombed by order of King Amenemhat, in a vault, for exceeding the time limit in the contract for the royal tomb. The Court physician, who was

accidentally entombed, contrived, by magic aid and science, to keep the party alive, though asleep, for 4,000 years, that period being separated by intervals of twenty-four hours consciousness every century. The prisoners are then liberated by "the A.A. Egyptian Exploration Party, Limited," a few members of which fall into the tomb while trying to solve the mystery, recorded in a papyrus found with the mummy of King Amenemhat, of the disappearance of the King's daughter and the Court physician. Needless to say, the younger members of the Association Party make love to the Egyptian ladies; and the Princess, in particular, is not slow to respond. There would be no harm in this but for the fact that before her entombment a fortune-teller prophesied that she would be hidden from the earth for many years, would then be released, and would, or must, marry her rescuer. As the man who first enters the tomb, "Professor Stonechat, F.R.I.B.A.," is already married, it is decided to consult an oracle in order, if possible, to remove the opposition of the Court physician to a marriage between the Princess and "Stanley Chester," and to get the better of the Egyptian law, which, according to the physician, said that the Princess must marry her rescuer, or die by herself in the tomb. The Professor himself, disguised, agrees to play the part of oracle, and, of course, consent is given to the desired arrangement. This incident is made the occasion of much fun, and altogether, although the libretto was deficient in professional allusions, a very interesting entertainment was provided.

The following were the *dramatis personae*:—Professor Stonechat, F.R.I.B.A., Mr. Alfred Stalman; Stanley Chester, Arthur Travers; Algde Vere, young architects, Mr. S. Constanduros, Mr. H. Seton Morris, Mr. A. G. Turner; Maud, Ethel, the Professor's daughters, Miss Grace Wyld, Miss K. Rimell; Painsch, Court physician, Mr. Frank Collins; Pempi, Merimies, builders and decorators, Mr. F. D. Clapham, Mr. G. B. Carvill; Selma, a foreman, Mr. J. H. Wilson; Miss Blanche Selig, maid to the Princess, Miss Blanche Selig; Karama, Napata, lady decorators, Miss Ada Verbury; Miss Ethel Atkins; and Princess Nephthis, daughter of King Amenemhat, Miss Mabel Engelhardt. Chorus of Egyptian lady decorators, builders, men, and boys, Mesdames Edith Black, Nellie Carvill, Daisy Engelhardt, Jessie Innes, Dolly Jennings, Helena Kelly, Dolly Maude, Ethel Miller, Berthe Selig, Ethel Williams, and Messrs. P. Albert, G. Bailey, Douglas Carvill, S. Elston, G. H. Frow, Howard Holt, A. C. Kelly, A. Lovejoy, G. J. T. Reavell, W. P. Swaby, F. Thomas. The play was conducted by the composer, and produced by Messrs. G. B. Carvill and F. D. Clapham. The dances were arranged by Miss Daisy Engelhardt. The costumes were by Messrs. C. & W. May, and the wigs by Hans Hugo.

An exhibition of water-colour drawings, Architectural Association Excursion photographs, and drawings by the Architectural Association Travelling Student, were on view in the Small Hall, where refreshments were also served; but owing to the great crush it was impossible to view them.

COMPETITIONS.

NEW SCHOOLS, WALSALL.—In the recent competition for the new schools for 1,050 children at Whitehall, the School Board submitted the plans received to Mr. J. Chatwin, of Birmingham, as assessor. In his report, he placed the plans submitted under motto "Square" first as "decidedly the best." The Board at their meeting last week adopted this award, and instructed the authors, Messrs. Bailey & McConnal, of Walsall, to prepare the necessary drawings for the approval of the Education Department.

VILLAGE HALL, BYFLEET, SURREY.—Ninety-two sets of drawings were received in this competition, in response to the advertisement in the *Builder* of October 2. The assessor, Mr. W. Howard Seth-Smith, in his report, says that a large proportion show a high average of planning and design, and the best ten were so good as to require a good deal of consideration and comparison. He considers, however, that the design under the motto of a red star most completely fulfills the conditions, and should be awarded the premium of twenty-five guineas. The authors are Messrs. Ashley & Armstrong, of 50, Berners-street, London, W.



Sketches of London Street Architecture.—XXI. No. 185, Queen's Gate.
Mr. R. Norman Shaw, R.A., Architect.

SKETCHES OF LONDON STREET ARCHITECTURE.—XXI.

This is a house by Mr. Norman Shaw in Queen's Gate, well known to many of our London readers. It is built in brick with stone dressings, and the architectural expression, it will be seen, is obtained almost entirely by the treatment and grouping of the windows.

THE LONDON COUNTY COUNCIL AND CONTRACTS.

At the meeting of the London County Council on Tuesday, the following report of the General Purposes Committee was considered:—

Standing Orders and Conditions of Contracts.

We have had under consideration the following resolutions of the Council of June 28 last, viz.:—

(1) That it be referred to the General Purposes Committee to make further amendment of the standing orders by the insertion of words coupling the unions of employers, where such exist, with the trade unions, in reference to the rates of wages and hours of labour. (2) That it be referred to the General Purposes Committee to make further amendment of the standing orders by omitting pre-

visions giving powers to the clerk of the Council to direct examination of the books of any one contracting with the Council for the execution of works, other than the time sheets or books or wages sheets or books; and the Committee shall be empowered to consider and report to the Council any other alterations not affecting the rates of wages or conditions of labour that they may think desirable.

We have also had before us a letter dated July 16, from the Institute of Builders. This letter states that the resolutions of the Council remove to a certain extent the objections of the Institute to the clauses affected, which objections, together with others, were placed before the General Purposes Committee in July, 1895. Two of the other objections then made related to the twenty-miles radius and to the arbitration clause, and the Institute of Builders make suggestions which are dealt with in a later portion of this report. With regard to the first-mentioned resolution of the Council, we have given very careful consideration to the form of words which should be adopted in order that, while giving effect to the resolution of the Council, the objections raised by contractors should be met. With this object, Mr. Henry Holloway, as President of the Institute of Builders, and Mr. Mowlem Burt, of the firm of Messrs. Mowlem & Co.,

were communicated with, both of whom, it will be remembered, gave evidence before the Special Committee on the Works Department, and in giving evidence made particular objection to the following words in the Council's contract—"the rates of wages and hours of labour recognised and in practice obtained by the various trades unions." Mr. Holloway suggests the following form of words—"Rates of wages, &c., which at the date of the contractor's tender were in practice obtained and recognised by the Central Association of Master Builders of London and the trades unions of the London district." He makes one or two other suggestions with which we deal later on. He states, however, that he has ceased to be President of the Institute, and that he therefore wishes it to be understood that his suggestions are made in his private capacity and not as representing the Association. Messrs. Mowlem & Co. (who may be taken to represent engineering firms as well as builders) suggested the following form of words—"Rates of wages, &c., which at the date of the contractor's tender were agreed upon between the employers and the various trade societies." Our difficulty has been in framing a form of words sufficiently comprehensive in their meaning to cover both building and engineering trades, and after careful consideration we suggest the adoption of the following words "recognised by associations of employers, and in practice obtained by the trades unions." We recommend—(a) That the standing orders affected be amended by the insertion of the words "by associations of employers."

Closely connected with the above question is that of the radius within which the regulations as to wages, hours of labour, &c., operates. Under the standing orders of the Council the present radius is twenty miles, measured in a straight line from Charing Cross. The Institute of Builders, in their letter of July 16, suggest that the radius should be altered to twelve miles, "that being the radius within which the agreement as to wages, hours of labour, &c., between the Central Association of Master Builders of London and the various unions operates; and that now that the standing orders have been amended (*sic*) in the terms indicated, it would seem that it would be more consistent that the twelve-miles radius should be adopted by the London County Council." The Institute made a similar suggestion in 1895, but the Council came to the conclusion that it was inexpedient to alter the radius. Objections were also raised in evidence before the Special Committee as to the twenty-miles radius, and, having regard to these objections and to the representations above referred to, we think that an alteration should be made in the radius, and we accordingly recommend—(b) That the standing orders be amended by the substitution of twelve for twenty miles.

Under the second resolution of the Council we are to amend the standing orders by omitting provisions giving powers to the Clerk of the Council to direct examination of the books of any one contracting with the Council for the execution of works other than the time sheets or books or wages sheets or books. The standing order (No. 211 (5) 2nd paragraph, page 73) is as follows:—

The contractor shall at any time and from time to time during the continuance of this contract, whenever called upon so to do by the Clerk for the time being of the Council, produce to such officer or officers of the Council as the Clerk may direct, *the time and wages sheets and books of the contractor and all other evidence necessary or proper to show to the satisfaction of such officer or officers whether or not the stipulations contained in this clause have been and are being complied with (and allow such officer or officers to take copies of or extracts from such sheets, books and evidence, or any of them, as such officer or officers may deem fit; and for each and every breach by the contractor of this stipulation, notwithstanding the condonation of any other or prior breach, the contractor shall on demand pay to the Council as liquidated damages, and not as a penalty, the sum of 3*l*.).*

The words which we understand were particularly objected to are printed in italics, and the words we suggest in place of them are "time and wages books and sheets of the contractor in order." In the course of their evidence, both Mr. Holloway and Mr. Mowlem Burt intimated that they would not object to the inspection being limited to that extent, and we think that it may safely be assumed that the form of words proposed would remove the objection which has hitherto been held to the form of contract in that respect. Considerable objection has from time to time been expressed

to the money penalty clauses, and it will be seen that there is a money penalty attached to the standing order above quoted. We think that the standing order might be further amended by the omission of all words [between brackets] after the words "complied with." We accordingly recommend—(c) That for the words "time and wages sheets and books of the contractor and all other evidence necessary or proper," the following words be substituted, viz., "time and wages books and sheets of the contractor in order," and (d) That all words after the word "with" be omitted.

Under the second resolution of the Council of June 28, we were empowered to consider and report to the Council any other alterations not affecting the rates of wages or conditions of labour that we might consider desirable. Reference to the following matters has been made either in evidence given before the Special Committee or in the letters mentioned above, from the Institute of Builders and Mr. Henry Holloway, viz.:—1. Employment of improvers and men with physical infirmities. 2. Penalties. 3. Priced bills of quantities. 4. Arbitration clause.

Employment of Improvers and Men with Physical Infirmities.

Attention was called in evidence given before the Special Committee to the fact that under the Council's contracts no improver or partially disabled old men could be employed on the works because contractors could not pay such men the full rate of wage, and no exception from that wage was allowed by the contract except in the case of legally-bound apprentices. We understand, however, that a few men of the class referred to are employed, and that no serious objection has been taken to that course. We have come to the conclusion that it would be inexpedient to amend the clause in the standing orders on the subject, but at the same time we venture to express the opinion that in the event of a contractor employing a few of such men, and showing reasonable grounds for doing so, the Council would not press for penalties.

Penalties.

We have in the paragraph preceding recommendation (d) dealt with the penalty attached to the provision in the Standing Order relating to the production of books. Of the other penalties referred to in Standing Order 211 (5) as to the conditions of contract, there is a money penalty of 11. a day for continued breach of the stipulation as to displaying at the works the schedule list of wages. We think that the portion of the clause relating to this penalty might be omitted. We accordingly recommend—(e) That the latter portion of the Standing Order relating to the penalty for a breach of the stipulation as to the schedule list of wages being displayed at the works of the contractor be omitted. Consequent on the above proposed amendments, we further recommend—(f) That the provisions relating to sub-letting be amended so as to accord with the amendments made in the corresponding provisions relating to the main contract.

Priced Bills of Quantities.

Mr. Henry Holloway, in his evidence before the Special Committee, and in a letter, dated October 29, 1897, expressed strong objection to the priced bills of quantities being opened other than those attached to the tender accepted by the Council. We have had reports on the question from the Engineer and Architect of the Council, and, having considered the matter, we are of opinion that no change in the present practice is desirable. We think it right, however, for the assurance of contractors, to state that every care is taken to keep the priced bills of quantities as private as possible.

Arbitration Clause in Building Contracts.

In the letter from the Institute of Builders, it is stated that in several clauses of the conditions of contract adopted by the Council, words occur making the judgment of the architect final and binding on both parties and at the same time providing for arbitration, and that a proper adjustment of this would do more to reconcile the members of the Institute to the form of contract than anything else, and that if the words were deleted and the arbitration clause amended as indicated in the copy of conditions which was sent in by the Institute in October, 1895, showing the proposed alterations, their members would have no difficulty in undertaking work under such a contract. The following is a copy of the arbitration clause to

which the Institute of Builders objected in 1895, the words in italics indicating those proposed to be inserted by the Institute, and the words in brackets indicating those proposed to be left out—

XXVIII.—If any difference or dispute shall arise between the architect or the Council and the contractor with regard to this contract or the construction thereof, or the rights, duties, or liabilities of the contractor, or the architect, or the Council under this contract (or as to any materials or workmanship), or any other matter or thing, or cause of difference whatsoever arising out of or in connexion with this contract, or the execution thereof, directly or indirectly, not being matters left to the sole decision of the architect during the progress of the works, the same shall be referred to the award and decision of [the architect as sole arbitrator], an arbitrator to be appointed under the provisions of the Arbitration Act, 1889, whose decision shall be final and conclusive between the parties and [the architect] who shall have power over the costs of any proceedings under this clause.

The suggestions of the Institute of Builders were fully considered, and on three occasions the General Purposes Committee took up reports to the Council on the subject, viz., January 28, April 21, and July 7, 1896. On the last-mentioned date the following clause was adopted:—

If at any time, and so often as the same may happen before the architect shall have given his certificate of the completion of the works under this contract, any difference or dispute shall arise between the Council or the architect and the contractor with regard to the construction of this contract, or as to the rights, duties, and liabilities of the Council or the contractor under this contract, or as to the due performance of the contract by the contractor, or as to any matter or thing arising out of or in connexion with this contract, the same shall (except in those cases where, under any clause of this contract, it is otherwise provided, or the decision, judgment, requisition, certificate, or order of the architect is to be final), be referred to the architect as sole arbitrator, and the contractor shall carry out and complete the works and maintenance in accordance with the award of the architect, which, subject to the proviso hereinafter contained, shall be final and conclusive between the parties hereto, provided always that if the contractor shall be dissatisfied with any such award of the architect as aforesaid and shall within days after the date thereof give notice in writing to the Council of such dissatisfaction, stating the grounds thereof, and requiring that the dispute or difference, the subject-matter of such award, shall be referred to the decision of an independent arbitrator. Then, after the architect shall have given his certificate in writing of the completion of the works under this contract, all disputes and differences, the subject-matters of awards by the architect in respect whereof the contractor shall have given such notice as aforesaid within the time aforesaid, shall be referred, but so far only as the final settlement of accounts between the parties is concerned to the award and decision of or, in the event of his death or inability or unwillingness to act, of such architect as on the application of either party here-to may be appointed by the President for the time being of the Royal Institute of British Architects, as final arbitrator, and the award of such final arbitrator shall be final and conclusive and binding on the parties hereto, and any amounts found thereby to be payable either by the Council to the contractor or by the contractor to the Council shall be payable and be paid within twenty-one days from the date of such award, and the provisions of the Arbitration Act of 1889 shall apply to any arbitration under this clause.

This clause, while conceding the principle of outside arbitration, limits such arbitration to the settlement of accounts between the parties after the works are completed. We are strongly of opinion that no outside arbitration should take place except after completion of the works, but we think the present form is cumbersome as involving two arbitrations. We therefore recommend—(g) That the following be substituted for the present arbitration clause in building contracts:—

Provided always that in case any dispute or difference shall arise between the Council or the architect on their behalf and the contractor, either during the progress of the works or after the determination, abandonment, or breach of the contract as to the construction of the contract or as to any matter or thing arising thereunder (except matters or things as to which by any clause of this contract it is provided that they are not to be the subject of arbitration or that the decision, judgment, requisition, certificate, or order of the architect is to be final) or as to the withholding by the architect of any certificate to which the contractor may claim to be entitled, then either party shall forthwith give to the other notice of such dispute or difference, and such dispute or difference shall be and is hereby referred to the arbitration and final decision of or in the event of his death or un-

willingness or inability to act, of or in the event of his death or unwillingness or inability to act of a person to be appointed on the request of either party by the President for the time being of the Royal Institute of British Architects, and the award of such arbitrator shall be final and binding on the parties. Such reference shall not be opened until after the completion or alleged completion of the works, unless with the written consent of the Council or architect and the contractor. The arbitrator shall have power to open up, review and revise any certificate, opinion, decision, requisition, or notice, save in regard to the said matters or things expressly excepted above, and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given as aforesaid in the same manner as if no notice had been given. Upon every or any such reference, the costs of and incidental to the reference and award respectively shall be in the discretion of the arbitrator, who may determine the amount thereof or direct the same to be taxed as between solicitor and client or as between party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act, 1889.

We have, in revising the Standing Orders to give effect to the above recommendations, taken the opportunity of making further revisions, as some of the clauses appeared to be redundant, and in other respects to require re-arrangement. We recommend—(h) That in place of Standing Orders Nos. 203 and 211, the following be substituted:—

Rates of Wages and Hours of Labour.

1. There shall be kept at the county hall a list of the rates of wages and the hours of labour to be paid and observed by the Council in works which are in the nature of construction or manufacture, and which the Council may resolve to carry out without the intervention of a contractor.

The list shall be settled by the Council on the recommendation of the Finance Committee, and shall be based on the rates of wages and hours of labour recognised by associations of employers and in practice obtained by trade unions in London, and shall form part of the Standing Orders of the Council.

The list shall, upon the recommendation of the Finance Committee, be from time to time revised by the Council so as to keep it at all times as far as possible in accordance with the rates of wages and hours of labour for the time being recognised by associations of employers and in practice obtained by trades-unions in London.

Where in any trade there is no trade union, the Council shall fix the rates of wages and hours of labour, and shall from time to time revise the same as may be necessary.

The list shall at all times be open to public inspection.

2. In inviting tenders for works in the nature of construction or manufacture to be executed within twelve miles of Charing Cross, or on a site partly within and partly outside the radius, the advertisements and instructions for tender shall state that in the case of all workmen to be employed by the contractor he will be required to pay wages at rates not less, and to observe hours of labour not greater, than the rates and hours set out in the Council's list, and that such rates of wages and hours of labour will be inserted in a schedule to, and will form part of, the contract, and penalties shall be enforced for any breach thereof.

As regards each contract the list shall be that in force at the date of the tender.

The list at present in force is as follows:—

3. When the contractor in connexion with the works contracted for intends to employ labour beyond the site of such works, and at a greater distance than twelve miles from Charing Cross, he shall be required, in addition to the above, to insert in the said schedule the names of the various classes of labour which he intends to employ, together with the places where such labour will be employed, and the rates of wages and hours of labour to be paid and observed in respect to each class of labour, and no tender shall be accepted unless the rates of wages and hours of labour inserted in such schedule be approved to be the rates of wages and hours of labour recognised by employers and in practice obtained at the date of the tender by the trades-unions of the district where the work is to be done, and such schedule will be added to and will form part of the contract, and penalties will be enforced for any breach thereof.

4. In all contracts for the supply of raw material or manufactured articles, orders or general contracts for the supply of stores to be used in maintenance, a clause shall, whenever practicable, be inserted that, with respect to all materials or articles produced or manufactured or supplied by the contractor, the contractor will in the production or manufacture or supply thereof (as the case may be) pay and observe the following rates of wages and hours of labour, viz.:—

(a) Where the production or manufacture or

supply thereof is carried on within twelve miles of Charing Cross, the rates of wages and hours of labour appearing in the Council's list.

(4) Where the production or manufacture or supply thereof is carried on at a greater distance than twelve miles from Charing Cross, the rates of wages and hours of labour recognised by associations of employers and in practice obtained by the trades-unions of the district where it is carried on.

But any committee shall have power to insert the said clause in any contract for stores when the conditions of purchase will allow it, provided that in the case of articles manufactured at places more than twelve miles from Charing Cross the London rates of wages and hours of labour shall not apply or be required in respect of the manufacture, although the articles are supplied within that limit.

5. In the case of contracts for works in the nature of construction or manufacture all instructions for tender and contracts shall respect vely, as far as possible, contain the following statements and clauses—

In the instructions for tender—

Tenders must be on the annexed form, and be accompanied by the annexed form of contract and the schedules thereto.

The contract will bind the contractor to pay to all workmen a reasonable number of his legally-bound apprentices employed by him wages and rates for overtime, at rates not less, and to observe and cause to be observed by such workmen hours of labour not greater, than those provided for by the schedule to the form of contract.

As regards all work to be done at the site mentioned in the specification in the first schedule to the form of contract, or elsewhere within a radius of twelve miles measured in a straight line from Charing Cross, in the County of London, the minimum rates of wages and wages for overtime, and the maximum hours of labour, will be found set out in the list forming Part I. of the schedule.

As regards all work to be done outside the site and the radius aforesaid, before delivering his tender, complete the list of wages, wages for overtime, and hours of labour forming Part II. of the said schedule, by specifying the place or places outside the site and the radius aforesaid at which any work is proposed to be done, and by filling into the proper columns against each trade specified the rates of wages, wages for overtime, and hours of labour proposed to be paid and observed by the tenderer, which must be those at the date of the tender recognised by associations of employers, and in practice obtained by the trades-unions of the district in which the work is to be done.

The contract will also forbid the contractor to assign or underlet the tender, or any part of it, or sub-contract, except with the consent of the Council, and upon such conditions as they may think fit; but if the tenderer, at the time of tendering, states his desire to sub-let or sub-contract for any portions of the work not usually done by him, the Council will agree to such sub-letting or sub-contracting to or with an approved person, the principal contractor being responsible to the Council for the work being done under the same conditions as if done by himself.

On the foregoing heads, and generally, reference should be made to the form of contract.

In the form of contract—

A. The contractor shall at all times during the continuance of this contract abide by, perform, and observe, fully and keep all and singular the stipulations following, that is to say—

1. The contractor shall pay all workmen (except a reasonable number of his legally-bound apprentices) employed by him in and about the execution of this contract or any part thereof wages, and wages for overtime respectively, at rates not less than the rates stated in the schedule hereto, and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any prior or other breach, the contractor shall on demand pay to the Council as liquidated damages, and not as a penalty, the sum of 5s.

2. The contractor shall observe, and cause to be observed by all such workmen, hours of labour not greater than the hours of labour stated in the said schedule, and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any prior or other breach, the contractor shall on demand pay to the Council as liquidated damages, and not as a penalty, for each and every breach, the sum of 5s. per hour for each workman employed by the contractor beyond the maximum number of hours stated in the said schedule, provided that this stipulation shall not be construed so as to prohibit overtime, if such overtime be in accordance with the rules of the trades-unions concerned.

3. The contractor shall at all times during the continuance of this contract display and keep displayed upon the site of the works and in every factory, workshop, or place occupied or used by the contractor, in a position in which the same may be easily read by all workmen employed by the contractor in or about the execution of this contract, a clearly printed or written copy of the said schedule hereto.

4. The contractor shall at any time and from time to time during the continuance of this contract, whenever called upon so to do by the clerk for the time being of the Council, produce to such officer or officers of the Council as the clerk may direct, the time and wages books and sheets of the contractor in order to show to the satisfaction of such officer or officers whether or not the stipulations contained in this clause have been and are being complied with.

5. Should any workman in the employment of the contractor be not paid the scheduled rate of wages, the Council may pay to any workman or workmen who may have been underpaid the difference between the amount of wages which he may have been paid by the contractors and the amount which he would have been paid if the stipulation as to wages had been observed, and may deduct from any moneys due or to become due to the contractor under the contract the amount of the said difference so paid to such workman or workmen.

B. The contractor shall not without the written consent of the Council under the hand of its clerk, which consent may be given subject to such conditions (if any) as the Council may think fit to impose, assign or underlet this contract, or any part thereof, or make any sub-contract for the execution or performance of the said works or any part thereof, and for each and every breach by the contractor of this clause the contractor shall, notwithstanding the condonation of any prior or other breach, on demand pay to the Council as liquidated damages, and not as a penalty, the sum of 200l.

C. Any sum or sums of money which on breach by the contractor of any one or more of the stipulations aforesaid in clauses A and B may from time to time become payable by the contractor to the Council as liquidated damages, may either be recovered by the Council from the contractor by action or other legal proceedings, or may be deducted and retained by the Council out of any moneys due or to become due from the Council to the contractor under the contract, or the Council may obtain payment thereof partly in the one mode and partly in the other.

In case of any breach by the contractor of any one or more of the stipulations aforesaid in clauses A and B, or of any one or more of the provisions contained in the said schedule hereto, it shall be lawful for the Council to sue and instead of claiming payment to them by the contractor of the liquidated damages, if any, payable by the contractor as aforesaid in respect of such breach) to determine this contract in the same manner and to the same extent as they have power to determine the same under clause 6th in the events therein mentioned, and if this contract shall be determined under this present power, then all the provisions of that clause shall apply as if this contract had been determined under that clause.

THE — SCHEDULE.

RATES OF WAGES AND HOURS OF LABOUR.

Part I.—For all work done at the site mentioned in the specification in the first schedule, or within a radius of twelve miles, measured in a straight line from Charing Cross, in the County of London.

Part I. of this schedule is believed to include all the trades which the contractor may require to employ in or about the execution of this contract at the site mentioned in the specification in the first schedule or within the radius aforesaid. If, however, he should employ at the site aforesaid, or within the radius aforesaid, any workman or workmen in any trade not so included, the rate of wages and rate of wages for overtime to be paid to such workman or workmen are not to be less than his or their hours of labour are not to be more than the rate of wages and the rate of wages for overtime and hours of labour respectively, which at the date of the contractor's tender were recognised by associations of employers and in practice obtained by trade unions in London.

Part II.—For all work done outside the site aforesaid and a radius of twelve miles measured in a straight line from Charing-cross in the County of London, namely, at where all work not done on the site or within the radius aforesaid is intended to be done.

Part II. of this schedule is believed to include all the trades which the contractor may require to employ in or about the execution of this contract outside the site and radius aforesaid. If, however, he should employ outside the site and radius aforesaid any workman or workmen in any trade not so included, the rate of wages and rate of wages for overtime to be paid to such workman or workmen are not to be less than his or their hours of labour are not to be more than the rate of wages and rate of wages for overtime and hours of labour respectively, which at the date of the contractor's tender were recognised by associations of employers and in practice obtained by the trade unions of the district in which the work is done.

(6.) There shall be inserted in every contract a clause prohibiting the contractor from entering into any sub-contract without the consent of the Council, and in granting such consent the Council shall re-

* This will be the general clause in the contract giving the Council power to determine it or to put the work in the hands of other contractors at the cost of the original contractor.

† We omit the schedule form under Part I. and Part II.—Ed.

quire the contractor to enter into an agreement which will secure the observance of the following conditions, viz. —

That no sub-contract shall operate to relieve the contractor from any of his liabilities or obligations, and that the contractor shall be responsible for all the acts, defaults and neglects of the sub-contractor as fully as if they were the acts, defaults and neglects of the contractor, and that there shall be inserted in the sub-contract a covenant by the sub-contractor that he will pay all workmen employed by him in or about the execution of such sub-contract rates of wages not less, and observe and cause to be observed by such workmen hours of labour not more than the rates of wages and hours of labour following, that is to say, as regards all work done upon a site, any part of which is within a radius of twelve miles, measured in a straight line from Charing-cross, the rates of wages and hours of labour set out in the schedule appended to the original contract as applicable to work done within such radius, and as regards all other work such rates of wages and hours of labour as at the date of the sub-contract are recognised by associations of employers and in practice obtained by the trade unions of the several districts where the work is done, and that such rates of wages and hours of labour be inserted in a schedule to the sub-contract, but in no case shall such rates of wages be less or hours of labour greater than those set out in the wages and hours schedule of the contract between the Council and the contractor, and that in case of any breach by the sub-contractor of the covenant as regards rates of wages and hours of labour to be inserted in any sub-contract (and notwithstanding the condonation of the contractor in or condonation by such contractor of such breach or any prior breach) the contractor shall for every such breach as regards the rates of wages on demand pay to the Council as liquidated damages, and not as a penalty, the sum of 5s., and shall for every such breach as regards the hours of labour on demand pay to the Council as liquidated damages, and not as a penalty, for each day on which such breach shall be committed, and for each workman in respect to whom it shall have been committed, the sum of 5s. per hour for every hour during which such workman shall have been employed by the sub-contractor beyond the maximum number of hours during which, under the terms of the said covenant he ought to have been employed.

And that the sub-contractor shall at all times, during the continuance of the sub-contract, display and keep displayed on the works and in every factory or workshop, or place occupied or used by the sub-contractor in or about the execution of the sub-contract, in a position in which the same may be easily read by all workmen employed by the sub-contractor in or about the execution of the sub-contract, a clearly printed or written copy of the said schedule; and that the sub-contractor shall at any time, and from time to time during the continuance of the sub-contract, whenever called upon so to do by the Clerk of the Council, produce to such officer or officers of the Council as the Clerk may direct, the time and wages books and sheets of the sub-contractors, to show whether or not this stipulation has been and is being complied with.

Provided that this Standing Order shall not be construed as prohibiting the sub-contractor, without the consent of the Council, from purchasing or sub-contracting for the supply of any materials, articles, or things required for the execution of the contract, which are ordinarily to be purchased where in the market, or of wholesale merchants or manufacturers.

7. Committees of the Council, before inviting tenders, are empowered, in any case in which they consider it desirable, to direct the insertion at the head of the schedule of rates of wages and hours of labour in the form of contract, the following provision; but such provision shall not be inserted, except by express direction of a Committee:—

The list of wages and hours of labour in Part I. and Part II. of this schedule are severally to be binding on the contractor subject to the following proviso which is to be considered as included in each part of the schedule, that is to say—

Provided always that if at any time or times, and so often as the same may happen during the continuance of this contract in any trade mentioned or referred to in this part of this schedule, a different rate of wages or different hours of labour from the rate of wages or hours of labour respectively provided for in this part of this schedule shall, after the date of this contract be agreed to between the associations of employers and the union of workmen in such trade in the district in which the work is being or is to be done, then from the date of any such agreement, and so long only and to such extent only as the same shall be in force, the rate of wages or hours so agreed upon shall be considered as substituted in this part of the schedule for the rate of wages or hours provided for in this part of this schedule for the same class of labour, and stipulations 1 and 2 in Clause A of this contract shall be construed and have force and effect in all respects as if the substituted rate of wages or hours had originally been provided for in this part of this schedule instead of the rate of wages or hours therein provided for, and for this

purpose any such agreement as aforesaid between the associations of employers and the union of workmen in any trade in the London district shall be considered as applying to all work done in that trade at the site mentioned in the specification in the 1st schedule or within the radius mentioned in Part I. of this schedule.

A brief report of the discussion on the recommendations will be found on this page.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the St. Luke's Vestry 1,775*l.* for the construction of brick and pipe sewers; the Lee District Board 395*l.* for pipe sewerage works; the Newington Vestry 2,250*l.* for the provision of more sidings at their depot in the Walworth-road; and the Shoreditch Vestry 13,175*l.* for paving works.

Council's List of Wages.—The same Committee reported as follows, the recommendation being agreed to:—

"Our attention has been called to the fact that the recognised rate of wages for bricklayers when employed in cutting and setting gauged work is 1*l.* 1*d.* per hour, and not 10*s.* 4*d.* and 1*l.* 1*d.*, as stated in the Council's list of wages. We have made inquiries, and are informed by the Central Association of Master Builders of London that 1*l.* 1*d.* per hour is considered to be the standard rate of wages to be paid for this class of work, and we recommend—That the following alteration be made in the Council's list of wages, viz., bricklayers (cutting and setting gauged work) from 10*s.* 4*d.* to 1*l.* 1*d.* per hour to 1*l.* 1*d.* per hour."

Conditions of Contract.—The General Purposes Committee brought up a report (which we print on another page) on the Conditions of Contract. Recommendation *a*, "That the standing orders affected be amended by the insertion of the words, 'by associations of employers,'" was agreed to without discussion; but recommendation *b*, "That the standing orders be amended by the substitution of twelve for twenty miles," gave rise to a long discussion.

Mr. John Burns, M.P., moved an amendment to refer back the proposal, contending that the present rule had worked satisfactorily for years, and was approved of by the best contractors.

Mr. W. Crooks seconded the amendment, and in doing so said that in large works in the country the nearest trades-union centre should determine the rate of wages, and within the twenty-mile radius that centre was certainly London. The Council had rejected this proposal before, and he hoped they would do so again. Men taken into a remote outlying place to work incurred heavy travelling and other expenses, and if the radius was to be reduced to twelve miles, the same difficulties would arise in building new asylums as arose in regard to Claybury.

Sir Arthur Arnold defended the proposal of the Committee, which, he said, embodied the agreement between the employers and the trades-unions. It was not justifiable of the Council to pay a higher rate than the trades-unions had agreed upon. Mr. Burns looked upon the matter solely from the point of view of advantage to the London workman. Both the Employers' Association and the workmen's unions in the building trades had accepted the twelve miles' radius in their dealings. If the reason for making the radius twenty miles was because the Council was building an asylum outside a twelve miles' radius, then the reason was a very bad one. They might as well take in all the home counties at once. He saw no reason why, if wages were lower in a district where work was being done for the Council, they should not take advantage of it. They had no right, as trustees for the ratepayers, to do otherwise than take advantage of those lower wages.

Mr. Dickinson said the effect of reducing the radius would be to shut out the London contractors who paid London rates, and limit the work to country firms. The London contractors did not want this change, and the evidence in its favour was not volunteered by Mr. Burt, but extracted from him by the well-intentioned examination of Sir Godfrey Lushington.

Mr. Fletcher said that contractors felt that they had a grievance against the last Council, but they were beginning to realise that the present Council desired to act fairly. He was in favour of the recommendation, for it was

likely to induce the best class of contractors to tender for the Council's work.

Mr. Branch said he thought the twenty-mile radius had worked well, and he had not heard sufficient reason for the proposed change. He did not see why London men, engaged in the country, at a considerable cost to themselves, should have their wages reduced, seeing that their homes were generally in London.

Sir A. Arnold said that a contractor would not be prevented from paying the London rate.

Mr. Taylor said that the proposal seemed to him to be a move to prevent the Works Department having a chance.

Mr. E. White said the existing radius was harmful to London workmen, because provincial firms contracted. They wanted to induce the better London firms to contract for the Council's work, but there were certain members who would oppose anything which was done in justice to the contractor. If the Council wanted good contractors to do their work they must alter their conditions of contract.

Mr. M'Dougall supported the amendment, believing that under the existing conditions the Asylums Committee could best get its work done.

Earl Carrington asked whether the London workmen would accept the rate of pay existing outside the twelve mile zone.—("No.") He took that to be an answer, and he should also like to know whether the London contractors accepting the Council's work outside the twelve mile radius would throw their London men over.

Mr. E. White said that probably contractors would first take the men applying at the works; and if there were not enough of them they would have to get men from London, and then they would, of course, pay the London rate of wages.

Earl Carrington said that after that answer he should certainly vote for the retention of the twenty mile radius.

Mr. Roberts said that Mr. Burns and his friends went the wrong way about the matter. They should have induced the Employers' Association and the trades-unions to agree to a twenty-mile radius, and then they would have no difficulty with the Council. Unless they agreed to the trades-union conditions, they would be creating a privileged class of workmen. The Council had to register the decisions of the masters and the men.

Mr. Beachcroft, Chairman of the Committee, said that the Council should adopt the radius agreed to by the masters and the men. That was the logical reason why the Council should adopt the twelve-mile radius.

Mr. Steadman said that if the recommendation were adopted London firms would have to contract higher for the Council's work outside the twelve-mile radius than the provincial firms, because of the difference in the wages, and this would have the effect of all the Council's work drifting away from London. He considered that the recommendation was another blow in favour of the abolition of direct labour by the Council.

The amendment was lost on a division by sixty to fifty-one, and the Committee's recommendation was then adopted.

The Committee further recommended (*c*) that the inspection by the officers of the Council as to the carrying out of the clauses of the contracts be limited to the inspection of time and wages books and sheets.

Mr. Burns moved that the recommendation be referred back, stating that he desired the Council to leave well alone. Evidence had not been forthcoming to show that the inspection of books had been unfair or inconvenient. The London School Board imposed a penalty of 3*l.* in the event of a contractor refusing to give access to any officer authorised to inspect books, and there was no reason why the Council should not do the same.

Mr. Taylor seconded. There were honest and dishonest contractors. Only recently a contractor wrote stating that he paid the proper rates, but it was seen from his books that that was not true.

The amendment was defeated and the recommendation was agreed to.

The Committee further recommended (*d*) that the penalty of 3*l.* for refusal to produce books and time-sheets be omitted.

Sir J. Hutton moved to refer back this recommendation, upon the ground that the Council could not otherwise enforce the stipulation.

Mr. Harrison, M.P., seconded the amendment. Dr. White said that the penalty was too paltry to have any real effect on a contractor. The

penalty would have to be doubled to be made effective; but the Council had a more effective remedy, viz., to strike off the name from their list of any offending contractor.

Sir A. Arnold said that there were several vexatious and petty penalties which it had been thought desirable to remove.

On a division fifty voted for the amendment and fifty-nine against. The recommendation was then agreed to, as were recommendations *e*, *f*, and *g*.

After some discussion as to the wording and the exact meaning of recommendation *h*, it was taken back for further consideration.

New Pumping Station.—Upon the recommendation of the Main Drainage Committee it was resolved:—

That the Council's resolution of December 10, 1895, directing the erection of a new pumping-station at Imperial-road, Fulham, be not further acted upon; that the estimate of 60,000*l.* submitted by the Finance Committee be approved; that the intended new pumping-station at Lots-road, Chelsea, for dealing with the flow of the low-level and Counter's-creek sewers be erected in the manner proposed by the engineer in his report to the Main Drainage Committee on November 11, 1897, and that the engineer be instructed to prepare the drawings and specifications of the necessary buildings and machinery, to have bills of quantities taken out, and to prepare estimates of the cost. That the Solicitor be instructed to take the steps prescribed by section 153 of the Act 18 and 19 Vict., cap. 120, with a view to an application being made to the Secretary of State for the Home Department for power to compulsorily acquire the land required for the purposes of the pumping-station.

Mr. Pearce, Chairman of the Committee, stated in reply to a question that Monday's exceptionally high tide did a certain amount of damage at Barking and Crossness. A pipe burst at the latter place and flooded the new works, but the damage was not expected to be very heavy.

Small Open Spaces.—Mr. Wetenhall, Chairman of the Parks and Open Spaces Committee, brought up a lengthy report, which stated:—

The problem of the manner in which the small open spaces in the county should be maintained, and upon what bodies the cost should be laid, has engaged our serious attention for some time past, and the solution of it is of exceeding importance and great difficulty. Its importance is apparent, for the health and vigour of the inhabitants of London depend to a large extent upon the opportunities afforded to them of open air rest and recreation, whilst the difficulty of arriving at a satisfactory solution is enhanced by the divergent opinions of the many local governing bodies in the metropolis as to the incidence of cost. We have considered this question in all its phases and from all points of view, and we have arrived at the conclusion that it is not practicable, in view of the present constitution of local governing bodies of the metropolis, and more particularly of the unequal distribution of the small open spaces, to lay down any principle which could be made to apply with equal justice to all parts of the county, and we therefore see no reason for altering the existing arrangement under which the question of maintenance of small open spaces is considered by the committee and the Council in conjunction with the special circumstances of each case as it arises. We recommend that the Council do concur in the above opinion, and that no alteration be made in the present mode of dealing with small open spaces in the county.

Mr. N. W. Hubbard moved an amendment to refer the recommendation back to the committee, with an instruction to bring up a scheme whereby all open spaces and churchyards in the county now kept in order and maintained at the expense of the Local Authorities should, in the future, be kept in order and maintained by the Council.

Mr. Branch seconded the amendment. After considerable discussion, Mr. Wetenhall intimated his willingness to take back the recommendation.

The amendment was then adopted, with an addition by Mr. M'Dougall requiring a report as to the amounts hitherto expended by the Local Authorities, the Council, and the Government.

Hours of Removal of Offensive Matter.—On the recommendation of the Public Health Committee, it was agreed

(*a*) That a letter be addressed to the Local Government Board, calling their attention to the difficulty experienced with regard to the hours of removal of offensive matter, and asking them to introduce a bill—(1.) To amend the Police Act, 1839, so far as it deals with the circular area outside the County of London, in the manner in which it has already been amended, so far as the County of London is itself concerned, by the Public Health

(London) Act, 1891. (2.) To make it obligatory upon sanitary authorities of districts within the circular area mentioned to make by-laws such as the Council now makes as regards London. (b) That the Commissioner of Police be informed of the action taken with a view to his considering whether, pending the decision of the Local Government Board, he would desire that no further proceedings should be taken under section 60 of the Police Act in relation to the ho of removal of offensive matter.

The Great Fire.—Mr. Corbett asked the Chairman of the Fire Brigade Committee whether he had any statement to make upon the criticisms which had been passed in the Press upon the statement he made the previous week in reference to the great fire in the City, and the efficiency of the Brigade.

Colonel Rotton, in reply, said it must be a matter of opinion whether London was in advance of New York and certain Continental cities. The opinion he expressed was confirmed by Sir E. M. Shaw, the late chief officer of the brigade, who had seen all the places named. The term "fad" which he (Colonel Rotton) applied to chemicals, uttered in a very hurried interview, was a mistake, as he was well aware that, for several years in private houses and public institutions in London and elsewhere, hand grenades, pumps, &c., had been successfully used. His thoughts at the time were on the great fire, and he did not think they had any reason to believe that any chemical engine now in existence could have put out the fire. He mentioned that they had some sliding bars, and were introducing more. Whether the bars in New York were connected with the married quarters was more than he knew, but he did know that in London they could turn out as quick and reach a fire quicker than they could in New York. Water towers had been tried in London, and were declared to be unsuited for London. The long water tower of America could not be passed through the narrow streets, such as those in Cripple-gate. Every new invention received immediate attention from their experts, and he could honestly say that he never could recollect that any improvement recommended by their experts had been rejected by the Committee. An inquest was to be held in the City which would inquire into every point which had so exercised the public mind. The Brigade would be represented by the Chief Officer, and he felt quite sure that the verdict would be such as would prove to the people of London that the opinion was correct which he expressed as to the efficiency of the Metropolitan Fire Brigade; but if deficiencies were proved to exist in any direction, he need hardly say that they would be immediately attended to by his Committee.

The Council adjourned soon after seven o'clock.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent was given were granted on certain conditions* :—

Lines of Frontage.

Stepney.—A glass and iron illuminated fascia above the cornice of the shops at Nos. 266, 268, and 270, Mile End-road, Mile End Old Town, and projecting over the public way (Mr. J. Cohen).—Consent.

Strand.—A one-story projecting iron window at the first floor level of a warehouse at Nos. 95, 96, and 97, Drury-lane (Messrs. Goodwyn & Sons, for Messrs. Mitchell & Co.).—Consent.

Lewisham.—A house on the east side of Hithergreen-lane, to abut upon the north side of Beacon-road (Messrs. H. W. Pope & Co.).—Consent.

Finsbury, Central.—Addition to the Town Hall, to abut on Garnaull-place and Rosoman-street (Mr. C. Evans-Vaughan, for the Vestry of Clerkenwell).—Consent.

Strand.—Buildings on the south side of Fulham-road, eastward of Burlington-road (Mr. G. W. Cooper).—Consent.

Hackney, North.—A projecting vestibule to St. Andrew's parish-rooms, on the east side of Bethune-road, Stoke Newington (Mr. P. D. Smith, for the Vicar, Churchwardens, and Building Committee of St. Andrew's Church).—Consent.

Hackney.—A one-story shop in front of No. 22, Cazenove-road, Stamford Hill (Mr. W. M. Dabbs, for Mr. T. Dabbs).—Consent.

Hackney, North.—Iron and glass shelters at the entrances to the Alexandra Theatre in Stoke Newington-road and Wiesbaden-road, Stoke Newington (Mr. F. Matcham).—Consent.

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Hampstead.—Seven houses with shops on the eastern side of Edgware-road (Mr. J. Phoenix, for Messrs. Bridge and Neal).—Consent.

Tillington.—A one-story shop on part of the forecourt of No. 35, Stroud-green-road (Mr. F. L. Pither, for Dr. Brighouse).—Consent.

Lambeth, North.—A one-story addition to No. 176, Lambeth-road, to abut upon Hercules-road (Mr. J. A. J. Woodward, for Dr. Reid).—Consent.

Croft.—Houses on the east side of High-street, and of similar buildings on the north side of George-lane (Mr. E. H. Selby, for Mr. J. Aird, M.P.).—Consent.

Mile End.—Rebuilding of the "Devonshire Arms" public-house, Devonshire-street, Mile End Old Town, at the corner of West-street (Mr. M. T. Saunders, for Reid's Brewery Co., Limited).—Consent.

Paddington, North.—Two glass and iron shelters over the public way in front of the Metropolitan Music Hall, Edgware-road (Mr. F. Matcham).—Consent.

Strand.—A porch and one-story bay-window in front of No. 11, Regent-street, St. James's (Messrs. Murray & Foster, for the Pall Mall Club).—Consent.

Whitechapel.—An iron and glass shelter in front of the Cambridge Music Hall, Commercial-street (Mr. H. Percival).—Consent.

Clapham.—A show-room in the yard at rear of No. 219, Lavender-hill, to abut upon Elspeth-road, Battersea (Messrs. Purvis & Purvis, for Messrs. Peppercorn & Co.).—Consent.

Clapham.—One-story shops on the forecourts of Nos. 109 and 111, Clapham Park-road (Mr. P. Meredith).—Refused.

Clapham.—A mission-room in the garden at the rear of No. 26, Lambourn-road, to abut upon Grange-road (Mr. J. F. Eviatt, for the London City Mission).—Refused.

Greenwich.—A house on the south side of Wellington-road, Charlton, to flank upon Elliscomb-road (Mr. C. Farley).—Refused.

Hackney, Central.—A one-story office on the south side of No. 1, Buckingham-road, to abut upon Stamford-road, Kingsland (Messrs. E. Cole & Son).—Refused.

Hampstead.—Frontage of five houses with shops on the south side of Finchley-road, with the flank of the easternmost house next Lyncroft-gardens (Mr. S. H. Pearce).—Refused.

Lewisham.—A house on the south side of "The Retreat," Catford, to flank upon Brookdale-road (Mr. E. Wyatt).—Refused.

Pekham.—One-story shops upon the forecourts of Nos. 747, 749, 751, 753, and 755, Old Kent-road (Mr. E. Crosse, for Mr. W. Cooper).—Refused.

St. Pancras, West.—A one-story addition upon the forecourt of the Railway Tavern, No. 35, Chalk Farm-road (Messrs. Thorpe & Furniss, for Mr. Medley).—Refused.

Strand.—A glass and iron covered way erected in front of Horrex's Hotel, Norfolk-street (Mr. W. Horrex).—Refused.

Westminster.—An open portico to a block of residential flats on the north-east side of Carlisle-place, Victoria-street, and of oriel windows with balconies at the first, second, third, and fourth floor levels of two blocks of flats on the north side of Francis-street, between Carlisle-place and Morphet-terrace (Mr. G. Baines, for Mr. G. Martin).—Refused.

Woodwicht.—One-story projecting bay windows in front of four proposed houses on the north-east side of Elm-grove, Plumstead (Mr. F. C. Saville, for Mr. T. Hastings).—Refused.

Strand.—That no order be made with reference to the letter from Mr. H. Godbold, on behalf of Messrs. Spiers & Pond, asking the Council to consent to the retention of an iron and glass projection at the Jermyn-street entrance to the Criterion Restaurant.

Width of Way.

Canterbury, North.—A parish-room in Thompson's-avenue, Avenue-road (for the Co-operative Builders, Limited, Rev. C. E. Brooke).—Consent.

Kennington.—A building on the north side of Lawn-lane, South Lambeth-road, Lambeth (Mr. J. J. Freeland, for the Sunny Bank Laundry Company).—Consent.

Kennington, South.—A one-story addition at the rear of the "Clifton Arms" public-house, No. 152, Fulham-road, to abut upon Clifton-place (Messrs. H. & E. Lea, for Mr. J. H. Clark).—Consent.

Lewisham.—A wall and gates at the entrance to No. 1, Brandram-road, Lee (Mr. W. White).—Consent.

Limchase.—A warehouse on the site of Nos. 77, 79, and 81, Broad-street, Ratcliff (Mr. B. Tabberer, for Messrs. T. Horbuck & Son).—Consent.

Limchase.—Two additions to St. Paul's Works, Juniper-street, Shadwell (Mr. G. Drew, for Messrs. S. E. Norris & Co.).—Consent.

St. Pancras, North.—A loose-box to the stables at Linden House, Gordon House-road, Gospel Oak (the Army and Navy Auxiliary Co-operative Supply Company, Limited, for Sir H. Tyler).—Consent.

St. Pancras, North.—A boiler-house and chimney-shaft at the Imperial Steam Laundry, Ingestre-road, Dartmouth-park (Mr. J. M. Kennard, for the London United Laundry, Limited).—Consent.

Stepney.—A covered play-ground with school-room over, and sanitary offices, at the corner of Union-row and Mulberry-street, Mile End Old Town. (Mr.

R. M. Gruggen, for the Rev. J. Verres, D.D.).—Consent.

Dulwich.—Two two-story houses on the south side of Boxall-row, High-street (Mr. R. Pearson).—Refused.

Greenwich.—Buildings on the east side of Hoakins-street, Trafalgar-road, East Greenwich (Mr. T. Barnes-Williams, for trustees of Morden College, Blackheath).—Refused.

Kensington, South.—An addition to No. 5, Victoria-road, to abut upon Canning-place (Mr. W. K. Shirley).—Refused.

Southwark, West.—A building on the east side of Gravel-lane, between Lavington-street and Dyer's-yard (Mr. H. O. Ellis, for Messrs. Harmsworth Brothers, Limited).—Refused.

Stepney.—An iron railing and stone kerb in front of Nos. 116, 118, 120, 122, 124, 126, 128, 130, and 132, Duckett-street, Ben Jonson-street, Mile End Old Town (Mr. W. Stewart, for Mr. A. S. Tanner).—Refused.

Width of Way and Space at Rear.

Westminster.—Residential flats on the east side of Palmer-street, on the site of No. 9 and land adjoining, at less than the prescribed distance from the centre of that street (Mr. H. Kimber, M.P.).—Consent.

Width of Way and Height of Buildings.

Lambeth, North.—Two blocks of buildings, to be inhabited by persons of the working class, in Felix-street and Boniface-street, Stangate-street (Messrs. Humphreys-Davies & Co., for the South-Eastern Railway Company).—Consent.

Space at Rear of Buildings.

Hampstead.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far only as relates to the retention of No. 46, Heath-street, with an irregular space at the rear. (Messrs. Last & Sons, for W. Elsdon).—Consent.

St. George-in-the-East.—Additional water-closets on the first floor level at the rear of Nos. 1, 2, 3, 4, 5, and 6, St. George's-court, William-street. (Mr. E. Crosse, for Mr. A. Brown).—Consent.

Deviation from Certified Plans.

Strand.—That the sanction be given to certain deviations from the plan certified by the District Surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the "George-and-Thirteen-Cantons" public-house, on the site of No. 38, Church-street, and portions of the site of No. 6, Moor-street, and No. 37, Church-street, Soho. (Mr. H. M. Wakley, for Messrs. Reid & Co.).—Consent.

Line of Fronts and Width of Way.

Fulham.—Seven two-story houses with bay windows, on the west side of Colehill-lane, between Friil-road and Kimbell-gardens (Mr. H. Mann).—Consent.

Whitechapel.—A warehouse on the site of Nos. 54, 55, and 56, Fashion-street, Spitalfields, with a small portion at the rear to abut upon Harriot-place, and the covering of part of the entrance to that place (Mr. J. Farrer, for Mr. G. Scammell).—Consent.

Bow and Bromley.—That Messrs. Holman & Goederham be informed that the Council is not prepared to accede to their request for a modification of the conditions attached to the consent given on October 12, 1897, to the erection of an addition on part of the forecourts of Nos. 404 and 406, Old Ford-road, Bow.—Agreed.

Pekham.—Three one-story shops on the south side of South-grove, Rye-lane, next South-grove Hall (Messrs. Barlow & Roberts).—Refused.

Width of Way and Space at Rear.

St. George-in-the-East.—That the Council, in the exercise of its powers under sections 13 and 41 of the London Building Act, 1894, do not consent to or sanction the erection of twelve two-story cottages in Albion-place, Lower Chapman-street (Mr. H. Moon for Earl Winterton).—Agreed.

Formation of Streets.

Lewisham.—That an order be sealed and issued to Mr. E. H. Selby, sanctioning the formation or laying out of a new street for carriage traffic to lead out of Ravensbourne-park, Catford, on the Park-house estate, and the widening to 40 ft. of a portion of a street leading out of Blythe Hill, in connexion with the proposed new street. That the name Main-road be approved for the new street.—Agreed.

Wandsworth.—That an order be sealed and issued to Mr. L. S. Rogers, sanctioning the formation or laying-out of a new street for carriage traffic, to lead out of Balham-hill into Cavendish-road. That the name Klondike-road be approved for the new street.—Agreed.

Cubic Extent.

Strand.—That consent be not given to the premises Nos. 175, 177, 179, and 181, Oxford-street, St. James's, exceeding in extent 250,000 but not 450,000 cubic feet, without being properly divided by party walls, such premises to be used only for the purposes

of the trade of an upholsterer and decorator (Mr. J. McLaren for Messrs. Waring & Gillow, Limited).—Agreed.

Height of Buildings.

City of London.—That consent be not given to the erection of a new printing factory and offices on the north side of Tallis-street, Whitefriars, between John Carpenter-street and Carmelite-street (Mr. C. Clowes for the Commerce Printing and Publishing Company, Limited).—Agreed.

Sites of Buildings, &c.

Hammersmith.—That the Council, in the exercise of its powers under sections 22 and 73 of the London Building Act, 1894, do not consent to the erection of 43 houses, with projecting bays, in Blomfield-road, Shepherd's Bush, and so far as relates to the proposed buildings do not dispense with so much of the by-laws made under the provisions of the Metropolis Management and Building Acts Amendment Act, 1878, as requires the removal of matter specified in such by-laws from the site or portion of any site of an intended house, building, or other erection (Mr. R. F. Brown).—Agreed.

The recommendations marked + are contrary to the views of the Local Authorities.

ARCHÆOLOGICAL SOCIETIES.

CONGRESS OF ARCHÆOLOGICAL SOCIETIES.—The ninth Congress of Archæological Societies was held at the rooms of the Society of Antiquaries, Burlington House, on the 1st inst., Viscount Dillon, President of the Society of Antiquaries, in the chair. About fifty delegates, representing thirty-three different societies, were present. Among the subjects for discussion at the morning session were the Catalogue of Effigies, which is in a fair way towards completion; the Annual Index of Archæological Papers; the Catalogues of Local Museums; County and Municipal Records; and the Ancient Monuments Act. Amongst those taking part in the debates were Lord Dillon, Sir John Evans, Chancellor Ferguson, Rev. P. H. Ditchfield (Bucks), Rev. E. H. Goddard (Wilts), Mr. Reid (British Museum), Mr. T. W. Shore (Hants), Mr. Payne (Kent), Mr. Rice (Middlesex), Mr. St. John Hope, and Mr. Ralph Nevill, the indefatigable honorary secretary. The Cambrian Archæological Society and the Folk Lore Society were admitted into the Union. The congress was resumed in the afternoon under the presidency of the Rev. Dr. Cox (Northamptonshire), when Mr. Lionel Cust, F.S.A., Director of the National Portrait Gallery, gave an interesting account of the progress of the National and Family Portrait catalogue. On the question of the best form of indexing archæological proceedings, Messrs. Round and St. John Hope presented a valuable report, the main object of which was to secure uniformity of methods. After considerable discussion, the various recommendations were adopted and ordered to be printed. A report on the formation of the National Photographic Record Association, which proposes to work in harmony with the Archæological Societies, was presented by Mr. Scammell, the Hon. Secretary, but pressure of time precluded any detailed attention of this interesting subject. For the same reason papers by Mr. Payne on "How to Preserve Antiquities," and by Mr. St. John Hope on "How to Excavate," had to be held over. In the evening the delegates dined at the Holborn Restaurant, the Rev. Dr. Cox in the chair.

Illustrations.

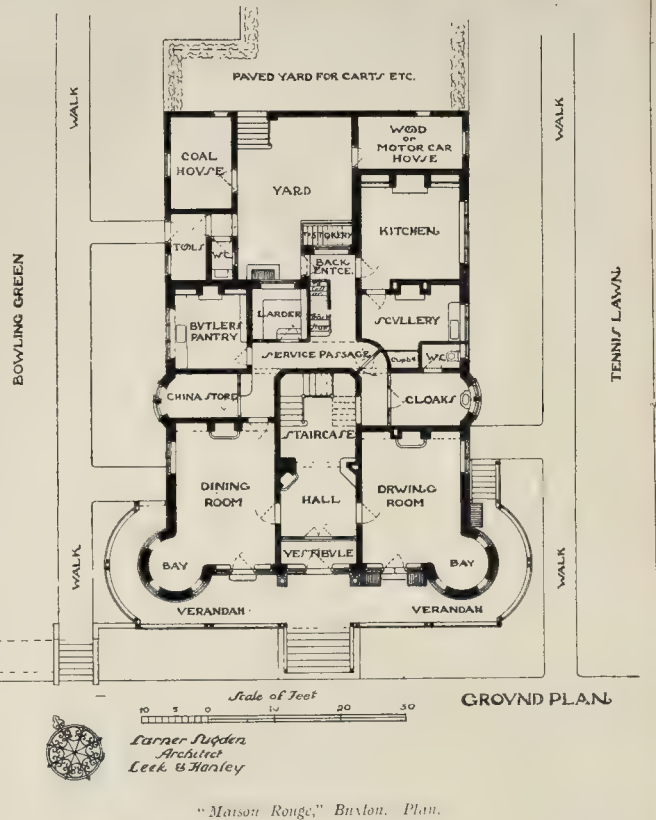
THE CAPPELLA PALATINA, PALERMO. GOSPEL AND EPISTLE PULPITS, PASCAL CANDELABRUM, AND MOSAICS.

THE two pulpits take up the whole width of the aisle and one bay of the nave arcade.

The materials are marble and cosmati mosaic. The large slab in the front of the Gospel pulpit is porphyry. Unfortunately the book-rest for the lion of the Epistle one is missing. The columns supporting are of precious marbles, with various gilt capitals.

The Easter candelabrum is a marvellous piece of sculpture, each tier being complete in itself. The figures holding up the sconcer and standing upon leaves look like fifteenth-century work, certainly newer than the rest.

ARTHUR E. HENDERSON.



STUDY FOR MUNICIPAL BUILDINGS.

THESE sketches were made at the time of the Oxford Competition, but circumstances prevented the drawings being further worked out, and the design, in consequence, was never submitted.

The very irregular outline of the site and the great variety in the size and character of the rooms for the various departments suggested grouping three or four blocks around an irregular central courtyard, and an attempt was made to cause each block to indicate the nature of the accommodation within.

The town hall, being an important feature, was brought to the front, and the space under utilised for the public library. As the site boundaries meet at an obtuse angle, the front of this is not parallel to the rest of the main front. This causes the centre of the latter to be recessed, an advantage for effect.

The assembly rooms, mayor's parlour, committee room, and council chamber all open out of a large anteroom, and can be used as a suite in themselves or in connexion with the large hall.

The offices are under this block.

The block in the rear contains the sessions court, &c., on the first floor, and the police parade-room and offices below.

The two last blocks have between them a public staircase, giving access on the one hand to the court, and on the other to the public space of council chamber. The approach to this staircase is from the side street under the town hall, and thence by an open cloister along side of courtyard.

The perspective was exhibited in this year's Royal Academy. HORACE R. APPELBEE.

THE HEIGHTS, HINDHEAD, SURREY.

THIS house has been just completed on Highcombe Edge, Hindhead, near Haslemere, and occupies a fine position, commanding panoramic views on three sides.

Certain restrictions were placed upon the

design by which neither red brick, in any quantity, nor tiles could be used.

Local brindle bricks of good colour were therefore adopted, trimmed with red bricks, and rubber arches; Headley stone dressings were used; the upper part of the house being rough cast Portland cement. The roofs are covered with sea-green Elterwater slates.

The architect is Mr. William A. Pite, of London.

"MAISON ROUGE," BUXTON.

THE house illustrated under this title is on a hill slope, beneath the Manchester-road and the Corbar Woods; it adjoins the Leewood Hotel.

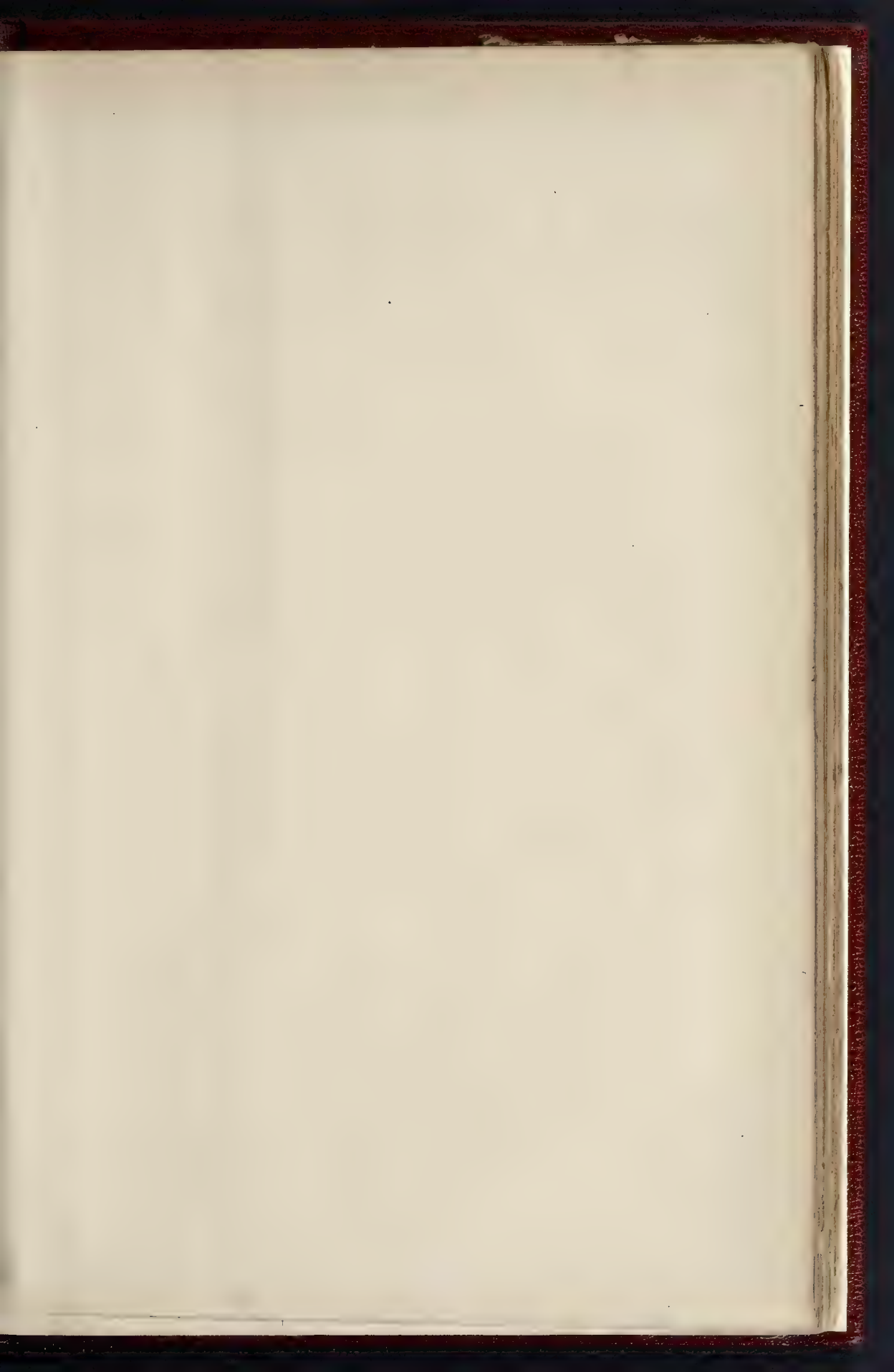
The ground story is faced with local yellow stone shods, with red Penrith quoins and other dressings. The upper stories and chimneys will be rough-cast, and finished an orange terracotta hue. The verandah and all external cornice mouldings, &c., are in teak and greenheart, the windows painted white in varnish. The roofs are tiled with Hanford hand-made tiles. The garden will be laid out on a formal design.

The architect is Mr. Larnar Sugden, of Leek. The builders are Messrs. Groome & Co., of Bakewell. Mr. James Brierley is acting as clerk of works.

CHURCH OF ST. JOHN THE DIVINE, FORD, WILTS.

THIS church, which has been built for the Rev. F. Harrison, occupies an exceptionally picturesque site on the hillside above the "By-Brook," at Ford, five miles from Chippenham. It is built entirely of stone, with Chapel Knapp rustic-faced walling, and Bath stone dressings; and the roofs are covered with Ruabon tiles, except the spire, which has cleft oak shingles instead.

A lych-gate of oak and tile, covered, opens from the road to a sloping path up to the porch, which has a barrel-vaulted ceiling. Most of the nave is paved with wood blocks, and the







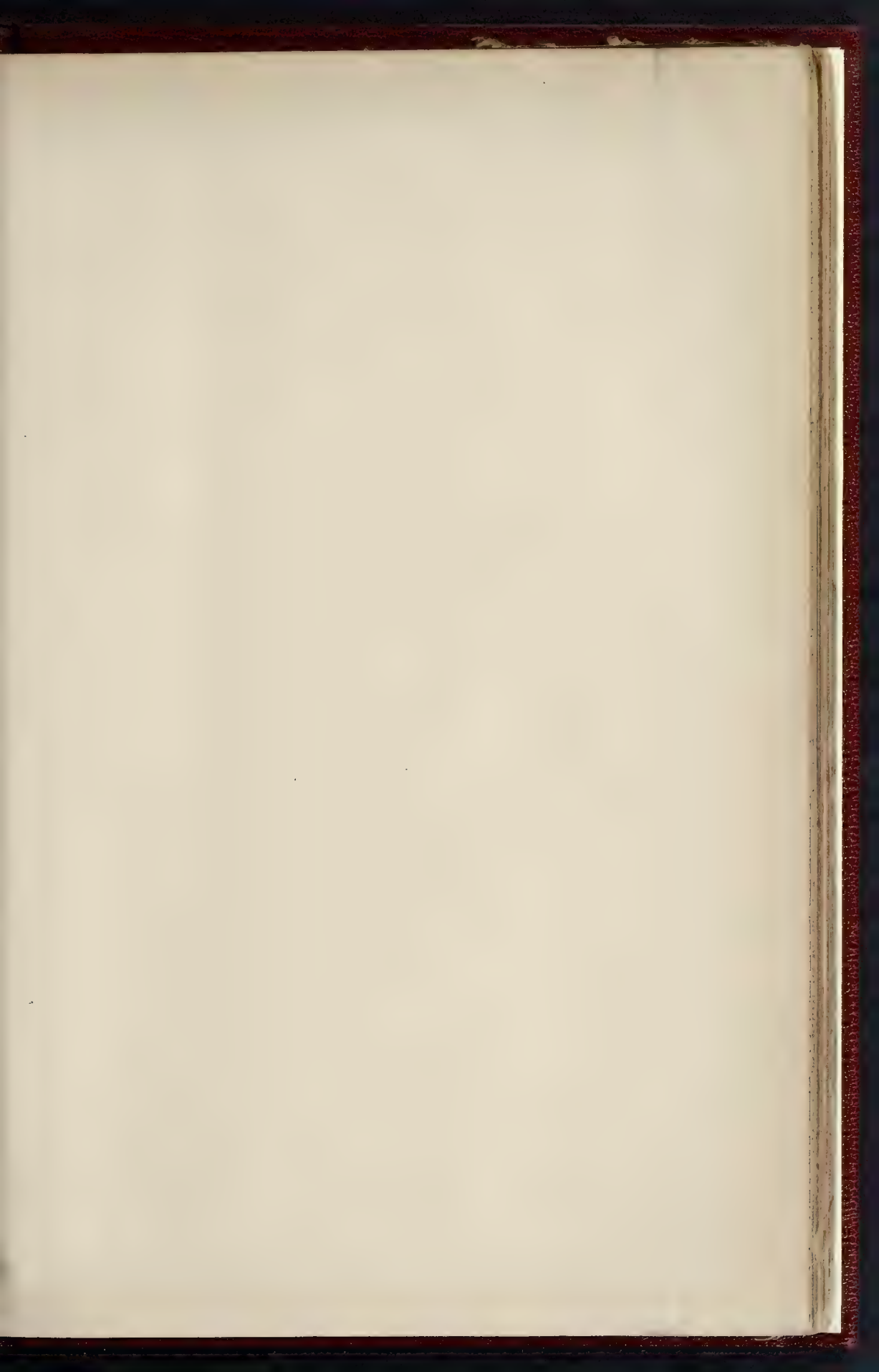
246112000
C. 1890-1900
F. 1890-1900

— Preliminary Study —
for
— Public Buildings —



BLOCK
PLAN





THE BUILDING, DECEMBER 1, 1881.



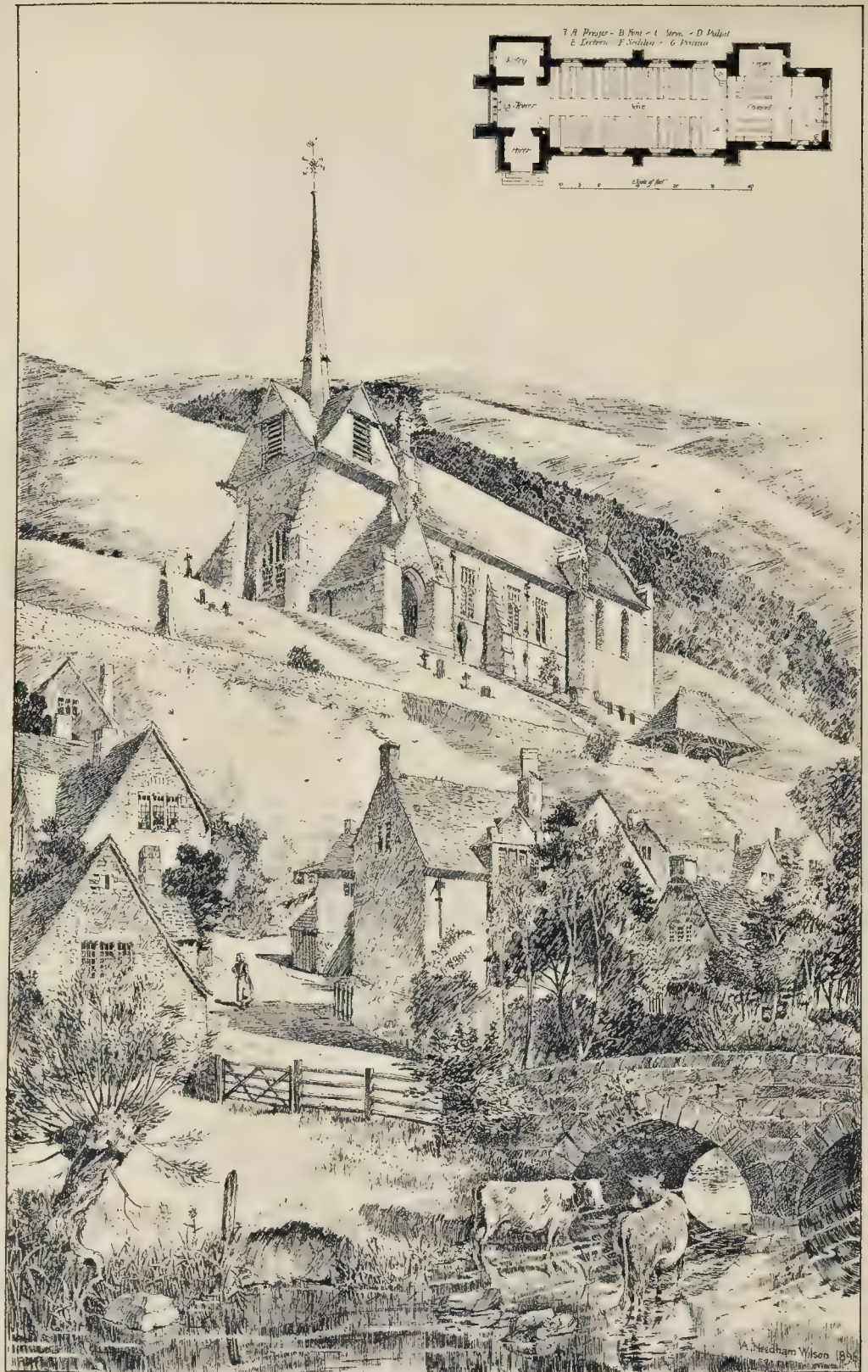
THE BUILDING, DECEMBER 1, 1881.
SACRAMENTO, CALIFORNIA.
ARCHITECT, J. H. HARRIS.





MAISON ROUGE. PLAN. IN. MR. LASSUS, SURVEILLANT, L'ÉCLAIRAGE.





CHURCH OF ST JOHN THE DIVINE, FORD, WILTS.—MR. C. E. PONTING, F.S.A., ARCHITECT
EXTERIOR VIEW.

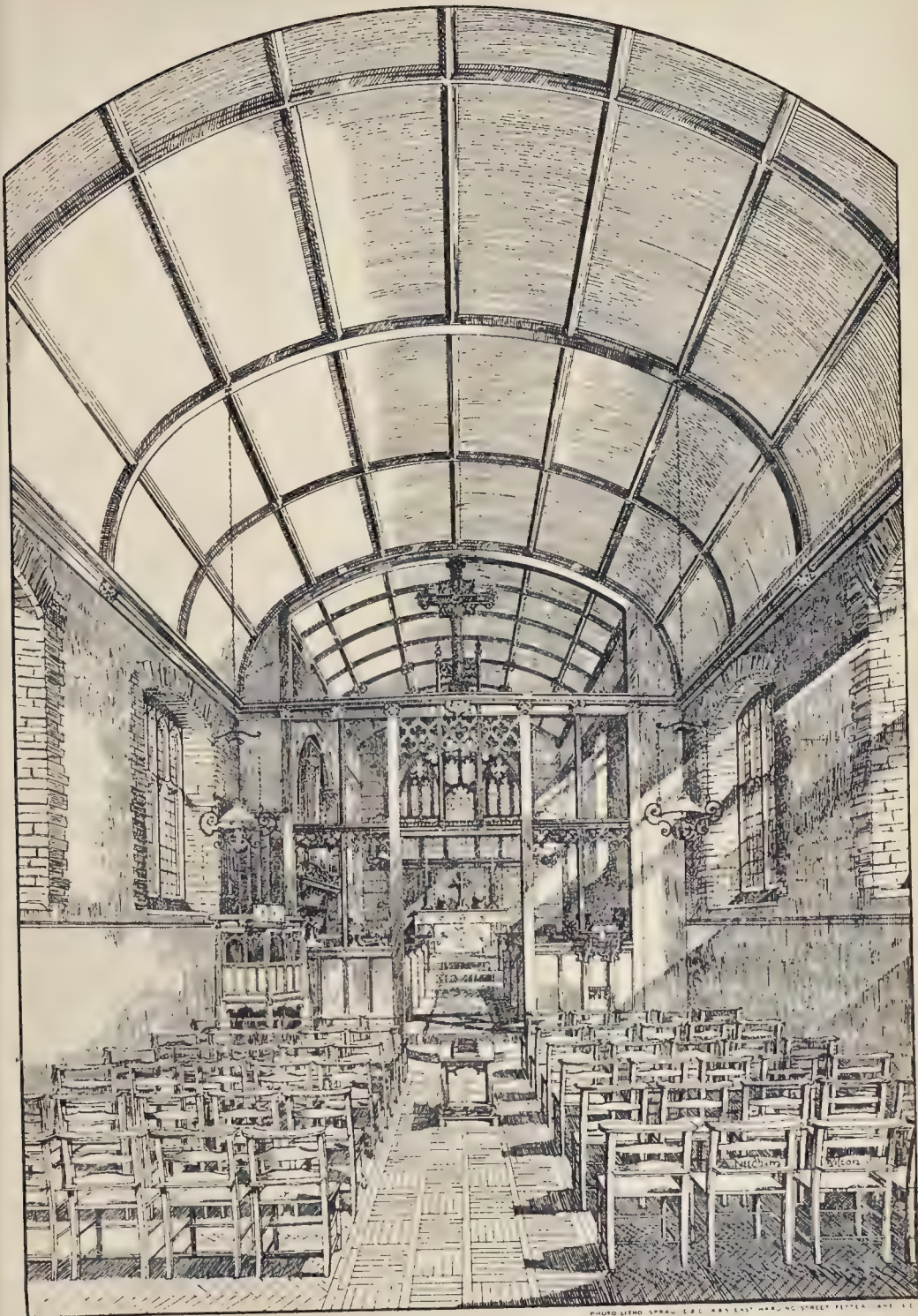
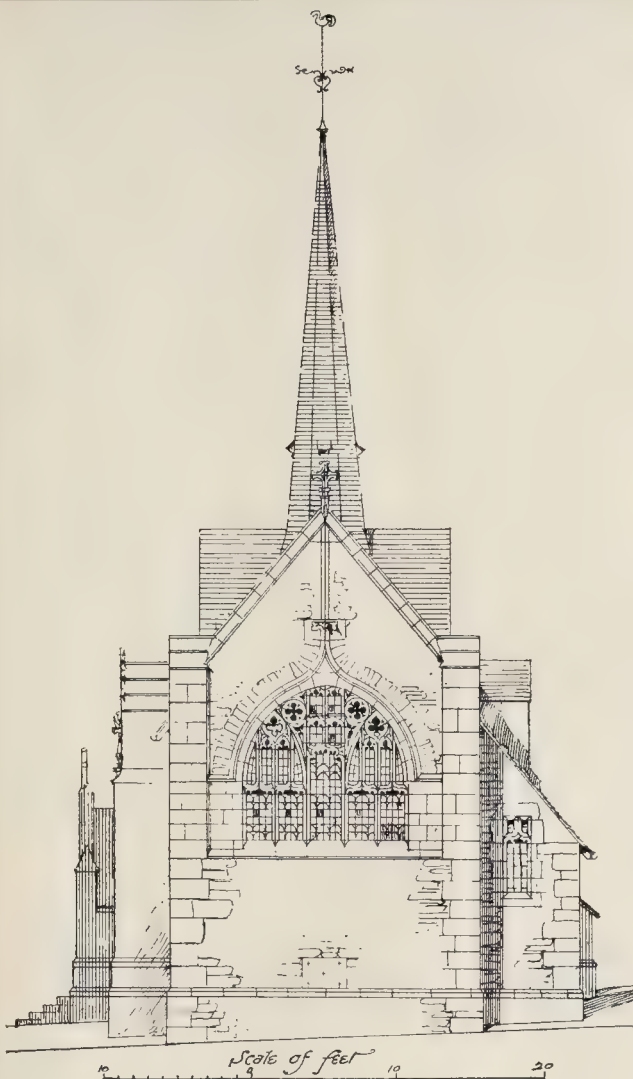


PHOTO LITHO. SPRAY, E.C. 44, EAST MARKING STREET, LONDON, E.C. 1.

CHURCH OF ST JOHN THE DIVINE, FORD, WILTS. — MR C. E. FOSTER, F.S.A., ARCHT.
INTERIOR VIEW.



Church of St. John the Divine, Ford. East Elevation.

remainder of the church with tiles. The internal walls are plastered, except where the stone reveals and arches to doors and windows are allowed to appear. An unusual feature in the building is the slope of the nave floor from west to east, following the natural fall of the site. The church is arranged to seat 170 worshippers, and has cost about 2,300*l*. It is warmed by a Musgrave stove, and fresh-air inlets are provided in the window sills.

All the internal woodwork is painted olive green, parts of the screen and chancel ceiling being gilded. An altar frontal has been given by Mrs. Walmsley, and has been worked by the Sisters of St. Katherine's School of Embroidery. The dossal hangings and curtains are of velvet and serge. The niche in the large buttress on the south side contains a statue of St. John, carved by Mr. Harry Hens, from a cartoon furnished by the architect, Mr. C. E. Ponting, of Marlborough. Messrs. Jacob Long & Sons, of Bath, were the builders.

METROPOLITAN ASYLUMS BOARD HEAD OFFICES.—The Board have appointed Mr. Edwin T. Hall as architect for their new offices, which are to be erected on an important corner site facing the Embankment and river near the Temple.

ARCHITECTURAL SOCIETIES.

MANCHESTER SOCIETY OF ARCHITECTS.—The thirty-third annual dinner of this Society was held on the 25th ult., at the Queen's Hotel. The President of the Society (Mr. John Ely) occupied the chair, and the company included the President of the Royal Institute of British Architects (Professor Aitchison, A.R.A.). After the loyal toasts had been honoured, the President proposed "The Royal Institute of British Architects and its President." In the next few days, he remarked, would be celebrated in London the sixtieth anniversary of the foundation of the Royal Institute of British Architects. There was a Society of Architects in 1837, and in 1834 it was fairly launched on its career; in 1836 the first meeting was held, and William IV. granted them a charter and the Society became the Institute, and sixty years last August her Majesty the Queen became the patron. So it came to pass that the career of the Royal Institute was contemporary with the Queen's reign. The objects from the first were of a lofty order. They desired to include the most prominent architects of the day, those who were of unimpeachable integrity, and in every way to elevate the profession, believing that in

so doing they were not merely advancing their own interests, but in reality promoting the interests of the public at large. —Professor Aitchison, in his reply, urged the importance of architecture as a factor in a nation's progress, and pointed out how difficult it was for architecture to advance unless the public took an interest in it. There were special difficulties in the way of the architect, for whereas the products of genius in music and in painting could be exhibited all over the world, the works of the architect could not so be treated. Unless there was some strong love for a thing, or some considerable appreciation of it, he did not see how it was possible to expect persons to devote their whole lives to it. It seemed to him that the public were considerably mistaken in the view they took of architecture, and he could wish that in such a town as Manchester, particularly, where there was much mental activity and whose wealth was enormous, a greater interest were taken in the profession of architecture. He trusted that greater interest would be taken in this matter, and that it was not too much to hope that in the far-off time people would come from the east and the west, as they now went to Athens and Rome and Florence, to sketch and take note of the great works of architecture found within its precincts.—Mr. A. Darbyshire proposed "Our Legal Friends."—His Honour Judge Parry responded. Mr. Lord also responded.—The remaining toasts were:—"The Allied Societies," proposed by Mr. Holden, and responded to by Mr. Willink;—"The President," proposed by Mr. W. Goldthorpe, and acknowledged by Mr. Ely; and "The Honorary Secretaries," proposed by Mr. Bennett, and replied to by Mr. Hewitt.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Mr. Stephen Adam, of Glasgow, delivered a lecture to the members of this Society on the 29th ult., in the Leeds Institute of Science, Art, and Literature, on "Stained Glass—Medieval and Modern; its History and Varied Processes." Mr. W. H. Beevers presided. Mr. Adam said he spoke as a craftsman. All we now did in decorative art, smart as our conceit might fancy it, had been done before, and done better. Knowledge of that fact should not depress, but encourage. There were no more potent factors in the matter than Schools of Art and technical classes. More especially was that so in regard to those classes in which was taught practical work in the applied arts, and in which students learnt correct rules of decorative art, rules which could not be infringed with impunity. There was an affinity between all arts; but the true aim of the workers in metal, stone, and wood, the mural decorator, the glass-stainer, and the designer of tapestries and textiles was distinct, and required a distinct training from that of men who painted scenes for enclosure in gilt frames. There were noble exceptions amongst British painters; but in all conscience we had surely had a surfeit of that everlasting violet hill, that cerulean lake, that cluster of trees, that boat lying on a yellow beach, and those other commonplace things which taught nothing. Mr. Adam proceeded to give a short history of glass-staining from the tenth to the nineteenth centuries, pointing out the features of the Medieval period as compared with the modern. He strongly advocated the mosaic method of the twelfth and thirteenth centuries, which, he said, was the only style fitted for permanent work. He went on to describe the various processes of glass-staining. In the simplicity of the material, he said, lay its durability. Thanks to science, the modern glass stainer had material at his command which compared with, if it did not excel in beauty, that used in ancient days. It might be said with some truth that there was nothing in art or nature that was imperishable, but certain stained-glass windows of the tenth, twelfth, and thirteenth centuries, in English and Continental Cathedrals, told, in glowing mosaic colours, through which the sight of centuries had streamed, that stained-glass might be "a joy for ever," long after tombstone memorials had crumbled into dust.

RESTORATION OF STAUNTON-ON-ARROW CHURCH, HEREFORD.—This church has just been re-opened, after having been closed for a period of ten weeks for restoration. The work has been carried out by Messrs. Smith, of Kidderminster, under the direction of Messrs. Nicholson & Hartree, Diocesan architects. It comprises entire re-roofing and other structural renovations and improvements, including a hot-water apparatus.

BUILDERS' BENEVOLENT INSTITUTION.

THE fiftieth annual dinner of this Institution took place on the 25th ult. in the Carpenters' Hall, London Wall. Mr. Charles Wall (President) occupied the chair, supported by a numerous company, including Messrs. H. Holloway, F. Wall, F. J. Dove, T. F. Rider, H. H. Bartlett, A. Ritchie, J. P., B. J. Lone, A. Jacob, J. C. Preston (Senior Warden of the Carpenters' Company), J. H. Colls, W. B. Brown, J. Randall, T. Stirling, C. Russell, T. H. Griffiths, J. T. Bolding, F. Foxley, Nightingale, and Perkins.

The President having given the toast of "Her Majesty the Queen," and "The Prince and Princess of Wales and the Rest of the Royal Family," Mr. J. C. Preston proposed "The Army, Navy, and Auxiliary Forces," which was responded to by Major Brutton, who added that he had now acted as Secretary to the Institution for the long period of twenty-three years.

The President, in proposing the toast of the evening, "Success to the Builders' Benevolent Institution," said it did not require any particular eloquence on the part of the President to ensure sympathy with the objects of the Institution.

In the walks of life some persons must always go under, and it was their bounden duty to aid those who through misfortune were not progressing so smoothly and so prosperously as their fellow-workers, and to see that they were comfortably cared for in their oldage. This being the jubilee year of the Institution the Committee, desiring to do something jubilant, had elected all the applicants who had been passed by them without a ballot. The charity required funds to allow it to carry on its useful work, and he was sure that he could commend it to the generosity of the trade.

Mr. F. J. Dove next gave "The Worshipful Company of Carpenters." He expressed the sincere gratitude of the members of the Institution to the Company, for their kindness in granting year after year the use of their fine hall, and in giving them a substantial annual donation. The Company were also to be congratulated on the excellent technical work they were doing in connexion with the building and kindred trades.

Mr. J. C. Preston (Senior Warden) returned thanks. The Company were always glad to lend their hall for such a purpose as this.

Mr. T. F. Rider proposed the toast of "The President," which was very cordially received.

The President, in replying, said he considered it a privilege to be at the head of an institution like this, and he hoped that as time went on the younger builders would be encouraged to do what they could for the Institution. He could not sit down without referring to the good work that Mr. George Plucknett (the Treasurer) who was prevented from being present, had so long done for the Institution.

Mr. J. Howard Colls, in proposing "The Architects and Surveyors," said that in his opinion the two bodies should be as distinct as possible. If there was anything worse than architects' quantities it was quantity surveyors' architecture.

Mr. W. B. Church, in replying for the architects, said that they always endeavoured to do what was right as between client and builder. An architect's position now-a-days was not altogether a bed of roses, for with so many new materials and new ideas he had to be a sort of walking encyclopædia.

Mr. Northcroft replied for the surveyors, and referred to the fact that linen-draperies and upholsteries now dubbed themselves builders. If a man liked to be a retail tradesman he had every right to sell laces behind his counter, but he had no business to interfere with the legitimate trade of a builder, and too often with the unfortunate results he had sometimes met with in his experience.

Mr. H. Holloway gave the last toast, "The Vice-Presidents, Committee, and Stewards," which was replied to by Mr. Ritchie for the Vice-Presidents, and Mr. J. T. Bolding for the Committee and the Stewards.

In the course of the evening Major Brutton announced the list of subscriptions, which showed total donations amounting to 741*l.*, with 127.12*s.* of new annual subscriptions. The President's list showed a total of 599*l.* 14*s.*, including a donation of 100 guineas from the President himself.

BIRMINGHAM MASTER BUILDERS' ASSOCIATION.

THE annual meeting of the Birmingham Master Builders' Association was held on the 25th ult. at the Grand Hotel, Colmore-row, under the chairmanship of Mr. R. Whitehouse (the retiring President) at the outset of the proceedings. The committee, in their report for the year 1897, recorded the continuance of the improvement in the general state of trade of the country, and stated that the building trade had to some extent participated in this improvement, but contractors had been seriously handicapped by the increased prices of all materials. In November last notices were received for alterations in the rules from carpenters, bricklayers, masons, plumbers, plasterers, and labourers, the labourers being the only branch asking for an increase in wages. A general meeting of the trade—employers and operatives—was held on January 13, to endeavour to make the notices received as to hours of work and paytime uniform. This necessary end was practically attained, and it was strongly felt that uniformity on these two points was imperative. The notices were duly considered by the committee, and twelve conciliation meetings were held with the different branches, with the result that revised rules were agreed to without any interruption of work. Notices had again been received from the carpenters, masons, plasterers, plumbers, and labourers, asking for alterations of rules, and a considerable advance of wages. These notices would receive the careful consideration of the committee. On the subject of the presentation to Mr. W. S. Till, on his retirement from the office of City Surveyor, the committee reported with pleasure that the sum of 113*l.* 4*s.* was handed to the committee of the general fund. The Workmen's Compensation Act, the committee were to say, would throw serious responsibilities on employers, and a circular would be issued to architects suggesting the addition to bills of quantities of a clause making provision to cover the enormous risks incurred by contractors under the Act, which would come into force next year. There are at present sixty-nine members of the Association. The balance-sheet showed total receipts for the year, 1301*l.* 4*s.* 6*d.*, which, with the balance from last year, makes a total of 2701*l.* 3*s.* 7*d.*, and the various disbursements, including the Secretary's salary, amounted to 117*l.* 7*s.*, leaving a sum of 1521*l.* 16*s.* 7*d.*, to the credit of the Association.—The Chairman, in moving the adoption of the report, touched upon the Workmen's Compensation Bill, and said that some might consider it to be a wise measure, but personally he considered it unjust in principle. It was unjust to employers and to employed. In the first place, it threw a liability upon employers for accidents over which they had no control; and, secondly, it pauperised the workmen instead of encouraging them to thrift, because it promised them something for nothing. With reference to the liability imposed upon employers, he felt that they might find themselves, after making every provision, as far as insurance went, practically ruined, for the reason that an accident might occur which would disable a number of men, and employers would have to pay them at the rate of 1*l.* per week if disabled for life. If death ensued from accident employers would be called upon to pay 150*l.* as the minimum, and the amount might be 300*l.* per man. To an ordinary employer this was a liability which was most unjust, when it was considered that he had to pay it without having contributed in the slightest degree to the accident. He considered further that it was wrong on behalf of the men, because they were not asked to contribute a moiety towards it, but were to believe that under all circumstances they were provided for in case of accidents. If the Government had been wise, and he said it with all deference to those who took a prominent part in connexion with the Bill, they would have made the Workmen's Compensation Act a mutual Act whereby employers would be held responsible for accidents over which they had control. If workmen paid a moiety of their wages towards the fund to meet the other accidents, the amount would have been so small for both that the Act could have been made mutual and reciprocal and one which could have been borne. The Bill, continued the Chairman, left out the bulk of the poorest workmen throughout the country. He thought the desired ends might have been obtained if the Government had first formed a National Insurance Company, they being able to obtain money at a very low rate of interest. To this employers would have paid a certain moiety from the weekly wages of the workmen.—Mr. C. H. Barnsley seconded the motion for the adoption of the report, which was agreed to. On the motion of the Chairman, seconded by Mr. A. Smith, Mr. John Bowen was elected President for the year. Mr. Bowen thereupon took the chair, and further elections were made. Mr. F. G. Whitall was elected vice-president, Mr. G. Twigg was re-elected treasurer, Messrs. J. S. Surman and T. Johnson auditors, and Mr. E. J. Bigwood secretary.—In regard to the demands of the men in the building trade for advances in wages, Mr. R. Newell proposed, "That the notices received from various branches of the operatives be left in the hands of the committee to deal with." The

resolution was carried with unanimity. It may be added that the following advances in wages are asked:—Carpenters, from 9*d.* to 10*d.* per hour; plasterers, 9*d.* to 10*d.*; masons, 9*d.* to 10*d.*; mason fixers, 9*d.* to 10*d.*; plumbers, 9*d.* to 10*d.*; labourers, 6*d.* to 6*d.*; all scaffolders, 6*d.* to 7*d.*.—The members assembled in the Grosvenor Room of the Grand Hotel at the close of the meeting to take part in the annual dinner of the Association. The newly-elected President (Mr. J. Bowen) occupied the chair. The loyal toasts having been honoured, Mr. C. H. Barnsley proposed "The City and Trade of Birmingham," coupled with the name of Mr. J. C. Lord, who responded. Mr. J. C. Nicol gave the toast of "Success to the Birmingham Builders' Association," and the President, in reply, expressed his agreement with Mr. Nicol as to united action between the builders and workmen. They had no desire as an Association to do aggressive work, and to grind down the working men. They were anxious that every man should have a good wage, but for that good wage they wanted them to do good work. There was an idea afloat amongst trade societies which was not a fair one: the idea of levelling up. They did not think that was right; they did not think that a man who was worth fourpence should receive ninepence. The subsequent toasts included "The Architects and Surveyors," "The National Association of Master Builders of Great Britain," "The Vice-President and Officers," and "The Visitors."

TRADE CATALOGUES, &c.

WE have received from the publishing-house of E. Lyon-Claesen, Brussels, their catalogue of the "Librairie Speciale des Beaux-Arts," containing a list of valuable works on subjects connected with architecture, construction, and decoration, accompanied by a good many reduced illustrations from various publications, as examples of their contents.—Messrs. Callender & Montgomery (London) send us an illustrated catalogue of buildings, bridges, &c., in which their bitumen sheeting has been used for covering foundations and for horizontal and vertical damp-proof layers. The material can be used for girder seatings on iron bridges in place of sheet lead, and all the new bridges on the Manchester, Sheffield, and Lincoln extension to London have been fitted with it. It is also applicable for lining ponds and reservoirs. The raw material comes from the asphaltum lake at Trinidad, and in connexion with this subject we have another pamphlet from the Trinidad Lake Asphalt Paving Company (Fulham), giving some description of Trinidad asphalt and of its use as a paving material, for which purpose it has been largely used in Washington.

TRADE NEWS.

MESSRS. DAMMAN & WASHER have in hand the parquet flooring for the mansion for Sir E. Sassoon in Stanhope-street, Park-lane. The same firm are also supplying the extensive and elaborate parquet for the mansion of Mr. Harvey Du Croy at Cornbury Park.—The Metropolitan Asylums Board have accepted the tender of Messrs. D. & J. Tullis for the laundry machinery and fittings in connexion with the Grove Hospital at Tooting Hill.—Palmer's patent wire-supported travelling cradle, which was noticed in our issue of July 17 of this year, has been successfully employed on the repainting of Southwark Bridge, and is also now in use for painting the internal walls at Collins's Music Hall and elsewhere. The patentee claims that it saves 50 per cent. in time and labour.—Messrs. Mark Fawcett & Co. have just erected new kilns and drying sheds to enable them to double the Nottingham output of their Patent Tubular Lintels, besides providing additional storage room for keeping a large stock in hand for supplying their contracts.

THE RIVER BRENT.—The Middlesex County Council have drafted a Bill for powers to dredge, purify, improve, and protect the Brent and other streams in the county. They propose to erect weirs, or the like apparatus, in the non-canalised portions of the river; that they themselves or the Grand Junction Company be authorised to provide bottom paddles or sluices, or similar contrivances, at the weirs on the Company's canal between the Thames at Brentford and the inflow of the Brent at Hanwell as may be necessary for enabling the canal surplus waters to flow through or under, and not over, the weirs. Also to require the North Metropolitan Railway and Canal Company and the Grand Junction and Regent's Canal Companies to discharge out of Hendon reservoir into the Brent below, either continuously or as the Act may prescribe, such quantities of water as may be agreed upon to send down flood water enough to prevent undue scouring of the bed of the Brent.

Correspondence.

To the Editor of THE BUILDER.

BIRMINGHAM TOWN HALL.

SIR,—Your editorial criticism of the arrangement of interior levels in the Birmingham Town Hall, of which my late father, Joseph Aloysius Hanson (not Hanson), the founder of the *Builder*, and his partner, Edward Welch (who sent in a distinct design), were architects, overlooks some important points. The arrangement calls for no apology.

Is it seriously suggested that the podium should be turned into a few paltry rooms lit from outside and a quantity of dark cellars in the centre, so that the floor should be made level with the basis of the exterior columns? That the frequenters should have to ascend from the street to this suggested floor level? And that the floor space should be encumbered and circumscribed by, say, four staircases? Or the simple grandeur of the outside marred by excrescences where there was probably also no ground available?

Besides frittering away the inside area, the opportunity of getting suitable and proportionate height, by utilising the height of the podium, would have been lost, and the diffusion of light would have been utterly destroyed. If the criticism were just it would involve condemnation of the podium which gives such dignity to the elevation even now, with its bizarre surroundings, and gives the opportunity of interior height. The competition for this work took place in 1831, when my father was twenty-eight years of age; the building was commenced the following year, and his supervision had ceased in 1834, so that he could not have had control of the completion of the interior. The date of completion in 1850 probably refers to the addition of some bays to the length.

JOSEPH S. HANSON.
* * We did not intend to make any of the suggestions embodied in the second paragraph of Mr. Hanson's letter. What we think is that, in accordance with the frequent practice at the time of the Classic revival of the earlier part of this century, the hall was designed with regard to exterior effect, and the interior arrangements were then managed as well as could be done, without much reference to the exterior design. The same criticism would apply in great measure, though not quite to the same extent, to St. George's Hall, Liverpool. There is no particular blame to be attached to the architects in either case, because they were only following what was at that time the usual practice in regard to public buildings in the Classic style. But if Birmingham Town Hall were sent in as a competition design in the present day, it is almost certain that the professional assessor would put it aside as ineligible, on practical grounds.—ED.

SURBITON MUNICIPAL BUILDINGS.

SIR,—May we point out that two statements in your criticism of our plans in your last issue are incorrect.

It was there stated that our "central hall, lobbies and corridors are entirely dependent for light upon glazed doors in the offices." Your critic has quite overlooked the large windows in the staircase hall, whence the light for these parts of the building is derived.

Secondly, it was said that "the Council chamber is . . . lighted from one side." A further reference will show that it has light on three sides.

We think you will perhaps agree that these facts somewhat alter the impression conveyed by your criticism of our design. FORSYTH & MAULE.

THE SLATE TRADE.

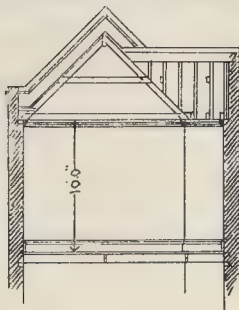
SIR,—Mr. Broodbank is right when he states in your issue of the 27th ult. "that foreign slates have been regularly imported into England for many years," but he omits to mention the fact that until the trouble in Wales the number of tons would be at least one-tenth of the present importation.

I think I can fairly consider myself one of the "original" slate merchants of London, and I know of two or three firms who were established many years before me, and I can confidently state that we have been able to do without Angers and American slates, and shall continue to do so while we can get supplies from such noted Welsh quarries as the Oakley-Palmerston (Portmadoc) and the famous Bethesda quarries of Lord Penrhyn.

J. J. ETRIDGE, JUN.

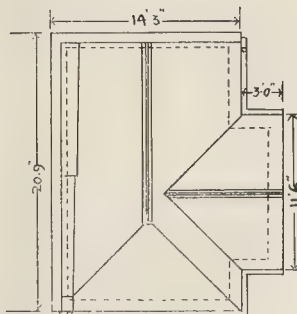
CHURCHYARD CROSS, WITTINGTON, HEREFORD.

Two permanent memorials of the Queen's sixty years' reign have been placed in the parish of Wittington, near Hereford. The first is the restoration of the old churchyard cross, the only portion of which remaining was the base. The whole has now been restored, the base being raised to its original level, and a new cross of late fourteenth century design executed in Forest of Dean stone. The second memorial is a lamp. Both works have been carried out by Mr. R. Clarke, Hereford, from the design and under the superintendence of Mr. R. Sidney Powell, architect, London.



Ridge 9x2
Hips 7x2
Valleys 7x3
Rafters 4x2
Ceiling joists 5x2
Collars (one to every fourth rafter) 4x2

Floor joists 9x2
Do into Bay 9x3



Dotted lines show plan of Room.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING. CHAPTER XVII.—EXAMPLES OF "TAKING OFF" (continued).

HAVING given in Chapter XVI. examples of taking-off foundations and brickwork up to ground-floor level and a window, in this chapter is given a somewhat comprehensive example, which, although extremely simple, will explain the process of "taking-off" facings, floor, roof (with examples of varying finishings to verges and at eaves, together with hips and valleys, also lead and iron gutters), and also plastering. This, with those previously given, will form the basis of an example of "Abstracting" and "Billing" in succeeding chapters. The roof here illustrated is supposed to be tiled, but the example can be readily applied to slating, as described in Chapter VI.

BRICKWORK FACING ABOVE FIRST FLOOR LEVEL.

2	12.0	=	24.0
2	20.9	=	41.6
2	3.0	=	6.0
			71.6
71.6			
10.0			
20.0			
1.0			
13.6			
1.6			
1 1/2			
11.0			
5.0			
10.0			
5.0			
2			
8.0			
3			
2			
7.0			
3			
			3.0
			114.5
			14.3
			3.0
			20.9

1 1/2 brick (up to top of plate.)

1 brick side parapet.

Add gables

Add waste.

76.0			38.0
10.0			76.0
760.0			
			Red brick facing (Description)
			14.3
			20.9
			Ends of parapets 2 1/9 in. = 1.6
			36.6
36.6			
2.9			
100.5			
			Add facing parapet.
11.0			
5.0			
30.3			
20.0			
1.0			
20.0			
8.6			
.9			
6.5			
10.3			
.9			
7.8			
924.9			
			20.0
			2 1/3 = 2.6
			2 8.0 = 16.0
			38.6
38.6			
			9 in. x 4 1/2 in. red brick on edge coping, set and pointed in cement, and double course of tile creasing in cement under, and cement fillet both sides.
2			
= 2			Returned ends.
1			
= 1			Mitre.
1			
= 1			Apex mitre.
2			
= 2			Mitres of raking with horizontal.

[illegible]

GENERAL BUILDING NEWS.

RESTORATION OF ST. MARY'S CHAPEL, ABERDEEN.—It has now been resolved to proceed with the scheme for the reparation and adornment of St. Mary's Chapel, Aberdeen, according to a scheme submitted by Messrs. A. Marshall Mackenzie, W. Kelly, and G. Gordon Jenkins, all architects in Aberdeen, who have acted as a kind of Architectural Committee. St. Mary's Chapel is the "Lower Church" or crypt of the ancient Parish Church of St. Nicholas, Aberdeen.

CONSECRATION OF ST. MARK'S CHURCH, MANFIELD.—The new church of St. Mark's, Nottingham-road, Mansfield, was consecrated by the Bishop of Southwell on the 24th ult. The building, which will accommodate 500 worshippers, is situate at the corner of Portland-road and Nottingham-road. It is approached by a flight of steps leading down to Portland-street, and above it rises the main west gable, with a four-light west window. The bell-turret is placed at the south-east angle of the building, and at the east end the vestries finish with three low gables below the large east window. The external walling is of Mansfield Woodhouse stone, and the roof is of Mansfield stone slabs, and red tiles. The interior consists of a nave and sanctuary under one unbroken roof, with narrow side aisles divided from the body of the church by an arcade of five bays, carried in square piers. The passage, or ambulatory, is carried round the east end of the sanctuary with the vestries to the east of it. At the west end the nave is divided into a wide aisle and a narrow one, which runs across the whole width of the building, and into which, at its north and south ends, the outer doorways open. On the north side of the church, outside the ambulatory, is placed a wide aisle, two piers in length, the western part of which is occupied by the Morning Chapel, and in the eastern end of the aisle is a small square room, which is raised four steps above the level of the nave, is enclosed on its western side by an altar-rail of brass and oak, and it is intended to enclose the north, south, and east sides with screens of similar materials, but at present a substitute for them is provided by green tapestry hangings. The altar-rails on the four steps at the east end of the sanctuary behind the altar, the retable and carved reredos of oak, above which is placed a representation of the Crucifixion, with figures of the Saviour on the Cross, and of St. Mary and St. John. On the other hand are figures of cherubim, and the whole is surmounted by a large canopy. The reredos is Perpendicular in style, and is ornamented with roses and flowers. The choir seats are placed west of the sanctuary. The pulpit is of oak, with tracery panels, the sounding board having carved cornice and cresting. The font, which is of Ancaster stone, stands at the entrance of the nave. The floor of the nave is paved with wood blocks, and the east of the aisles and sanctuary is paved with Ancaster stone. The Temple Moore of Hampstead. The builders are Messrs. Fisher Brothers, of Mansfield.

BAPTIST CHAPEL, PUDSEY. A new Baptist chapel, erected at Littlemoor, Pudsey, was opened in the 20th ult. The new building has been erected from the designs of Messrs. Hodgson & Farrar, architects, Bradford and Pudsey. The chapel, which has a gallery on three sides of it, provides sitting accommodation for about 600 persons. At the east end is a choir and organ gallery. The whole of the pews, which are of pitch pine, radiate to the rostrum. There are three vestries on the level of the chapel floor, and advantage has been taken of the fall in the site to get kitchen accommodation, rooms for a Young Men's Christian Association, and

two class-rooms in the basement, but above the level of the ground.

BAPTIST CHAPEL, KINGSTON-ON-THAMES.—The new Baptist chapel which has been erected in Queen's-road, Kingston, was opened on the 24th ult. The building immediately adjoins the school block, and is designed in the same style. The interior dimensions are 78 ft. by 44 ft. 6 in., with 12 ft. additional for organ chamber and orchestra. Galleries are constructed at one end, and along the sides, and seating accommodation is provided for 770 adults, or a mixed congregation of 1,026 persons. There are two vestries at the rear, with lavatories, &c., and a heating chamber under. The baptistry is of marble, and has two sets of steps. The church is connected with the older buildings both in the front and at the rear. Mr. J. Wells, of Derby and London, is the architect, and the contractors are Messrs. Duncan, Stewart & Sons, of Wallington. The cost of the work is about £4,000.

CONGREGATIONAL CHURCH, CARDIFF.—The foundation-stone has just been laid of a new Congregational Church which is in course of construction in Richmond-road. The new church is being built on a plot of ground adjoining the school-room, and is of a blue Pennant stone, with Bath stone dressings. The architecture is in the modern English style. It will have three main entrances from Richmond-road, besides two minor outside doorways to the vestries. A tower will be situated at the right-hand corner of the edifice over one of the main entrances. The spire surmounting the tower will rise to a height of nearly 120 ft. The windows will be of the lancet type, and the architects Messrs. J. H. Habershon & F. Kneker, the architects being Messrs. Habershon & F. Kneker, and the contractor is Mr. D. Davies, Cardiff.

SUNDAY SCHOOLS, LINCOLN.—New Sunday schools are being added to the Mint-street Baptist Chapel, Lincoln. The architects have been Messrs. Mortimer & Son, and the contract was placed in the hands of Messrs. Wright & Son, the total cost of the works being about 2,300*l*.

INDEPENDENT CHURCH, ALBERTBRIDGE, BELFAST. --Three foundation-stones of the new Independent Church, Albertbridge, were laid recently. The contract for the building has been entrusted to Mr. William Kerr, and the architects are Messrs. Fraser & Son.

ALTERATION, ST. PAUL'S CONGREGATIONAL CHURCH, NEWCASTLE.—Alterations in the interior of St. Paul's Congregational Church, Westgate-road, Newcastle, have just been carried out. In the body of the church, the old box pews have been removed and replaced by pitch pine seats. The slope of the floor has been done away with, and a level surface substituted. In the next place there are now two side aisles in lieu of one down the centre, and one down each side close by the walls. Electric lighting has been introduced, and lamps have been hung from the roof as well as from the front of the gallery. A portion of the body of the church at the west end has been partitioned off with a screen, and thus an inner porch, measuring 2 ft. by 9 ft., has been formed, containing a small altar and a minister's vestry, which has been enlarged. At the opposite end of the porch is the deacons' vestry, which has been added to. The hot-water pipes of the grate apertures have been removed from the grate apertures beneath the floor, and are now in the ceiling, and the old set of seating in the centre, whilst others have a place in the side aisles. Mr. J. W. Taylor, of Newcastle, was the architect, and the contractor was Mr. John Jackson, the painting being done by Mr. G. Rowell, the installation of the electric lighting by Messrs. T. J. Usher, and the heating apparatus by Messrs. Ainsley & Rennie.

UNITED RESBYTERIAN CHURCH, PARTICK, LANARKSHIRE—On the 27th ult. Rev. Dr. Hutchison laid the memorial-stone of a new church which is being erected at the corner of Lawrence-street and Alexandra-street, Partick, for the congregation of the United Resbyterians. The style is English, of the thirteenth-century. Gothic. The central feature of the front is a lofty bay with broad buttresses at each side. A projecting porch at the south-east corner of the building forms the main entrance. On the west side of the main bay is another doorway, which also forms the hall entrance, and between this and the porch is a small bay. The south-west street, is an octagonal turret, with a series of traceried windows in the upper stage, forming the gallery and hall staircase. The halls and accessory-rooms are placed to the west side of the church, but are so arranged that independent use may be made of them, the central staircase leading to the west side. The east window shows a series of low four-light windows with square heads in the lower stage, and in each bay over these, divided by broad piers, are tall two-light windows of lancet shape, with moulded and cusped heads. The organ-chamber is projected in the chancel for the tower, and the south-east corner is a groined porch containing the gallery staircase. Internally the nave is divided from the aisles by stone piers, one

NOTE.—In the foregoing example soakers are taken to be used where the tiling abuts against the brickwork, but should these not be specified, the only variation will be to alter the width of the lead flashing from 8 in. to 1 ft. 2 in., thus allowing 6 in. to lie upon the tiles.

PLASTERING.

12.0	222.0	Lath, plaster, float, and set, and twice white ceiling.
18.6		
3.0	27.9	
9.3		

only on each side, springing from which are moulded arches of wide span. The stone piers are simply splayed, the gallery beams resting on projecting stone corbels, and the inner angles of the piers are carried up to the roof, and form rests for the main roof timbers. The principal roof timbers will be shewn, and the ceilings will be lined with wood panelling. The number of sittings provided is 340, and there are also halls for 400 and 200, class-rooms, ladies' room, vestry, kitchen, &c. The total cost will be about 7,500l. The following are the principal contractors:—Masons, Ferguson & Sinclair; Wrights, W. Cowan & Son; slater, John Anderson; plasterers, Struthers & Son; plumbers, Cairns & Laing; gasfitters, Chalmers & Son; glazier, Joseph Miller; painter, George Sellars; steel and iron, P. & R. Fleming, all of Glasgow. The architect is Mr. John B. Wilson, Glasgow; Mr. Thomas Todd is acting as clerk of works.

CATHOLIC CHURCH, GLASGOW.—The new Roman Catholic Chapel in Portugal-street, Glasgow, has just been dedicated and opened. This church is designed in the Early Decorated style, and is built with Giffnock stone. It consists of chancel, side chapels, nave, aisles, sacristies, &c. The nave is divided into six bays. There is a four-light traceried window in each bay of clearstory, which is carried by an arcading dividing nave from aisle, each bay of which is pierced with two two-light windows. The west wall of nave (the gable of which has a rose window) is supported on three arches opening into choir and organ chamber, which is approached from the porch by a stone staircase. At the chancel end of each aisle is an exit door. There is also exit accommodation at the west end of the church, the principal porch facing Portugal-street. The chancel is apsidal in form, and is lit by a three-light traceried window in each bay. It is divided from nave by a chancel arch which rises to a height of 45 ft. The internal length of church is 148 ft., and the total width is 64 ft. The nave is 28 ft. wide, and the height to apex of roof is 60 ft. The altar, with super altar and tabernacle, are of Caen stone. The canopy is of wood, gilt. The whole has been designed and carried out under the direction of the architects, Messrs. Pugin & Pugh, of London.

BOARD SCHOOL, LLANGYFELACH, WALES.—Sir John Llewelyn, M.P., recently opened at Llangyfelach a new school which has been erected by the Swansea United School Board. Designs on the Central Hall principle were prepared by Mr. Thomas H. Jones, the Board's Architect, on a site large enough to accommodate 750 children. At present, however, it is not intended to erect accommodation for more than 520 children. The school has been erected, on a contract of 3,293l. 15s., by Messrs. Lloyd Bros.

BOYS' SCHOOL, FENNY STRATFORD.—New schools have just been built for the Fenny Stratford School Board to accommodate 380 boys. The building is Renaissance in style, of red brick with Bath stone dressings. The schools are roofed with Broseley tiles. There are two large class-rooms to hold 130 boys each, 64 ft. by 22 ft., two smaller class-rooms to hold 60 boys each, 24 ft. 8 in. square, a teacher's room, 15 ft. by 18 ft., and a corridor 12 ft. wide. There are also two cloak-rooms. The contract was 3,087l. The work has been carried out by Messrs. Harlow & Slaymaker, of Northampton. The architect was Mr. J. Chadwick.

SCHOOL, GREAT HOUGHTON, YORKSHIRE.—The Lord Mayor of Sheffield has just opened a new school at Great Houghton. Mr. Arthur Garland, of Netherwood Hall, prepared the plans, and Messrs. Noble, Son, & Nephew were the contractors. A small room of the old school has been enlarged to more than twice its former size, and opening out of it is a room to accommodate 210 infants.

THE MATER INFIRMORUM HOSPITAL, BELFAST.—This building is being erected from the design (selected in competition) of Mr. W. J. Fennell, architect, of Belfast. The contract was given to Messrs. H. Lavery & Sons. The site has a frontage of 230 ft. to the Crumlin-road. The hospital is designed on the pavilion system, and the principal portions may be said to consist of three distinct blocks facing the Crumlin-road, the centre one being the administration building, flanked by a pavilion block on each side; that on the east being for males, and the west one for females. The pavilions are connected on the ground floor to the administration block by a corridor running east and west the entire length of the frontage. Each pavilion is three stories in height, and contains two wards on each floor, each of these wards being provided with two sanitary chambers in towers, which branch off diagonally at the ends, and separated from them by disconnecting corridors. The spaces formed outside the gable ends by the projections of these towers are utilised for verandahs for the use of convalescents. Each of the large wards is also provided with a ward kitchen and a small private ward containing only one bed. Between these extreme pavilions and the administration block is placed a smaller pavilion, which contains smaller wards and dayrooms for the convalescents. Each pavilion has its own staircase, in the well of which is placed the hoist. The hospital is planned for 137 beds and eight cots for children. The building is supported on arches. The administration block contains on its ground floor the reception-rooms, offices, and rooms of the resident medical officers. The buildings are of red brick, with stone

dressings. They are heated by steam and lighted by electricity. The principal entrance is in the centre of the administration block, which is surmounted by a statue of the Mater Infirmitum, from whom the hospital derives its name. A feature in the hospital is the garden roof. These roofs cover the great pavilions.

SANATORIUM, CANTERBURY.—The Canterbury Sanatorium, erected from plans prepared by the City Surveyor, Mr. A. H. Camp, has just been opened. It is built upon the pavilion principle. The blocks of buildings number six in all, and consist of scarlet fever pavilion, twelve beds; typhoid fever pavilion, six beds; diphtheria and isolation pavilion, two beds; administration block for matron and nurses, eight beds; giving a total of twenty-eight beds—inclusive of matron's and staff accommodation. Besides these there are the laundry block and the porter's lodge, shown upon discharging block. The porter's lodge, shown upon the original plans, remains meantime in abeyance. The heating and ventilation work has been executed by Shorland & Co., of Manchester. The walls are plastered with Keen's cement, with distempered finish, whilst relief is imparted to the plain wall surface by the fresco art subjects executed by the students of the School of Art under the supervision of the headmaster, Mr. Allen. The floors of the wards are laid with pitch pine wood block by the Ebner, of London, whilst the verandahs, halls, kitchens, and passages are laid with terrazzo. The whole building contract has been executed by Messrs. George H. Denne & Son, of Deal.

PLAISTOW FEVER HOSPITAL.—At their last meeting the Borough Council of West Ham approved the designs prepared by Mr. Edwin T. Hall for their new fever hospital, estimated to cost upwards of 75,000l.

POST OFFICE, CARLISLE.—A new Parcels Post Office is about to be built at the north end of the island platform at the Citadel Station, Carlisle, and alterations and improvements at the Post Office in Lowther-street are in contemplation. Messrs. W. and H. Davidson, to whom the contract for the Parcels Office has been made, have made a start with their work. The building will be erected under the supervision of Mr. Graham, chief civil engineer of the Caledonian Railway Company, Glasgow, Mr. James Miller, of Glasgow, being the architect, and Mr. McDonald, also of that city, the clerk of the works. The building will be two stories in height, and designed as an extension of the present buildings on the platform. The ground floor, 37 ft. by 30 ft., will be a sorting room. The floor above will consist of rooms for clerks, postmen, and stores, with necessary lavatories, and will be reached by a stair from the sorting room. The present parcels department occupies the old Arcade, and when it moves to the new quarters that building will be converted into a telegraph office. The alterations at the Post Office will be carried out by the Office of Works, but the contract for them has not yet been let.

EMPIRE PALACE THEATRE, DUBLIN.—This building, erected on the site of the old Star Theatre, was opened a short time since. The floors of the building are formed of steel beams, with concrete between, and all staircases are of granolithic principle. The seating accommodation is arranged as follows: Twelve private boxes (48 seats), stalls (120 seats), grand circle (136 seats), pit stalls (332 seats), balcony (322 seats), and gallery (742 seats). The entrance to the private boxes, stalls, grand circle, and pit stalls is in Dame-street, and is protected by a glass and iron porch extending across the pavement, erected by Macfarlane, of Glasgow. Inside the entrance is a series of Louis XV. decorations, by Messrs. C. Jackson & Son, surmounted by a dome and having mosaic floor and marble steps. From the entrance a passage is formed to one side of the house, the stalls and grand circle, and on the other side to the pit stalls. These passages are carried under the stage, being separated from it by iron and concrete roofs. From them an independent staircase is formed at each side of the house to each floor of private boxes, which is continued to the gallery level for the convenience of the management. Each floor of the house has two independent exits. A feature in the house is its bar and lounge accommodation. The bars are approached from each floor without any steps or stairs, that for the stalls being 35 ft. by 33 ft. The pit stalls bar is 32 ft. by 24 ft., and it has a mosaic floor. The balcony bar measures 38 ft. by 24 ft., and has a mosaic floor, while the gallery bar is of the same size. The dimensions of the stage are:—Depth, 34 ft.; width, 75 ft.; height to grid, 60 ft.; width of proscenium opening, 35 ft.; height of proscenium opening, 30 ft. A double asbestos curtain has been supplied by Messrs. Merryweather, of London. With the exception of a Stott burner in the centre of the ceiling, the house is lighted by electricity. The ornamental plaster work is Louis XV. in style. In the main ceiling are paintings executed by Mr. S. Wright, of London and Dublin, and representing Spring, Summer, Autumn, and Winter. The buildings were designed and their execution personally superintended by Mr. R. Henry Brunton, M.Inst.C.E.

MUSIC HALL, LONDON.—The new Cambridge Music Hall, Commercial-street, Bishopsgate, is now nearing completion. The total seating accommoda-

tion for the stalls, pit, private boxes, circle, and gallery will be for over 2,000 persons, with standing room in the rear of each tier for another 500. The stage will be 41 ft. wide by 30 ft. deep. The premises will be heated throughout by hot-water coils, and provision has been made for lighting the house by electric light. Mr. S. R. Lambie, of Kentish Town, is the builder, and the architect is Mr. Harry Percival, of Adelphi.

NEW ROYAL HOTEL, NORWICH.—The new Royal Hotel, Norwich, has just been opened. The building is situated at the top of Prince of Wales-road, immediately opposite the Post-office. The work has been carried out in red brick. The basement on the Bank-street side is given up to the kitchen department, with a kitchen 40 ft. by 26 ft., scullery 30 ft. by 10 ft., and larder and pantry accommodation, with service lifts to dining-rooms. The whole are ventilated into one large main shaft to the top of the building. The portion next Upper King-street is set apart for the various departments of the working staff, with service lift to each floor. Part of the large central area comprises the heating department and coals. The remainder of the basement consists of cellars, having an area of 2,000 ft., and being floored and covered in with concrete. On the ground floor is a large hall, 40 ft. by 30 ft., with manager's room attached, and office and porter's room on the right and left of the main entrance. At the back of the hall there is a winter garden, 30 ft. by 20 ft. From the large hall the main fireproof staircase is reached, with passenger lift. The reception-room with cloak-room attached, are next to the dining-room, some 60 ft. by 30 ft., with panelled walls and teak floor. There are stock-rooms and commercial box-room next to Bank-street, with another entrance and lavatory accommodation. The Upper King-street side is composed of a commercial smoking-room, bar, coffee-room, and dining-room, 34 ft. by 26 ft., with service and still room attached, and smoking-room next to hall. There is a separate fireproof staircase for servants, with luggage lift to the different floors. The first floor is devoted to suites of rooms and to a central drawing-room. Next to Bank-street is a two-table billiard-room. There are also three large stock-rooms. The upper floors are given up to bedrooms, a service lift reaching to the top floor, and each floor having double bath-room and lavatory for gentlemen and ladies. The building is roofed in with green slates. The contractor was Mr. J. Youngs. Messrs. R. & A. Main were the heating and cooking engineers; Messrs. Barnes & Pye, the ironfounders who supplied and fixed the ironwork; Messrs. Lawrence, Scott, & Co., lifts, bells, lighting, &c.; Messrs. Trevor, Page, & Co., who decorated the principal rooms. Messrs. Edward Boardman & Son were the electricians.

CO-OPERATIVE PREMISES, SWANSCOMBE, KENT.—These buildings have been built by Mr. J. M. Dering (Gravesend), under the direction of Mr. A. G. Smith, architect (Gravesend), for the Swanscombe Branch of the Borough of Gravesend Co-operative Society. The new premises occupy a prominent position in the High-street Galley-hill, and are two stories high, in addition to cellars. Upstairs there is a show-room over the drapery department, and a small committee room, the rest of the floor being occupied by a public hall capable of seating about 150 persons. The total cost of the new stores was 3,300l. Messrs. T. Stone & Co., of Deal, fitted up the incandescent gas lighting in all departments.

SPRINGBURY PARISH CHURCH NEW HALLS, GLASGOW.—The foundation-stone of these new halls was laid on the 20th ult. When completed they will provide accommodation for 600 sitters, with vestry and church officer's house, at a cost of 1,700l. The plans also provide for an extension of the church at a total cost of 5,000l., which will be proceeded with as soon as the halls are completed. The architect is Mr. J. Lindsay, Glasgow, and the contractors are:—Mason work, George Collier; joiner work, John Cameron; plumber, R. Munro; slater, Thos. Muir.

LIBERAL CLUB, SKIPTON.—The new Liberal Club premises in connexion with the Skipton Liberal Association were opened on the 22nd ult. The total cost of the premises will amount to nearly 5,000l. The building fronts to Keighley-road and Sackville-street. On the ground floor there are six lock-up shops, near the centre of which is the main entrance to the club. On the first floor there are smoke-room, reading-room, and library, and the two former are connected by sliding doors, so that they can be made into one room to seat about 150 people. There are three other rooms on the same floor, besides bath-rooms, &c. On the second floor there are two recreation-rooms and curator's private room. On this floor there is a billiard-room, 52 ft. by 32 ft. 6 in. Adjoining this is a private billiard-room. The top floor also contains the curator's living rooms. Mr. James Ledingham, of Bradford, was the architect.

PROPOSED THEATRE, LEEDS.—It is proposed to erect a new theatre in Leeds, from plans prepared by Mr. Frank Matcham. The theatre will face Leeds Bridge, and the exterior will be constructed of terra-cotta. The building will be surmounted by a cupola tower. This will contain a water tank which will supply a sprinkling installation. The interior of the theatre is to seat 3,500 persons, and

standing room will be provided for another 1,500. The contractors are Messrs. Wade Brothers.

TEMPERANCE HOTEL, PERTH.—New Temperance Hotel buildings are to be erected in New Scotland-street, Perth. On the ground floor are a restaurant, billiard-room, and stock rooms, while the commercial room, coffee room, and other departments occupy the first floor. The total cost of the building will be between 4,000l. and 5,000l. The designs are by Mr. James Smart, architect, Perth.

FLORAL DEPOT, CARDIFF.—A floral depot has been erected for Messrs. Case Brothers in the Newport-road, near Clifton-street, Cardiff. The building occupies a frontage of 50 ft., and has been built from a design by the architect, Mr. Fred. C. Stibbs. The centre of the building will be used as a shop, and will have an entrance from the Newport-road.

MUNICIPAL LODGING-HOUSE, SOUTHAMPTON.—Mr. Herbert H. Law, one of the Local Government Board Inspectors, held an inquiry at the Audit House, Southampton, recently, with reference to the proposal of the Southampton County Council to borrow the sum of 14,500l. for the erection of a municipal lodging-house. The Borough Engineer, Mr. W. B. G. Bennett, explained the plans in detail. The lodging-house will accommodate 225 men, and will be heated by hot water and lit by electricity. $1\frac{1}{2}$ house will be practically fireproof.

SANITARY AND ENGINEERING NEWS.

EXETER SEWAGE.—THE SEPTIC TANK SYSTEM.—An inquiry was held at Exeter on the 23rd ult. by General Crozier, R.E., and Dr. Thompson, on behalf of the Local Government Board, into the application by the City Council to borrow a sum of 40,000l. for sewerage works and sewage disposal on the septic tank system invented by Mr. D. Cameron, the City Surveyor. The Town Clerk, Mr. G. E. Shorto, having explained the nature of the application, Mr. Cameron produced the detailed plans and a statement showing the length of the existing sewers, their diameter, gradient velocity, and capacity. He said the sharp flow of the intercepting sewers would be such that the main sewer would carry more than five times the ordinary dry weather flow, after allowing for an increase in population from 37,000 to 47,000. He then explained the plans to the inspectors so far as they concerned the construction of the intercepting sewers. The gradients ranged from 1 in 300 to 1 in 1,500. The sewers would be principally of concrete, iron pipes being used where the sewers crossed the mill leat. The velocity of the main outfall sewer would be 1.25 per second. Nine flushing tanks were provided at certain points in the sewers. When the sewage was conveyed to Belle Isle it was proposed that it should be purified first by bacteriological action in covered tanks; secondly, by filtration through artificial filters and finally by filtration through land. Three grit chambers, each 15 ft. square by 15 ft. deep, for the deposition of road detritus and other heavy material. His system was to deal with the sewage first of all in a septic tank from which light and air would be as far as possible excluded. He proposed to have six of these tanks, each 18 ft. 4 in. long, 4 ft. 6 in. wide, and 7 ft. 6 in. deep. The tanks would have a total capacity of 262,422 cubic ft. They would be covered with concrete arches, carried by brick piers, and levelled over with soils, or manholes provided at intervals to give access to the tanks. In the words of his report, the tanks "are designed to promote the growth of the liquefying micro-organisms in the sewage, by whose action the organic solids are broken down into simpler substances, which can be dealt with by filtration. The resulting effluent is thus rendered inoffensive and almost clear, and practically free from solids in suspension. The flow through the tanks will be continuous. Both the inlet and the outlet will be submerged, and so arranged as to minimise the disturbance of the contents of the tanks by the incoming and outgoing streams." After working for fifteen months the average deposit of matter in the tank was 234 in., and 87 per cent. of water. There were about 80 cubic yards of solid matter, and if precipitation had been adopted the fair estimate would be 600 cubic yards. The whole of the six tanks provided could be used at one time, or each could be used separately, or any number independently. Including the St. Leonards drainage, he had provided for dealing with 851,000 gallons, and added 25 per cent. for the prospective increase of population, and this would bring the total up to 1,066,000 gallons. The average rainfall was 30.8. About five-eighths of the rainfall found its way into the sewers. With a quarter-inch rainfall the proportion would be about four-tenths, and that would be very seldom exceeded. Therefore, in the provision of the tanks he considered he had made provision for the whole of the sewage. Except at times of extreme floods, the tanks would deal easily with all that the sewers could bring along.—Replying to Dr. Thompson, the Surveyor said the sewage with a dry-water flow would remain in the tank forty-five hours, and with a quarter of an inch rainfall it would remain seven and a half hours. If there was half an inch rainfall the surplus would be sent over the overflows into the river.—General Crozier questioned the Surveyor as to the

action of the grit chambers, asking why they only caught the road detritus and not any sludge.—Mr. Cameron said that was the result of their peculiar construction.—It was pointed out by General Crozier that by the scheme any overflow from the sewers could be turned at the will of those in charge of the works into the river, without first going over the land, and he did not think the Department would consent to that.—Dr. Sims Woodhead, of Edinburgh, said he had examined the experimental works, and had taken samples of the deposit and effluent. He found a very marked change in the composition of the sewage, and those changes were associated with the processes of decomposition, not of putrefaction. The sewage as it came to the tank contained quantities of organic matter, and the solids were brought into solution. This had always been a great difficulty in other schemes, as in the case of a sewage farm where the solid matter was liable to lay on the surface and choke the land. In the tank provided in this case, the difficulty of breaking down and getting rid of faeces so as to bring the constituents into solution was to a large extent overcome. There was in the tanks a constant process of liquefaction going on, both on the surface and under the water. The effluent from the tanks passed into filters, and he found further changes taking place in the direction of increased purity. Up to a certain point the effect of a heavy rainfall would have a deleterious effect. As a general principle, he should take it that the presence of a large number of micro-organisms would indicate that there was still a great deal of work to be done. A series of experiments, however, were made, with a view to determine the extent to which the various samples of effluent when alone and when mixed with the river retained their power of doing mischief. These were transferred to both tubes for inoculation, and the results went to show that there was no great amount of morbid material in the water after it had been kept for forty-eight hours; but when the more delicate test of incubating for a much longer period of eleven days, and then inoculating, death resulted from the samples of the tank effluent and the water taken from Belle Isle. In the case of the filtered effluent the results were negative, and the water taken from Almon Pool also successfully withstood the severe test. He considered the process had been attended with excellent results.—Mr. Henry Law, C.E., who was consulted by the Council in 1895, said the velocity in the proposed sewers would be sufficient to make them self-cleaning. In addition to the dry weather flow, provision had been made for conveying storm water to the extent of a rainfall of a quarter of an inch in twenty-four hours. He was satisfied the scheme would answer.—Mr. Philip Armitage, Engineer at Yeovil, said they had an experimental plant on the septic system in that Borough. It was constructed on exactly the same lines as the works at Exeter. They dealt with about 100,000 gallons of sewage a day. It was exceedingly foul sewage, containing a great amount of trade refuse. There were three filters, but these were only 3 ft. deep, and were composed of broken coke reduced to a size which would pass through a sieve with a minimum of $\frac{3}{4}$ in. and a maximum of $1\frac{1}{2}$ in. Two grit chambers were used, and these had a heavy bottom for collecting the solids, and a constant flow of water to keep the material in motion. The Corporation considered the result satisfactory so far as the disposal of the sludge was concerned, but they were not satisfied with the effluent according to the present mode of dealing with it. They did not like the chemical composition. Some alteration of the system had to be made. The inquiry was continued on the 24th and 25th, when Mr. Dibdin, Dr. Rideal, Mr. G. Thudichum, Mr. F. P. Perkins, Dr. Woodman, Dr. Pickard, and other gave evidence.

SEWERAGE WORKS, NORTHFIELD, WORCESTER-SHIRE.—At the Northfield Institute, on the 22nd ult. Colonel W. R. Shacke, R.E., conducted an inquiry on behalf of the Local Government Board concerning the application of the King's Norton Rural District Council for sanction to borrow 3,750l. for works of sewerage for the parish of Northfield. Mr. Edwin Docker (Clerk to the Council) represented the Authority, and Mr. A. W. Cross (Surveyor) and Mr. J. Webb (Assistant Surveyor) were present.

NEW CUT BRIDGE, SWANSEA.—This bridge, which takes the place of one erected thirty years ago, is now practically finished. The new bridge provides accommodation for two lines of road traffic, one of railway traffic, and two for foot passengers. It is carried on steel girders, with new bridge differs from the old one in that the latter is a drawbridge, and the former a swing-bridge. The new bridge is carried on a turn-table supported on an entablature of steel girders, resting upon a cluster of nine cast-iron cylinders, each of which, under air pressure, has been sunk about 25 ft. in the bed of the river, and then filled up solid with Portland cement concrete. These columns are braced together in every direction, so as to make a perfectly rigid platform for the bridge to swing on. The swinging portion of the structure is 72 ft. long on the land side from the centre of rotation, and 62 ft. 6 in., measured from the same point over the navigable channel, whilst there is a fixed portion on the river side of the swinging span 70 ft. 9 in. long, making the total length

from side to side 234 ft. 6 in. The total width of each roadway for vehicular traffic is 7 ft. 6 in.; the width of each footway, 6 ft. 3 in., and width of the railway 5 ft., making, together, with the necessary clearances, 45 ft. over all. The main girders are 27 ft. apart in the clear, braced together overhead at the centre of the swinging span, this giving a height in the middle of 20 ft. clear. The bridge swings upstream, and is made to revolve by hydraulic machinery, placed in a house on top of the main girders in the centre of the bridge. It is also locked in position and wedged up by hydraulic gear. The bridge is protected when open by a timber dolphin. The bulk of this work was carried out by Mr. George Palmer, Neath, and the centre portion by Messrs. Handyside. The cost of the structure is estimated at 27,000l., divided as follows: the bridge proper, 10,500l.; hydraulic machinery, 3,500l., the remainder having been absorbed in the abutments and approaches. The bridge was designed by Mr. A. O. Schenk, Engineer to the Swansea Harbour Trust, and it was built by Messrs. Handyside, of Derby, represented on the spot by Mr. Butler. The hydraulic machinery was supplied by Messrs. S. W. J. Armstrong, Whitworth & Co., and the high pressure hot water service for preventing the machinery being affected by frosts in winter time, by Messrs. Parkins & Sons, London. Mr. Stacey supervised the fixing up of the hydraulic machinery.

DRAINAGE AND SEWAGE DISPOSAL SCHEME, TRING.—A Local Government Board Inquiry has been held at Tring by Captain Luard, C.E., with respect to an application for sanction to borrow 5,000l. for carrying out a drainage and sewage disposal scheme prepared by Messrs. Thomas & Taylor, civil engineers, Westminster. Fourteen acres of land have been given by Lord Rothschild for irrigation and the system proposed to be used is that of the "Universal" Company of Derby, including the "Ives" Bacteria Filter.

LONDON AND SOUTH WALES DIRECT RAILWAY.—On the 26th ult. the ceremony of cutting the first sod in connexion with this work was performed by the Duchess of Beaufort. The new line, for the construction of which powers have already been secured, will start at Patchway and terminate at Wootton Bassett. So necessary is it that the junction should be completed as early as possible, that preparations for the work are being pushed forward with considerable rapidity. Already at several points along the route building operations for houses to serve as stores, offices, and huts for the men are in process of erection. The particular object of making the line is to open up a more direct route from London to South Wales by taking a straight course across the country lying between Patchway and Wootton Bassett, and thus avoiding the more circuitous route through Bath and Bristol and the steep gradients which are to be met with in Box Tunnel and on Wootton Bassett bank. But whilst this is the main object of the new railway, it will be of great benefit to the country through which it passes. The connection with the Great Western system at Patchway will be by means of a V junction, one line going in the direction of the Severn Tunnel and the other in the direction of Bristol, which will be brought some two miles nearer London by means of the new route. The total length of the new line will be 13 miles, starting from Wootton Bassett and Patchway of thirteen miles, as the distance between those two stations by way of Bath and Bristol is forty-three miles. From start to finish there will be but few curves, and no gradient greater than 1 in 300, whereas between Box and Corsham, and also at the Wootton Bassett bank, the inclination is 1 in 100. The engineering difficulty will be near Sodbury, where a tunnel some two miles in length will be constructed, and the material there excavated will serve towards the construction of the line through the flat portions of the route. The contractors are Sir Weetman Pearson & Co., and it is expected that the work will be some three years in progress. It is divided out into sections, but operations at the Wootton Bassett end will probably not be commenced till the spring. It is expected that from this point the temporary, or overland line, as it is called, will be cut through to Hullavington by Christmas, and to Badminton by March. Mr. W. W. Grierison is the Great Western Company's engineer on the works.

CATTWATER HARBOUR SCHEME, PLYMOUTH.—The recommendations of Sir J. Wolfe Barry and Mr. Cuthbert A. Breton for the improvement of the Cattewater are divided by them under six heads. They comprise: 1, The deepening and widening of the main low-water channel; 2, the construction of deep-water quays for the largest ocean liners; 3, the formation of deep-water wharves in the upper portion of the harbour; 4, the extension of the breakwater at Mount Batten; 5, the construction of a graving dock; and 6, a railway extending along the whole length of the proposed wharves. The cost of the whole works is approximately put by the engineers at 484,000l., of which 27,500l. is for dredging, 72,500l. for the quays in the lower harbour, 33,000l. for those in the upper harbour, 22,800l. for the extension of the breakwater, 23,500l. for the railway and stations, 4,700l. for an approach road, and 100,000l. for the graving dock.

LOCAL SEWERS, LONDON.—The London County Council have sanctioned the construction of the following local sewers:—Battersea: 626 ft. of 12-in. pipe and concrete sewer in proposed new street on

the Hyde House Estate, between Hyde-lane and Surrey-lane. Clerkenwell: 310 ft. of 12-in. pipe sewer in Cumming-street. Fulham: 1,260 ft. of 12-in. pipe and concrete sewer in Bishop's Park-road, Fulham Estate, Fulham Palace-road. Lewisham: 60 ft. of 12-in. pipe and concrete sewer in Creeland-grove, and 280 ft. of 12-in. pipe and concrete sewer in Elm-lane. St. Martin-in-the-Fields: 188 ft. of 12-in. pipe sewer in Carlton-news, Carlton House-terrace. Shoreditch: 350 ft. of 12-in. pipe and concrete sewer in Anning-street; 1,520 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer in Broke-road; 300 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer, 412 ft. of 15-in. pipe and concrete sewer, 301 ft. of 12-in. ditto, and 150 ft. of 9-in. ditto in Brougham-road; 500 ft. of 15-in. pipe and concrete sewer, and 580 ft. of 12-in. ditto in Brownlow-road; 306 ft. of 12-in. pipe and concrete sewer in Fanshaw-street; 100 ft. and 140 ft. of 12-in. and 9-in. pipe and concrete sewer respectively in Felton-street; 282 ft. and 185 ft. of 12-in. and 9-in. pipe and concrete sewers respectively in Granville-buildings; 150 ft. of 9-in. pipe and concrete sewer in Holt-street; 103 ft. of 12-in. pipe and concrete sewer in Ipswich-road; 308 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer, 312 ft. of 15-in. pipe and concrete sewer, and 283 ft. of 12-in. pipe and concrete sewer in Marlborough-road; 261 ft. of 15-in. pipe and concrete sewer in New North-place; 335 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer in Norwich-road; 446 ft. of 15-in. pipe and concrete sewer in Pownall-road; 385 ft. and 260 ft. of 15-in. and 12-in. pipe and concrete sewers respectively in Regent's-road; 412 ft. of 12-in. pipe and concrete sewer in Suffolk-road; 212 ft. of 12-in. pipe and concrete sewer in Willow-street; and 405 ft. of 15-in. pipe and concrete sewer in proposed new street between Nile-street and Provost-street. Wandsworth: 2,200 ft. of 12-in. pipe and concrete sewer in proposed new roads on the Spencer Lodge estate adjoining Roehampton-lane and High-street. Putney: 542 ft., 177 ft., and 586 ft. of 15-in., 12-in., and 9-in. pipe and concrete sewers respectively in Aslett-street; 498 ft. of 9-in. pipe and concrete sewer in Creaklock-street; 460 ft. of 12-in. pipe and concrete sewer in Daphne-street; and 418 ft. of 12-in. pipe and concrete sewer in Della-street and Treport-street, Alfalfar Estate, Garratt-lane. Wandsworth: 825 ft. of 12-in. pipe and concrete sewer in proposed new road between Balham Hill and Cavendish-road, Streatham. Wandsworth: 340 ft., 610 ft., 386 ft., 400 ft., 1,006 ft., 600 ft., and 406 ft. of 15-in. pipe and concrete sewers in Belmont-road, Dalmeny-road, Danebury-road, Milton-road, Hotham-villas-road, Rossiter-road, and other roads, Worple-road, Putney, respectively. Westminster: 450 ft., 30 ft., 65 ft., and 150 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewers in Chapter-street, Charlwood-street, Church-street, and Coburg-row respectively; 260 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer in Ennismore-gardens and Princes-gardens; 60 ft. of 3 ft. by 2 ft. brick sewer in Ennismore-gardens-mews north; 350 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer in Frederick-street; 220 ft. of 12-in. pipe sewer in Fynes-street; 230 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewer in Great Chapel-street; 220 ft. of 12-in. pipe sewer in Great George-street; 45 ft., 210 ft., 220 ft., and 350 ft. of 3 ft. 9 in. by 2 ft. 6 in. brick sewers in Johnson-street, Page-street, Regency-street, and Romney-street respectively; and 70 ft. of 12-inch pipe sewer in Scott's-rents. Bermondsey: 287 ft. of 12-inch pipe sewer in Kirby-road, Snow's-fields.

STAINED GLASS AND DECORATION.

WINDOW, SPALDING PARISH CHURCH.—A stained-glass window has just been placed in Spalding Parish Church, to the memory of the late Mr. C. F. Bonner, of Spalding. The work has been executed by Messrs. Clayton & Bell, of London, and the subjects represented are, our Lord standing in the Judgment Hall, and His appearance before Pilate after the resurrection. The memorial has been placed in the south-east window of the Lady Chapel.

MEMORIAL WINDOW AT GREAT LONGSTONE, DERBYSHIRE.—A four-light window has been placed in the south aisle of Great Longstone Parish Church, by Mr. Wright, of Longstone Hall, to the memory of the late Mrs. Bullivant, his sister. Each light contains a female figure—two from the Old Testament, Ruth and Naomi, and two from the New Testament, Dorcas and Lydia. The work has been carried out by Messrs. Heaton, Butler, & Bayne, of London, from the designs of Mr. Norman Shaw R.A.

MEMORIAL WINDOW, ABINGDON.—A window has been fixed in the east end of St. Helen's Church, Abingdon, in memory of the late Mr. Edward Morland, who died in 1894 while Mayor of Abingdon. The window was designed by Mr. Bodley, A.R.A. In the tracery are shown figures of Saints Gregory, Hieronymus, Augustus, and Ambrose, and symbols of Evangelists. The three large panels contain figures of St. Helen, St. Gabriel, the Blessed Virgin Mary, and Edward the King and Martyr. The bottom panels record four incidents in connexion with the Nativity.

WINDOW, ERDINGTON CHURCH, BIRMINGHAM.—A new stained-glass window, erected as a memorial to the late Mr. George Rollason, has just been unveiled in this church. The work has been executed by Messrs. Camm & Co., Smethwick.

MEMORIAL WINDOW, WALLSEND PARISH CHURCH.—There has been unveiled in Wallsend Parish Church a stained-glass window, erected by the surviving relatives of the late Joseph and Phillis Mordue, of Wallsend. The window consists of three lights, in each of which a saint is depicted. In the first the saint is St. Aidan, who is represented with a stag at his feet; the centre light is St. Bede, with the Gospel of St. John in his hand; and the third light shows St. Cuthbert, with a crowned head in his hand. The window has been designed and carried out by Messrs. James Bacon & Co.

MEMORIALS AT ROTTINGHEAR CHURCH, SUSSEX.—As memorials to the late Rev. Arthur Thomas, for forty-seven years Vicar of the Parish of Rottingdean, a lych gate has been erected at the entrance to the churchyard and stained-glass windows have been placed in the church tower. The windows are from designs specially prepared and given by Sir Edward Burne-Jones, Bart. That on the north-side represents "Jacob's Dream," and that on the south side, "The Jesse Tree" or "The Ascent to Paradise."

FOREIGN.

FRANCE.—MM. Auburtin and Umbdenstock have obtained the first premium in the competition for designs for the "Palais des Armes de Terre et de Mer," for the 1000 exhibition.—The Streets Committee of the Paris Municipal Council has decided that a competition should be opened among the house-owners in the new Rue Reaumur for the best exterior decoration of the houses. The four houses adjudged to be the best treated will receive, as a premium, a remission of half the frontage charges, and a premium of 1,000 francs will be awarded to each of the architects of these houses. There is some talk of the Council instituting a kind of permanent competition system for the best designs for new street houses.

—The tomb of Henri Heine, at the Montmartre Cemetery, will shortly be decorated by a statue executed by M. Hassebus.—There is shortly to be an exhibition of the works of the painter Guillaumet, to be followed by a sale. The new buildings of the Natural History Museum will probably be opened in the course of January.—A monument to Pasteur was inaugurated last Sunday at Melun, of which M. Houdain is sculptor and M. Virault architect. It consists of a stele with a capital, carrying a portrait bust in bronze. At the foot is a figure in bronze representing a shepherdess of la Brie, reaching up a bouquet of flowers. On the pedestal is a bas-relief representing the inoculation of a patient.—A new bridge is to be built over the Seine to connect the village of Seine-Port (Seine-et-Marne) with the St. Fargeau railway station.—M. Favrier has been elected President for 1898 of the Société des Architectes de Seine-et-Oise.—M. Gauquie, the sculptor, has just completed his model of the monument to be erected at Lyons to the memory of President Carnot.—The Municipal Council of Rouen have voted a sum of 100,000 fr. for the repair of the portal of the cathedral.—In the casemates of the town of Montpellier there has been discovered a statue of Louis XVI, which formerly figured in one of the public places of the town. It is of marble, and the work of the sculptor Valois.—The municipality of Pamiers intends to spend about 800,000 francs on new buildings, including a group of schools.—A steel bridge is to be built at Toulouse, over the Garonne, and two others over the canal of Brienne, at a total cost of 1,600,000 francs.—M. Eugène Carrière, the painter, has been commissioned by the Council of Paris to decorate the Salle des Fêtes in the Mairie of the twelfth arrondissement.

GERMANY.—One of the principal architectural events in Berlin has been the opening of some extensive premises for the mantle and drapery business of Messrs. Wertheim. The architect is Professor Alfred Messel, who is rebuilding the Embassy at Rome, and the new Museum at Darmstadt. The building is of considerable architectural pretensions, and shows many features of great originality.—A new hospital for a thousand beds is to be erected at Berlin, at an expense of about 650,000. The hospital will be one of the most extensive structures of its kind, or rather series of structures, as it will comprise sixty-two buildings.—There is some talk of extending the University buildings at Berlin; at present some of the principal lectures have to be held in temporary buildings, which have been erected in the University gardens.—At Berlin a new fire station has recently been opened, which may be considered to embody some of the most recent improvements for buildings of this kind. The horses stand harnessed in stalls on either side of the engine, so that there is no loss of time in horses having to cover the distance from the stables to the engine.—The Porta Paphia at Cologne will have to be destroyed in consequence of some street improvements in that city, but it will be re-erected in the Museum garden.

SURVEYORS' FEES, BRISTOL.—The Bristol Master Builders' Association have memorialised the Bristol Town Council and the Sanitary Committee on the subject of the abolition of surveyors' fees in the city and district. The memorialists have been to some trouble in obtaining information from various centres, and it is found that upwards of sixty large towns are exempt from such charges.—*Western Press.*

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. The firm of George Farmiloe & Sons, of 34, St. John-street, West Smithfield, has been registered as a Limited Company under the style of "George Farmiloe & Sons, Limited." The management remains as before.

THE MANCHESTER CULVERT SCHEME.—On the 24th ult., at the opening meeting of the Manchester Association of Students in connexion with the Institute of Civil Engineers, Mr. W. B. Worthington, chief engineer of the Lancashire and Yorkshire Railway, who succeeded Mr. C. S. Allott as President of the Association, delivered his inaugural address, in which he discussed the subject of design in relation to maintenance. He pointed out that in designing a structure the engineer must comply with three conditions—first, that the structure should be strong enough to fulfil the purpose for which it was intended; secondly, that it must be capable of being maintained in good order by the class of labour and with the material and appliances available at a reasonable expense; and thirdly, it must be constructed at the minimum cost consistently with fulfilling the two conditions already laid down, and any other special conditions that might be imposed. The second of the three conditions, he urged, was of the greatest importance, and could not be too often or too strongly insisted upon. They had in the City of Manchester, he said, a remarkable illustration of the points desired to make. The Rivers Committee of the Corporation, who had for a long time past anxiously considered the matter in all its bearings, advised by the City Surveyor and supported by practically the whole Council, decided that the sewage of Manchester could be more economically and satisfactorily dealt with by means of a culvert to carry off the effluent from the sewage works to the tidal waters of the Mersey estuary than by treating the sewage at the sewage works in such a manner as to produce an effluent which would satisfy the requirements of the Mersey and Irwell Joint Committee, and discharging that effluent into the Ship Canal. The whole matter practically turned upon the maintenance question. The Council, having all the facts before them, and having, by their Committee, gone fully into the first cost and cost of maintenance of the rival schemes, decided that it would be cheapest and best for the city to take the effluent to the sea. The citizens, when called upon to vote in confirmation of that, had gone contrary to the opinion of their representatives and skilled advisers, and had done so, no doubt, in part owing to the mass of voters not being sufficiently informed as to the merits to appreciate the importance of the second consideration which he had put forward, which required that the work should be able to be maintained at a reasonable cost. They understood that the culvert scheme involved a large initial outlay, and in seeking to avoid that they overlooked the fact that it would, if carried out, save their pockets by relieving them of the necessity of the heavy annual outlay which the alternative scheme involved.

LEICESTER MASTER BUILDERS' ASSOCIATION.—The annual dinner of this Association was held on the 25th ult. at the "Bull's Head" Hotel. Mr. G. Hardington (President of the Association) occupied the chair. The loyal toasts having been honoured, the Chairman read letters of apology from non-attending members of a number of gentlemen. The Surveyor wrote: "It will no doubt be interesting to you to know that during the year ending September last, passed were passed for no less than 2,062 houses, this being 490 more than the large number for the previous year, and that the total number of new buildings, alterations, houses, &c., for which plans were passed during the twelve months ending September last, reached the unprecedented aggregate of 3,252. Mr. C. Baker (President of the Leicester and Leicestershire Society of Architects) wrote expressing the great pleasure it afforded him to know that excellent relations continued to exist between the members of the Leicester Builders' Association and his Society, and he felt sure that it was the wish of all the members of both Societies that they should be continued. Mr. Garrett, in proposing the toast of "The Leicester and Leicestershire Society of Architects," spoke of the good feeling that generally existed between the members of that Society and the Builders' Association, though he confessed that sometimes architects were most difficult to please. Mr. Thomson, in reply, admitted that architects were sometimes placed in a peculiar position, and that often their duties were those of arbitrators. The Mayor next submitted "The Leicester Master Builders' Association and Kindred Trades," and expressed a hope that the future might not be less successful than the past to the members of the Association. Very great value was to be derived from such an Association as theirs. Internally, it tended to the cultivation of kindly sentiment between men who, although competitors, were none the less men and friends. Externally, it enabled them to deal in a wholesale and reasonable way with questions which arose between associations of workpeople and masters, and so prevent a constant state of warfare between operatives and individual employers. With regard to the work of the trade, he had no hesitation in saying that the master builder of to-day exercised great care over his work, and he should be glad if one of the

results of that Association was the creation of a spirit of emulation which would make it impossible for any man to belong to that Association and at the same time to be guilty of shoddy work.—The chairman, in response, gave a retrospect of the work of the Association, and said that during the past year they had had exceptional difficulties to deal with. They had scarcely started before they had to face what was practically a brick famine. Prices went up from 10 to 20 per cent., and it was very unfortunate for those who had contracts, and had not placed their orders for materials. Then there was a dispute between the plasterers and bricklayers in the town, but the committee of that Association could, he thought, take credit for having brought that dispute to a satisfactory conclusion. But whilst they had got over some difficulties there were still many before them. As they knew, they were expecting notices for an advance before the end of the month. Master Builders to-day were combining all over the country, and they could rest assured that any claims which were thought to be against the best interests of the country, of their clients, of themselves, and the workpeople, would be resisted to the last. The toast, "The Town and Trade of Leicester," was proposed by Mr. Gimson, and then by Mr. E. F. McCarthy, one of the "The Visitors," submitted by Mr. Chambers and replied to by Mr. Brown, of Derby; and that of "The Chairman."

STATUE, BOLTON.—Mr. John Cassidy, sculptor, of Manchester, has just completed a statue of the late Dr. James Dorrain, of Bolton. The statue, a pedestal, and a base, is now in the hands of a block of Portland stone presents Dr. Dorrain standing with his arms folded, one hand clasping a book.

THE GREAT FIRE AND THE CRIPPLEGATE BUILDINGS.—On Tuesday, at a meeting of the City Commissioners of Sewers, at which Mr. H. G. McCarthy, M.P., and Mr. E. F. McCarthy, one of the Cripple-gate representatives, moved that he referred to the Finance and Improvement Committee to consider and report as to the desirability of taking steps to effect improvements in the district affected by the recent fire. He referred to the urgent importance of taking immediate action to secure control over the site of the ruins so that the committee might utilise the opportunity of making street improvements in the public interest. For the last thirty-two years rebuilding in the Ward of Cripple-gate Without had been going on. New buildings had occupied the exact sites of the old, and while the rateable value of the ward had greatly increased, no enhanced facilities for traffic had been given, and what was worse, new premises had been run up in a most disgraceful manner, without reference to the security of life and property, and with no consideration whatever for the danger arising from fire. There had been, to put it plainly, "jerry-building" of the worst order. While rates and ground-rents had increased, no provision for the safety of the public had been made, with the result that when the fire broke out it spread with amazing rapidity, for the warehouses were intermingled and intermixed like bedrooms in a school. If the wind had been adverse on the day of the fire half the City might have been destroyed. His constituents hoped the matter would be taken up immediately as a great number of the buildings were being reconstructed, and if they did not act quickly, they would soon be in the old position.—Mr. Stapley, in seconding the motion, said the area of the fire had always been regarded as amongst the most dangerous in all London, and now that it was in ruins the opportunity should be utilised in effecting improvements in the district, for which, in the ordinary course, they might have had to wait indefinitely. Mr. Tranter urged that an entire remodeling of the area was necessary, and that a thoroughfare to Aldersgate-street should be constructed. Mr. Cloudsley, Chairman of the Finance and Improvement Committee, said they were fully alive to the immediate importance of the matter, and they were going to make an inspection of the site in order to ascertain what suggestions for improvements they should recommend. Eventually, after considerable discussion, Mr. McCarthy's resolution was carried, an order was given to the committee to confer with the London County Council if necessary.

THE RECENT FIRE IN LONDON.—The insurance companies have been very busy in the recent fire, and the loss on the bulk of the buildings destroyed, have entrusted the adjustment of the claims against them to Mr. Robert Willey, surveyor to the Hand-in-Hand Insurance Company, and Mr. I. R. Cooper, the senior partner of the firm of Ventum, Bell, & Cooper, surveyors.

THE TINNER TRUST.—The Society have published statutory notice of their intention to promote a Bill in next session for an alteration of Section 28 of the Thames Embankment Act, 1862. They seek authority, notwithstanding that Act, to erect, at the southern extremity of the buildings proposed to be erected in extension of King's Bench-walk, buildings upon so much of the reclaimed lands belonging to the Corporation as they may think fit, and to extend buildings and the northern side of the District Railway tunnel.

DISCOVERY OF WOODEN WATER PIPES, LONDON.—During the course of some excavations near the Great Turnstile, Holborn, on Saturday last, for the purpose of laying telephone wires, some workmen

employed by the National Telephone Company discovered, it is stated, about 5 ft. below the surface, what at first appeared to be trunks of trees. Upon being closer inspected it was found that the trees were bored through. No doubt the trees had been used as water pipes before the introduction of iron tubing.

A WOLVERHAMPTON BUILDER FINED.—At the Wolverhampton Police-court, on the 26th ult., William Ebdon, builder, of Sherwood-street, Wolverhampton, appeared to answer two charges of contravening the by-laws of the Borough, by not properly bonding together the walls of a building. Mr. H. Brett (town clerk) prosecuted, and Mr. T. Dallow defended. According to the statement of the Town Clerk, the defendant was a speculative builder, and he had erected a number of houses in the Borough. In building a house in Owen-road he had failed to carry out the by-law, as he had not interlocked the walls, and in one case a new building had become cracked. Mr. Bradley, the Borough Engineer, gave evidence in support of the cases.—Mr. Dallow said the defence was that the building had been properly bonded.—Several witnesses were called to prove that the structure was properly erected, and rebutting evidence was then tendered.—Mr. H. Willcock, builder, said he had examined the building, and he would not sanction such work.—Mr. F. T. Beck also described the work as "bad." The defendant was ordered to pay in fines and costs 18s. 4s.

RECONSTRUCTING HIGHGATE ARCHWAY.—Mr. Charles Wall, the contractor for the reconstruction of Highgate Archway, has commenced operations. The footway on the north side of the archway, during the construction of the southern half, and a temporary footway will be formed on the south side, while the northern portion is being removed.

BUILDERS' BENEVOLENT INSTITUTION.—In commemoration of the Jubilee year of this Institution, the committee have determined to admit all the candidates for the pension (three in number) without putting them to the anxiety and expense of a contested election. Subscribers and donors to the Builders' Benevolent Institution will no doubt fully sympathise with this manner of commemorating its Jubilee.

SOUTH-WEST LONDON POLYTECHNIC.—The first annual distribution of prizes and certificates to students of the day college for men at the South-West London (Chelsea) Polytechnic, and the second annual distribution to students of the evening classes, took place on the 27th ult. Mr. R. C. Antrobus, Chairman of the Governing Body, presided, and the distribution was made by Sir H. Roscoe. The Principal (Professor H. Tomlinson) read his report on the progress of the Institute, from which it appeared that during the session of 1896-97 the number of evening class entries was 3,162, as against 1,957 in the session of 1895-96, and the increase was being continued in the present session. The number of entries in the day classes was last session 870, and there is an increase in the present session. The need of increased building accommodation was being very keenly felt. At present the dressing-room of the gymnasium had to be used in the daytime as a school for cookery and for needlework; the photograph studio had to serve not only for photography, but for botany, biology, physiology, and original studies in physics, while nearly all the music classes had to be held in a refreshment room, and a class for tailor-cutting in a carpenter's shop. There was also a great want of suitable rooms for the 'social side' of the Institute. On the motion of Mr. A. F. Leach, seconded by Dr. W. Garnett, the following resolution was unanimously adopted:—"That this meeting recognises the great value of the instruction afforded by the Institute and urges on all those interested in technical education the extreme need of new buildings." The prizes having been distributed, Sir H. Roscoe delivered an address, in the course of which he said a sum of about 12,000l. was needed to meet the cost of the increased accommodation that was necessary, and he trusted that this amount would soon be forthcoming.

NOTTINGHAM MASTER BUILDERS' ASSOCIATION.—The Nottingham Master Builders' Association has taken permanent offices at Bentinck-buildings, Wheeler Gate, Nottingham, and is forming there a library of books connected with trade matters and also of catalogues and price-lists of all goods and appliances available by the building trades. We are asked to state that the Association will be obliged to manufacturers and merchants for particulars of their goods, which will be placed in the library or reference.

THE PRE-RAPHAELITE ART OF SIR J. E. MILLAIS.—This was the subject of a lecture given by Mr. Whitworth Wallis at the London Institution on Monday. Millais, said Mr. Wallis, was really the founder and leader of the Pre-Raphaelite School, whose object was to throw off convention and paint Nature faithfully. In choosing their name Millais, Holman Hunt, Rossetti, and their companions, were guided by the conviction that previous to Raphael artists went solely to Nature for inspiration, whereas, after Raphael, they sought rather to paint fair pictures, and above all saleable canvases—a practice which had led to a decline of Art. Millais' early paintings were received with outrageous insults in which the present generation could scarcely conceive, and which proved the astounding artistic

ignorance of the time. He continued a Pre-Raphaelite till nearly 1860, in which year his "Black Brunswicker" showed a new Millais. During the last thirty years of his life he was himself rather than the representative of a school. However great were his works in the later period, his reputation would rest mainly on the cycle of artistic triumph in his Pre-Raphaelite days. The greatest painter of the century, his work quickened sympathy for which we could not be too grateful. The lecture was illustrated by several lantern views of the dead artist's pictures.

CAPITAL AND LABOUR.

BRICKLAYERS' WAGES, RUNCORN.—The bricklayers of Runcorn have given the masters notice demanding an advance in wages of 2 halfpenny per hour from 8½d. to 9d. The masters claim that higher wages are paid than in the surrounding Cheshire towns. The masters have also been notified of alterations in the working rules.

LEGAL.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS AT EXETER.

THE case of Smith v. The Devon and Exeter Turkish Baths, Limited, came before Mr. Justice North in the Chancery Division on the 26th ultimo.

Mr. Swinfen Eady, Q.C., for the plaintiffs, the trustees of a chapel at Exeter, said that he asked for a mandatory order against the defendants, commanding them to pull down a portion of a building which they had erected, and which interfered with the plaintiffs' ancient lights. The defendants were a recently incorporated company, and were building Turkish baths at Exeter upon the site of some old buildings formerly known as Atwood's Almshouses. The plaintiffs' chapel with two cloisters, and a north porch, were on one side of the street, and the old almshouses were exactly opposite. The old almshouses were 17 ft. 9 in. high, to 10 ft. high, and the defendants proposed to put up, and had in fact put up, a block of Turkish baths between 31 ft. 6 in. and 37 ft. high. Before the building was put up there was an interview between Mr. Crocker, the plaintiffs' architect, and the defendants' architects. At the time it appeared that the defendants proposed going some 10 ft. higher than the building then stood. On October 9, they gave an undertaking not to raise their new building higher than the springing of the arches of the windows until the matter could be settled between the parties. Some correspondence followed, and arbitration was proposed, but the proposal fell through. In the meantime, on October 25, the contractor had been instructed not to proceed with the building. Notwithstanding what had taken place, the plaintiffs found that on November 4 the defendants were going on with the building in defiance of arrangements between the parties, and on November 6 the writ was issued, and the same day leave was obtained to serve notice of motion on the defendants. The learned counsel said that the defendants had put on their roof but he apprehended they would make no difference to the order to pull down.

Mr. Vernon Smith, Q.C., for the defendants, said that the old building was 21 ft. at the lowest and 23 ft. at the highest part. There was a lot of evidence, and he thought his Lordship, after hearing it, would say that there had been no breach of faith at all, and that nothing took place on the part of the defendants which would entitle the plaintiffs to a mandatory injunction on the motion then before the Court. At the time of the arrangements the building was substantially up, except for the roof. The defendants merely added a foot and put the roof on after the arrangements for arbitration fell through. He should suggest that the motion should be treated as an application for a speedy trial.

Eventually, after some further discussion, it was arranged that the motion should stand till the trial, upon the defendants undertaking, without prejudice to any question, to abide by any order the Court might make as to pulling down, the action to be set down at once, and the plaintiffs to deliver their statement of claim forthwith. Mr. Eady added that his clients might think it expedient to try the case at the Exeter Assizes, as all the witnesses resided there.

MEETINGS.

FRIDAY, DECEMBER 3.

Architectural Association.—Mr. J. Osborne Smith on "The Planning of High Schools and Endowed Schools for Girls." 7.30 p.m.
Institution of Civil Engineers (Students' Meeting).—Mr. Crote Stirling on "Permanent Way: its Construction and Relaying." 8 p.m.

SATURDAY, DECEMBER 4.

Carpenters' Hall, London Wall, E.C.—Examination in Sanitary Building Construction, 12 noon.
South-West Polytechnic Institute (Manreia-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture, from Anglo-Saxon Times to the end of the Eighteenth Century." 7.30 p.m.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Primitiva.	Designs to be delivered.
Electric Lighting Scheme	Hackney Vestry	Not Stated	Dec. 14

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, & Supplied by.	Tenders to be delivered.
Wesleyan Chapel and School, 61 Barnet, Fickering	Salford Corporation	E. Taylor, Archt. 7, Stone gate, York	Dec. 6
Bridge Works, Peel Park	Salford Corporation	Surveyor's Office, Board's Office, Levensham, S.E.	Dec. 7
*Kerling, Tarpaving, Metalting, & Morris-road	J. Smith	S. Dyer, Quay-road, Bridlington	do
Houses, Shale, &c. Carlton street	General Prison Board	S. H. Douglas, Gen. Prison Board, Dublin Castle	do
Hospital at Prison, Belfast	Ireland	P. C. Rutton, County Office, Preston	do
Bridge Works, Kirkby Ireth	Lancs County Council	B. J. Newman, Burr 3, Tennyson-bldgs, Ashley-road, Brankham	do
Additions to Hospital, Ringwood-road	Brankham (Dorset) U.D.C.	J. Fullerton, Campheltown Burg, Ager, 1, Parliament	do
Hospital	Edinburgh Corp.	J. Routledge, Burv. Comm. G. A. Horton, Burv. Town Hall, Fellingstone	do
Sewerage Works, Sunnybank	Edinburgh Corp.	Clayton & Black, Archt. 102, North-st, Brighton	do
Stoneware Pipes and Laying, Shildon, Durham	Stanley U.D.C.	J. H. Jevons, G.S. Bedford C.D. Foster, 24, Grainger-st, Newcastle	do
Keston Bay, &c.	U.D.C.	Surveyor's Dept., Vestry Hall, City-road, York	do
Infirmary	Newcastle Union	C. Botterill, Town Hall, Waltham Green, W.	do
Cast-iron Water Main	Hertford Corporation	J. Rogers, Archt. North-east, Kestley	Dec. 9
Sewerage Works, Chippingdon, Leamington	Bedlingtonshire U.D.C.	S. J. Wain, Archt. Boulton yard Chambers, Weston	do
*Wood Paving (Larrah)	St. Luke's (Middlesex) Vestry	Johnson & Moore, Archt. York Chambers, Kestley City Surv. Town Hall	Dec. 10
*Making-up and Paving Road	Fulham Vestry	do	do
Thirty-five Houses, near Fell-lane, Kestley	Kestley Indus. Co-op. Soc. Ltd.	Avenue House, North-berland-avenue, W.G. J. Skaller, Archt. 57, High-st, Leeds	Dec. 11
Shop Front and other Works, Westcoast, super-Mann	Bryant & Sons	High-street, Chorley	do
Institute, Lees, near Kestley	Manchester Corp.	J. N. Gale, Engr. 43, John-st, West Liverpool	do
Roofing, Ironwork, &c. Daysholme Screaming Chamber, Sussex	Admiralty (Works Dept.)	Lea & Reid, C.E. 7th, Francis-st, Edinburgh	do
*Coastguard Station at Pett, Sussex	O. E. Moser	G. V. Davidson, Engr. Fraser-road, Windsor	do
Ten Houses, Kendal	Mallow Union (Ireland)	A. B. Linford, Archt. Kelvic Cottage Wombwell	Dec. 13
Alterations to Workhouse and Cemetery	Chorlton U.D.C.	J. G. G. Buckley, Archt. High-street, Chorley	do
Fire-alarm Pipes, &c.	Forlestone Joint Hospital Board	Griffith & Jones, Archt. Town Hall, Tynemouth	do
Additions to Hospital, Heath Charnock	Glazow Corporation	O. Z. Hise, 33, Parliament-st, S.W. Leeds	do
Water Supply Works, Loch Katrine	Bathgate (N.B.) Police Commrs.	H. W. Dibbin, Mallock House, Upper Parkers	do
Embankment	Alma Park Estate Co.	E. H. Haug, Burv. Regent-circus, New Brighton	do
Roads, Sewers, &c. Windsor	Nottingham Corp.	W. Stubbs, C.E. Municipal Office	do
Schools, Darfield, Yorks	Kleason (U.D.) School Board	Malcolm Patterson, 35, Manor-road, Bradford	Dec. 14
Congregational Chapel, Gell, Rhonda	Swindon New Town U.D.C.	J. Whitall, place, S.W. County Office, Maidland-st, Trowbridge	do
*Extension of Lunatic Asylum	Blackburn Corp.	Law Angel, Town Hall, Bradford	do
Iron Fencing, &c.	Posteact R.D.C.	Two Hall, 302, Buchanan-st, Glasgow	do
Street Works, Back-roads	Gommers, H.M. Works	Stanton, W. Caledonian Hall, Co.	do
*Gravel, Tannin, Ballast, Sand Gravel, &c.	County Boro' of West Bath	G. W. R. Co.	do
*Additions to County Asylum, Devizes	Portsmouth T.C.	Joint Hospital Board	do
*Making-up and Paving Streets	Caledonian Hall, Co.		do
Repairing and Securing Wharf	County Boro' of West Bath		do
Halfway Construction, Leith Lines	G. W. R. Co.		do
Cottages, Loddiswell and Gara Bridge, Devon	Joint Hospital Board		do
Additions to Hospital, Woodbridge, near Guildford			do

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, & Supplied by.	Tenders to be delivered.
*Extending Carriage Building Shops, York	N. E. R. Co.	W. Bell, Co.'s Offices, York	Dec. 15
Additions to Farm Buildings, Edgemoor Farm, Mether	Vicount Falkmouth	G. Rowett, Archt. 3, South Office, Truro	do
Electric Lighting station, Bueloch street	Borrow - In - Furness Corp.	Borough Rectory, Town Hall	do
Road Materials	Northampton Corp.	W. J. Brown, Boro' Burv. Guildhall, Northampton	do
Road Metal, &c. Newcastle-on-Tyne	Northumbrian C.C.	County Surv. Meet. Hall, Newcastle	do
Additions to "Landis," Harthorn	M. Robinson	E. A. Whipple, Archt. 59, High-st, Stockton-on-Tees	do
House, &c. Blandston, nr. Low-st.		B. Grevett, Archt. 3, South Office, Truro	do
Free Library, Chorley	Blackpool Corp.	Quay St. Yarmouth	Dec. 16
Sewering, &c.		Jolly & Buckley, Archt. High-street, Chorley	do
Roadworks, St. George's-road and Tower-street	Preston (Lancs) Corp.	W. J. Brown, Boro' Burv. Guildhall, Northampton	Dec. 17
Business Premises, St. John's, &c. Brick-street, Bradford		Hodges & Farnes, Archt. Old Bank-chamber, Bradford	do
Library, Dwelling-house, &c. Cefu Coast		R. C. Jenkins, Nerv. Cefu Co. J. Waters	do
Road Improvement Works, Tabbas avenue	Reading R. A.	J. Bowen, C.E. Town Hall, Reading	Dec. 21
*Brick or Concrete and Pipe Sewers	Tottenham D.C.	W. G. E. & Co., Victoria-bldg, Warrington	do
*Heating Stoves	Warrington Indus. &c. Co.	W. H. Purser, County Surv. 31, Bedford-st, Warrington	Dec. 21
Plinths and Local Stone	Sussex C.C.		do
*Erection and Completion of 20 two-story Tenement Buildings, foot of a New-st and 18 Cottages, foot of George-st, &c.	Manchester Corp.	City Surv. Town Hall	Dec. 28
Water Supply, North Wales Asylum, Denbigh	do	Wood & Braden, Engrs 3, Cook-st, Liverpool	Dec. 31
C.I. Water Pipes, North Wales Asylum	do		do
*Various Works and Materials	N. E. R. Co.	G. J. Livingston, 1, Pinelawn-road, Warrington	Jan. 1
*Sewering, Levelling, Paving, Making good, &c. Roads	Hornsey U.D.C.	A. J. Lovagrove, Offices, 10, Colchester	Jan. 3
Houses and Two Villas, South-wold	S. E. Howard	A. J. Lovagrove, Offices, 10, Colchester	No date
Victoria Hotel, Alconton, Hywast, &c.	Rugby City Council	A. J. Lovagrove, Offices, 10, Colchester	do
Ordnance Buildings, Castle-street, Rugby	do	A. J. Lovagrove, Offices, 10, Colchester	do
Additions to "The Cedars," Great Horwast, Essex	W. Page	A. J. Lovagrove, Offices, 10, Colchester	do
Villa, West Park, Margate	G. Goodrick	A. J. Lovagrove, Offices, 10, Colchester	do
Additions to "Pola"	A. H. Smith Barry	A. J. Lovagrove, Offices, 10, Colchester	do
Three Houses, Torrington, Lancs	do	A. J. Lovagrove, Offices, 10, Colchester	do
*Post Office Buildings, Worthing	do	A. J. Lovagrove, Offices, 10, Colchester	do
Cottages, Anchor Drive, Filling Fen, Norfolk	do	A. J. Lovagrove, Offices, 10, Colchester	do
Rebuilding Clarence Hotel, Walsgate, Wicks	do	A. J. Lovagrove, Offices, 10, Colchester	do
Six Cottages, Winchester	do	A. J. Lovagrove, Offices, 10, Colchester	do
Offices and Stores, Duke-street, &c. Bradford	do	A. J. Lovagrove, Offices, 10, Colchester	do
Tail Belch Chimney, Wharfedale Brewery, Wetherby, Yorks	do	A. J. Lovagrove, Offices, 10, Colchester	do
Asylum, Middleton-st, George, Durham	do	A. J. Lovagrove, Offices, 10, Colchester	do
Rebuilding "Old Queen Anne Inn," Alton, Leeds	do	A. J. Lovagrove, Offices, 10, Colchester	do
Roads, sewers, &c. Rannison's Gardens, Bante, Keshmire	do	A. J. Lovagrove, Offices, 10, Colchester	do
*Erection of Isolation Hospital	do	A. J. Lovagrove, Offices, 10, Colchester	do
*Block of Flats	do	A. J. Lovagrove, Offices, 10, Colchester	do

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Surveyor, Inspector of Nuisances and Canal Boats	Craven U.D.C.	100, 107, and 51 - 230 per annum combined	Dec. 14
*Borough Surveyor and Engineer	Ramsdale T.C.	200, rising to 300, per annum	Dec. 28

Those marked with an asterisk (*) are advertised in this Number. Competition, p. iv. Contracts, pp. iv, vi, viii, & xxi. Public Appointments, pp. xviii, xix & xxi.

MONDAY, DECEMBER 6.

Surveyors' Institution.—Mr. F. Panchard on the "Royal Commissioners' Suggested Amendments to the Agricultural Holdings Act, 1883." 8 p.m.
Society of Arts (Cantor Lectures).—Mr. Eugene F. A. Obach on "Gutta Serena."—11. 8 p.m.
Society of Engineers.—Mr. Reginald E. Middleton on "The Pollution of Water and its Correction." 7.30 p.m.
Liverpool Architectural Society.—Mr. J. A. Goch on "The Domestic Architecture of the Renaissance: Elizabeth-James." Illustrated by Limelight Views. 6 p.m.

TUESDAY, DECEMBER 7.

Society of Biblical Archaeology.—Paper by Professor Dr. Oppert (read by Rev. C. J. Hall) on "The Cuneiform Inscriptions and the Book of Kings." 8 p.m.
Institution of Civil Engineers.—Further discussion on the paper by Messrs. Hugh L. Callender and John T. Nicolson "On the Law of Condensation of Steam." 8 p.m.

WEDNESDAY, DECEMBER 8.

Society of Arts.—Mr. Bennett H. Brough on "The Mining and Metallurgical Industries of Sweden as shown at the Stockholm Exhibition of 1897." 8 p.m.

THURSDAY, DECEMBER 9.

Society of Antiquaries.—8.30 p.m.

SATURDAY, DECEMBER 11.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History

of British Furniture, from Anglo-Saxon Times to the end of the Eighteenth Century." VI. 3 p.m.
British Institute of Certified Carpenters.—Annual Meeting, Carpenters' Hall. 6 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

24,402.—**WATER-CLOSURES OR WASTE WATER SINKS:** J. W. Wild.—This invention consists in providing water-closures or sinks within receiving end of pipe with a removable receiver, having an exit orifice of smaller diameter than the smallest diameter of the passage through trap or pipe.
25,292.—**BUILDING BLOCKS AND USING SAME:** C. Craig and Another.—Inventors form building blocks having their faces inclined inwardly towards the top, and provided at the lowest side or edge of such face with a lip or ledge to cover uppermost edge of face of block next below. Some modifications of blocks with lips and rebates are described.
27,037.—**CUMULATIVE COWLS AND VENTILATORS:** T. Jantzen.—Inventor claims the combination of a shaft, with a series of concentric rings secured thereto, an interior deflecting cone, and one or more truncated cones.
27,725.—**GLAZING HOOKS:** J. Gail.—Invention consists in the formation of sheets of glass with a very slight curve towards centre, and with ridges or edges at the sides to prevent the water from soaking through the putty. Sheets are laid on the laths like ordinary tiles, and secured to roof by usual vandyked clips.

28,671.—**TRAPS FOR WASTE-PIPES, &c.:** C. S. Storer.—Invention consists in a trap formed of two pieces connected together and furnished with a grate or grid. Trap may be of cast iron.

28,788.—**SASH LINE FASTENERS:** J. T. Haynes.—Invention consists in a V-shaped metal case placed at top of each side bar of sash. Case is provided with interval grooves to engage with ribs on a metal sliding-piece, to which sash lines are fastened.

29,396.—**SAW BLADES FOR SAWING STONE, &c.:** J. H. Howarth.—Inventor claims saw blades for stone, constructed with diagonal and vertical grooves, and diamond or like-shaped projections on each face of blade, so arranged that on the reverse face of blade a raised portion will form the back of a groove which is on the other face.

27,422.—**RECIPROCATING SAWS:** C. T. Law and Another.—Invention consists in a tightening device for a number of saw blades in horizontal saw frame, characterised by the fact that each saw blade is arranged so as to be capable of being tightened separately or singly.

10,705.—**CLOSEST SEAT:** F. A. Hanna.—Invention consists in a closest seat of soft rubber, the seat border of which is filled with air, and can be fixed in an easily detachable manner into a groove in the frame by means of an elastic projection.

NEW APPLICATIONS FOR LETTERS PATENT.

NOVEMBER 25.—26,575, G. Hitchin, Chimney-pots.—26,594, F. Knobel, Stone Sawing Machines.—26,626, L. Sheppard, Safety Smoke Conductor for Drain Testers.—26,638, L. Darnall, Sashes, Strong-rooms, Doors, and

HORNSEA (Yorks).—For the construction of concrete reservoir, filtering chambers, &c. (Contract No. 11, for the Urban District Council. Mr. F. Gaskell, Surveyor, Hornsea).
 Brunton & Son (time, four months) £1,669 7 7
 J. Bell 1,537 4 5
 A. Robinson, Hull (accepted. Time, four months). 1,549 10 0
 Hy. Hulce (time, eight months) 1,542 7 6

HUDDESFIELD.—For the erection of stabling, &c., and forming a bowling green. "Griffin" Inn, Crosland Moor, for Messrs. William Stokes, Limited. Mr. J. Berry, architect, 9, Queen-street, E. Huddersfield—
Masonry.—A. & T. Haigh, Colcar £355
Joinery.—C. W. Brook, Crosland Moor
Plumbing.—Sanderson Bros., Paddock
Plastering and Slating.—W. E. Jowett, John William-street, Huddersfield
Painting.—Thos. Cartwright, Crosland Moor
Carving.—John Cooke, Little Royd

H. H. HEDSFIELD.—For the erection of two houses, Salford. Mr. J. Berry, architect, 9, Queen-street, Huddersfield:—
Masonry.—J. Moorhouse & Sons, Meltham £350
Joinery.—J. Sanderson & Sons, Lockwood
Plumbing.—D. Taylor & Sons, Lockwood
Plastering.—G. Comey, Lockwood
Painting.—W. Eastwood, Lockwood
Carving.—J. Longbottom & Sons, Lockwood

KINGSTON.—For new roads, sewers, &c., Combe Neville Estate, Kingston, for Mr. Wilson. Mr. A. J. Windybank, surveyor:—
 Free & Son £4,500
 Cunliff 2,945
 Ballard, Ltd. 2,484
 Adams, Kingston 2,075
 * Accepted.

LONDON.—For new road and sewers, Hyde House Estate, Harroise, S.W. Messrs. F. & W. Stocker, surveyors, 90 and 91, Queen-street, E.C.:—
 Daniel Bros. £1,100
 Thomas Pedretti 950
 G. Wunsey 950
 E. King 950
 C. E. King 950
 C. E. King 950
 W. Nicholls 950
 Jno. Jackson 950
 Kellingback & Co. 950
 Rawlings & Son 950
 * Accepted.

LONDON.—For the erection of a corner's court and mortuaries at Catford, S.E. for the Lewisham District Board of Works. Mr. John Carline, surveyor:—
 F. P. Smith £4,815
 E. Mills 4,780
 J. & C. Bowyer 4,395
 Ham & Son £4,713
 Walker 3,620
 * Accepted.

LONDON.—For alterations and additions to Devonshire House, Stoke Newington, for Mr. W. C. Bradley. Mr. C. Jackson Shaw, architect, 2, London-road, Hackney Town, N.E.:—
 A. S. Stevens £1,611
 J. R. Cordell 1,604
 Stevens Bros. 1,568
 A. Davis, Canonbury 953

LONDON.—For sundry repairs and decorations at Nos. 7, 8, 9, and 10, Hargrave-street, W.C., for the National Society for the Prevention of Cruelty to Children. Messrs. Reeves & Syche, architects, 3 Gray's Inn-square:—
 Patman & Fotheringham £411
 Playworth & Sons 381
 Conduit-street £222
 Campton 298
 * Accepted.

LONDON.—For new stabling and alterations to existing buildings, for Messrs. Pritchard & Moore Brothers, at the Canadian Horse Repository, Lamb Conduit-street. Mr. John Farrer, architect and surveyor, 22, Finchbury-avenue, E.C.:—
 Stevens £1,036
 J. R. Cordell 95
 T. W. Brown 95
 Thomas Sobey* £594
 * Accepted.

LONDON.—For alterations and additions at No. 10, Montague-place, Russell-square, W.C. Mr. James Neale, architect, 10, Bloomsbury-square, W.C.:—
 Colvill £830
 Lidstone* £100
 * Accepted.

LONDON.—Accepted for alterations at No. 2, Montague-place, Russell-square, W.C. Mr. James Neale, F.S.A., architect, 10, Bloomsbury-square, W.C.:—
 Lidstone £107 17 8

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
 EAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
 HATTON GARDEN, and 29, RAY STREET,
 FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
 THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
 Telephone, 2, 274 Holborn. Tele. Address: "SNEWIN, LONDON."

MARKET BOSWORTH (Leics.).—For the erection of a board room, for the Union Guardians. Messrs. R. J. & J. Goodacre, architects, 5, Fitzhugh, Leicester. Quantities by architects:—
 Mr. W. Boulton £295 0 0
 J. Covett 969 0 0
 Slater & Son 912 13 10
 R. Orton 920 0 0
 Slater & Harrison £298 0 0
 H. W. Beck, Market Bosworth £21 10 9
 * Accepted.

SHOTTON.—For New Railway Hotel, Shotton, Flint, for the Kelstern Brewery Company, Limited. Messrs. J. H. Davies & Sons, architects, Newgate-street, Chester. Quantities by architects:—
 J. Lloyd £2,298
 W. S. Wood & Co. £2,466
 T. J. Kenney, Connah's Quay* 2,433
 W. Peel 2,644
 * Accepted.

SOUTHWATER (Sussex).—Accepted for cottage residence (exclusive of stabling). Mr. James Neale, architect, 12, Bloomsbury-square, London, W.C.:—
 Lidstone, London £598

SWINDON.—For the construction of brick-sewer, &c., for the Old Swindon Urban District Council. Messrs. Shopland & Redman, engineers, Newport-street, Swindon:—
 W. L. Meredith £1,612
 W. H. Smith & Son £750
 W. Winclocombe 720

TRURO.—For the erection of maling, Walsingham-place, for Messrs. Mallett & Co. Mr. Wm. Swift, architect, 23, Lemon-street, Truro:—
 M. Tippet £795
 J. & C. Harris £590
 Dyer & Tippet 735
 R. M. Tonkin, Tregey* .. 630
 * Accepted.

TO CORRESPONDENTS.

G. F. G. G. (below our limit).—J. S. & Son.—M. B. & D. A. & W. R. & W. (amounts should have been stated).—M. Bus sent too late.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications beyond mere news items which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR: those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

W. H. LASCCELLES & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

**HIGH-CLASS JOINERY,
 LASCELLES' CONCRETE**

Architects' Designs are carried out with the greatest care.

**CONSERVATORIES,
 GREENHOUSES,
 WOODEN BUILDINGS,**

**Bank, Office, & Shop Fittings.
 CHURCH BENCHES & PULPITS.**

ESTIMATES GIVEN ON APPLICATION.

WOOLWICH.—For the construction of a coal store at the public baths, Market-street, for the Local Board. Mr. H. O. Thomas, Surveyor, Town Hall, Woolwich:—
 E. Proctor £350
 Thomas & Edge* £197
 * Accepted.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 12s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 16s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 45, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS (by prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by *Friday Morning's Post*.

THE BATH STONE FIRMS, Ltd.

BATH.
 FOR ALL THE PROVED KINDS OF
BATH STONE.
 FLUATE, for Hardening, Waterproofing,
 and Preserving Building Materials.

HAM HILL STONE.

DOULTING STONE.
 The Ham Hill and Doulting Stone Co.
 (Incorporating The Ham Hill Stone Co. and C. Trask & Son
 The Doulting Stone Co.)
 Chief Office:—Norton, Stoke-under-Ham,
 Somerset.

London Agent:—Mr. E. A. Williams,
 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-houses and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO'S

**INK-PHOTO PROCESS,
 4 & 5, East Harding-street,
 Fetter-Lane, E.C. [ADVT.]**

QUANTITIES, &c., LITHOGRAPHED
 accurately and with despatch.

METCHIM & SON 8, PRINCES STREET,
 (OT. DEPOSITARY WESTMINSTER.
 "QUANTITY SURVEYORS' TABLES."
 For 1897, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.]

PILKINGTON & CO

(ESTABLISHED 1838),
 MONUMENT CHAMBERS,
 KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark,

Polonceau Asphalte.

**PATENT ASPHALTE and FELT ROOFING,
 ACID-RESISTING ASPHALTE.**

WHITE SILICA PAVING
SEYSSSEL ASPHALTE.

EREST MATHEWS & CO.

61, ST. MARY AXE,
 LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
 PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES SLATE SLABWORK

OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED.
MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.
 Works—Aberllefenny, North Wales. Midland Wharf, Bow.
 Head Office and only City Address, 61, ST. MARY AXE, E.C.
 SEND FOR ILLUSTRATED PRICE LIST.

483

The Builder.

VOL. LXXIII. No. 265.

DEC. 11, 1897.

ILLUSTRATIONS.

The McEwan Hall, Edinburgh.—Dr. Rowand Anderson, Architect	Two Single-Page Tone Blocks.
Houses in South-street, Mayfair.—Mr. J. J. Stevenson, F.R.I.B.A., Architect	Double-Page Ink-Photo.
Design for School, Scarborough.—By Mr. A. S. Jones, A.R.I.B.A.	Double-Page Ink-Photo.
"Mercy": Design for Illumination.—By Mr. Tennant Potter	Single-Page Ink-Photo.
Design for Frieze.—By Mr. Arthur Gwatkin	Single-Page Ink-Photo.

Blocks in Text.

Plan of the Site of the Cripplegate Fire	Page 486	Sheffield High School for Girls	Page 489
Wimbledon High School: Basement and Ground Plans	488	McEwan Hall, Edinburgh. Plan	495
Design for Higher Grade School, Scarborough	497		Page 497

CONTENTS.

The Second Report on Government Offices Sites	463	Design for a Frieze	497	Obituary	500
Fire Tests at Hamburg	464	Magazines and Reviews	497	General Building News	512
Notes	465	Competitions	498	Sanitary and Engineering News	503
The Architectural Association	468	Architectural Societies	498	Electric Lighting	503
The Royal Institute of British Architects	493	The London County Council	499	Foreign	503
The Report of the Government Offices Sites Committee	495	The Surveyors' Institution	499	Miscellaneous	504
Archaeological Societies	495	The Auctioneers' Institute	500	Capital and Labour	505
McEwan Hall, Edinburgh University	496	Students' Columns: Quantities and Quantity Taking—XVIII.	500	Legal	506
Houses in South-street, Mayfair	496	Suburban Municipal Buildings	501	Meetings	506
Design for Higher Grade Schools, Scarborough	497	Porosity of Roofing Tiles	501	Recent Patents	507
"Mercy": Design for Illumination	497	Appointments	502	Some Recent Sales of Property	517

The Second Report on Government Offices Sites.



THE second and final Report of the Government Offices Sites Committee, with the evidence, is now published, and leaves the matter just where it was. The evidence and Report taken together form only one more illustration of the curious spirit in regard to such questions which prevails in England, and of which the two prominent articles of faith seem to be, that in erecting national buildings limitation of cost is the first thing to be considered, and that in regard to the architectural treatment of sites and buildings anybody's opinion is of more value than that of an architect. The Institute of Architects have done their best, as Barry did his best a generation before, to get a great public improvement carried out on a grand scale, and with the same result—that nothing they say is listened to, and that the Committee are to be told by Mr. Shaw Lefevre, whose opinion on architecture is worth nothing whatever, that he has the strongest possible objection to their scheme from every point of view. But in England it is supposed that the fact of being a prominent Member of Parliament and having held office in the Government constitutes a man an authority on all the fine arts, and architecture most of all.

In an article in the *Builder* for October 3, 1896, we gave the main points of the plan proposed by the Office of Works for dealing with the sites for new Government offices, and pointed out some objections to them, especially in regard to the proposed War Office site, and the absurdity of the small triangular building proposed to be erected at Spring Gardens. In regard both to this latter, and the War Office we pointed out that the practice of setting out streets, and then letting the irregular space left between them define the outline of an important building, was exactly the reverse of what ought to be adopted; that the building ought to be planned and designed in the best possible way for its purpose, practically and architecturally, allowing for

the necessary roads round it to be arranged in accordance with its lines, instead of merely leaving irregular spaces and building on them. We also considered the question of the two methods proposed of setting out the new building at the juncture of Parliament-street and Great George-street, that of keeping the line of the Home Office front, or of turning back the frontage line at an oblique angle, with the object of getting a better view of the Abbey, and we showed that the oblique line presented every possible disadvantage in an architectural and practical sense.

This latter view the Committee, we are glad to find, has also adopted, as will be seen in the wording of their Report given on page 495; and they have further recommended that the angle of the new building should be square and not rounded off, as on the original plan; and in this also we quite agree. Considering the great width of the new roadway, the rounding off is unnecessary and presents no architectural advantage. We may observe also that the proposed building on the small triangular site at Spring Gardens may be said to be practically abandoned; it is at all events postponed for further consideration, and we shall probably hear nothing more of it.

In regard to the façade of the new offices towards Parliament-street there was one suggestion made in the Institute of Architects' plan which was the subject of a good deal of evidence and discussion. The line of the Home Office front is a little in advance of that of the Treasury buildings, and the Institute proposed that the new front should be set back from the Home Office line to the same line as the Treasury façade, so that what now appears an accidental irregularity should appear to form part of a symmetrical scheme, the Home Office front appearing as a slightly advanced centre between the Treasury front and the new building. There is certainly something to be said for this suggestion, which is an ingenious one, but we are inclined to think it looks more valuable on paper than it would be in reality, because, there being only a street in front, though a wide one, there is hardly space enough in front for this grouping to have its effect and to be taken in by the eye as a whole. As was suggested in the course of the evidence, the effect to any one coming down Parliament-street on

the west side would be that the street ended with the southern angle of the Home Office, which would shut out the new building, on its recessed line, from view. The arrangement would also perhaps necessitate, for its complete effect, an architectural treatment for the new building nearly similar to and repeating the main horizontal lines of the Treasury, and that might inconveniently hamper the design of the new building. On the whole we think the Committee were right in deciding against this proposal, and ruling that the new front should continue the line of the Home Office front, which they did after giving the point, it must be admitted, full consideration. Mr. J. O. Scott, who is naturally considerably interested in anything regarding the new surroundings to be given to the building designed by his father, made a plea in his evidence for the proper completion of the façade of the Home Office by the two towers or pavilions which it should have had over the angles; and it is to be hoped this will not be lost sight of. We do not greatly admire the Home Office, but it would be at least fair to its late eminent architect that the design should be completed as he intended it, and it would be a very fitting reason for doing so that the building is now to stand centrally between the other important buildings, and therefore requires to be emphasised as much as possible, to keep its place architecturally.

The Institute plan revives the old suggestion—at least half a century old—that the whole of the ground along the north side of Great George-street, up to St. James's Park, should be occupied by Government offices. Mr. Macvicar Anderson, in his evidence, admits the difficulty created by the erection of the new building of the Institution of Civil Engineers, as to which he observes, quite truly, that it was very unfortunate that it should ever have been allowed to be placed there, but suggests that the new buildings could be carried round it and the front incorporated with them. This, though not very satisfactory, is quite possible, and we are inclined to think that this is what will eventually be done. The last paragraph of the Report (page 495) is evidently intended to leave this point open for future consideration. Another point in the Institute plan, which the Committee have not recommended, is the formation of a strip of

lawn or plantation down the centre of the widened Parliament-street, partly as a division of traffic, partly as a means of beautification. In Paris, under similar circumstances, such a suggestion would almost certainly have been adopted. The road is quite wide enough to spare it; but in London the official mind never seems to realise the value of getting a little bit of garden or plantation in where it can be managed.

The efforts of the Institute to get a hearing for the re-alignment of Whitehall by rebuilding the western side, so as to bring the street central with the axis of Trafalgar-square, fell on deaf ears, as we knew they would, on the sole question of economy. It would unquestionably cost a great deal, but it would be one of the greatest architectural improvements ever made in London, and we are inclined to think that if the idea had been once brought home to the public mind, as a feasible as well as a grand scheme, it is very possible that there would have been a certain public enthusiasm in favour of it. But when the public have it persistently sounded in their ears, by their Parliamentary representatives and the Government, that there is nothing like economy, and that a great public improvement is never worth a great outlay, of course they come to adopt that position as an article of faith. The Institute plan is, to form a kind of long place on the axis of Trafalgar-square, with plantations down the centre, extending southwards as far as the Horse Guards, where the west side of the place would be returned at a right angle to meet the line of Whitehall at that point. The street therefore would not leave the place on the axial line, but at one side; but this would be so far down from Trafalgar-square that the departure from the axis at this point would not be very noticeable, especially as it would be masked by the plantations in the centre of the place. This plan of the elongated place, as one witness pointed out to the Committee, was not new, as it was a feature in Barry's Westminster Improvement Scheme, the greatest London improvement scheme of the greatest English architect since Wren. Perhaps the scheme suggested in Mr. Statham's paper at the Institute, viz., to start Whitehall from the axis of the Square, but to give it a slight angle to meet the line of the lower portion of the street, had some advantages over the Institute plan, though we do not say that it is to be preferred as a whole. The point is, however, that the widening of Whitehall should be on the west side, in order to get it central with Trafalgar-square. Yet all the Committee and all the non-professional witnesses as well as one professional one (Mr. Edis) kept harping on the advantage of widening Whitehall on the east side, merely because the expense was less, not seeing apparently, that as far as alignment goes that would be only making matters worse. But in London it seems impossible to get people to see these things.

In regard to the War Office, the Committee have persisted in their view that the triangular Carrington House site is sufficient for the purpose, and have elicited from one architectural witness (Colonel Edis) that "a decent building could be put up on the site" as shown in the Office of Works plan. So it could; but just consider how significant the phrase is, and what we have come down to,

In the old competition of 1856, for War Offices and Foreign Offices, the whole world were invited to send in the finest designs they could create. Out of that competition the present Foreign Office arose, and though the result is not very remarkable, it was meant to be so; the intention was to have as grand and impressive a building as possible. But now the gentlemen who manage these matters are content if they can extract an admission from an architect that "a decent building" could be produced on the site they propose for the national War Office; that is all we are to soar to. It is truly pitiable. Not only have the Committee absolutely pool-poohed the two suggestions made by the Institute for a building on a grand and impressive scale, but they could not even accept the slight and very clever modification proposed in Mr. Edis's plan, which would have given them a building with the two sides parallel and with a considerably increased area for building and courtyards, at a very moderate extra cost. Mr. Edis's proposal was to turn Whitehall-place a little northerly, at an angle which would bring it out centrally opposite the Admiralty screen, and give the site a northern margin parallel with that adjoining Horse Guards-avenue. This would be at all events a great improvement, and would combine with it the retention of Whitehall-place, which some witnesses profess to find so important for traffic, though in reality it is nothing now but a cab-stand. However, Mr. Edis's plan obviates this objection and provides for a better building at the same time, and he is to be congratulated on a very clever suggestion, which would at least be an important improvement on the Office of Works plan.

From the wording of the Report the Committee seem to have left it open to depart from the precise boundary line of the building as shown on the Office of Works plan. This point was touched on in the evidence given by the editor of this journal at the last sitting of the Committee. He said (answer to question 867):—

"You show on the plan the three streets laid out there, and you take the curb line of the streets, and you say, 'that shall be the outline of our building.' Now, what I want to urge is the obliteration of these lines, and, supposing you have that space to put a building on, to design the building in the best possible way architecturally, and let the curb lines follow the building, so that the building should be free to take its own shape. Carrying it round the curb lines is simply making it street architecture, . . . and I must say I never saw a plan for a great public building made on such a system as that. . . . The building should be left free to take its own shape as an architectural creation. . . ."

868. Practically, that the building should not necessarily depend on the shape of the street lines; is that what you mean?—Quite so.

Mr. Legh.

869. Not to treat it from a surveyor's point of view?—Exactly.

Chairman.

870. Do you mean, to deal with it as a vacant site, and put a good building on that site irrespective of the curb line?—Yes."

After this evidence, assurances were given that whatever architects were employed by the Government would not be tied to the lines of the plan at all, and it is well that such an assurance should have been elicited; nevertheless, we have not the slightest doubt that if the commission had been given to the Office of Works to carry out the building, before this last evidence and before the paper at the Institute was read, it would have been

built on the lines shown in their plan. As it is, it is probable that some improvement will be made on the crude suggestion originally put forth; but at the best it will be found that the site is too confined for the building, both in an architectural and practical sense, as the Government will probably discover as soon as the building is completed, and when it is too late to remedy the mistake.

FIRE TESTS AT HAMBURG.

SOME time back (July, 1893) we referred to a very practical series of fire tests which were undertaken at Berlin at the instigation of a special commission of experts and officials, architects, and insurance agents, interested in the subject. The amalgamated German insurances companies had offered some prizes for these tests as far back as 1889, when the Accident Prevention Exhibition was held at Berlin. Financial difficulties, however, prevented their taking place until 1893, for there was a very considerable expense to be met if a satisfactory imitation of the state of affairs under which materials have to stand in reality was to be attempted. Special buildings have to be erected, or, at least, materially altered to fulfil the particular purpose of the experts. At Berlin the municipality finally offered one of its old warehouses for the tests, and also arranged for the co-operation of the Police Fire Brigade, so that neither the buildings nor the services of the firemen had to be paid for. From time to time, since the Berlin experiments, we have also heard of a very systematic series of tests arranged at New York, where similarly an independent commission has taken the matter up. Here again, the insurance companies have been playing an important part in the work. There have been likewise a number of minor tests in several Continental towns from time to time, though the reports have not always reached this country. Everywhere these tests have been most instructive, and everywhere we find that the results have been reported in a thoroughly reliable manner. The latter point is perhaps the most important, for we are all too prone to be suspicious of tests. It is only where the independence of those who have to give the decisions is assured that tests are likely to influence public opinion.

Now we again hear from Hamburg of a series of fire tests which have been undertaken at the instance of the Hanse Government, with a view of determining the method of constructing warehouses in the great free port. Hamburg has always been very susceptible to fires, and the class of property there in many ways resembles that of London. The warehouse district, though modern, is particularly liable to serious conflagrations, and this, to a great extent owing to architects and engineers having thought fit to introduce unprotected iron stanchions and girders in the many new warehouses erected at the end of the eighties; although at that time the Hamburg experts in fire-protection were as fully aware as we were of the necessity of covering iron-work if there is to be any attempt at resisting the effects of fire. But in practice our knowledge was, similarly, but seldom applied. The experiments at Hamburg have been spread over many years, commencing in 1891, and the interim report was already issued in 1894. Another report has been published lately.

According to these reports we find that light wrought-iron uprights first seem to have attracted the attention of the authorities, and were most carefully tested in every direction; various forms of construction were tried, as well as various kinds of metal. The iron framing was also tried with concrete filling, and then again with various descriptions of protective coverings, such as plastering, zinc, asbestos, and silicates. The next series of tests was made with timber uprights, and here again various kinds of wood were first tested without any protective covering, and then again the same kinds of wood with various descriptions of covering. The last set of tests was with cast-iron stanchions. There was a special installation of testing machinery, a most careful record was kept of temperatures, and the authorities did not omit to give the "natural" tests of cold water, falling loads, &c.

We cannot here record all the methods of testing adopted, or give in details particulars of the systematic manner in which the experiments were made. For first-class systematic research in questions of fire-resisting construction, we can always rely on the German authorities being painstaking and methodical, almost in excess. The constitution of the Commission, however, may call for comment, as it gives an insight as to the ideas with which the tests were undertaken at Hamburg. There were no less than ten representatives of the Hamburg Board of Works on the Commission, including Herr Andreas Meyer (the City Engineer) and Herr Zimmermann (the City Architect). There were two representatives of the Building Act Department, the Chief Officer of the Fire Brigade (Herr Westphalen), the Superintendent of the Municipal Insurance Office, and the Lighting Inspector. Hamburg knows how to undertake work of this kind better, perhaps, than any other Continental city. When we have our Cripple-gate fire, we see their Chief Officer of the Fire Brigade over here, with a member of the Public Works Committee, and a superintendent of the Municipal Insurance Office. They visit London to see where the mistakes have been made. They wish to profit from our sad experience, and to prevent the occurrence of such losses at Hamburg. We, who have had the fire in our midst, only hear our County Council speak of the infallibility of their work. Our authorities try to brave criticisms by empty boasting, and leave any serious research or advance in the matter to private initiative. As for testing the forms of construction common to our City warehouses with the aid of public funds, our "penny wise and pound foolish" policy does not permit of such "extravagances."

But to return to the Hamburg report by the Commission above referred to, a summary would practically read as follows:—

1. Wrought-iron uprights, if unprotected, show little resistance; they collapse in a temperature of over 600 deg. Celsius.
2. The filling-in of wrought-iron uprights with concrete only slightly increases the resistance.
3. The protection of wrought-iron uprights with non-conducting materials very materially increases the resistance.
4. Wooden uprights, if unprotected, catch fire at temperatures under 600 deg. Celsius, but even when well alight, show a greater resistance than unprotected wrought-iron uprights.
5. Neither wooden nor wrought-iron uprights give any sign of an impending collapse.
6. Unprotected cast-iron columns when loaded to the extent of 500 kg. per square centimetre collapse

at temperatures varying from 750 deg. to 850 deg. Celsius. Their resistance depends very greatly on the load and section.

7. The protection of cast-iron uprights very materially increases the resistance.

8. In considering the materials and methods of protecting uprights, the faculty of application and question of cost must receive careful attention.

Now the above results may appear very commonplace to the expert, and the eighth resolution almost a matter of course; but if the report be studied, the innumerable kinds of materials tried, and the variety of the tests, all read so instructively that we wonder at the simplicity of the wording of the few facts. These resolutions typically illustrate the methods adopted in Germany. The result of years of research are accorded in a few words, intelligible to the veriest layman; but if the professional man wishes to benefit from it he must examine the resolutions passed in connexion with every step of experiments, and study the whole proceedings. Each set of these minor resolutions goes a long way to explain the qualities and peculiarities of the materials under consideration. We should also remember that only a very small section of the question of fire-resisting material has been under consideration, *i.e.*, the uprights or stanchions. It is to be hoped that Hamburg will be able to extend its work to floors, partitions, &c.

When we now observe how one London "fire-proofing" firm after the other goes to the expense of show-tests, or exhibitions which are to astonish an ignorant public, and the yet more ignorant representatives of our daily Press, we wonder why we have not yet a serious testing-station for fire-resisting materials. The show-tests after important conflagrations convince no one—certainly not the professional man, and much less the experts on whom the firm has to rely to a great extent for his turnover. The sooner the various establishments take a broader view of their trade interest, and perhaps co-operate with the view of seeing if tests cannot be attempted in a more business-like way, the sooner they will have the confidence of the architect and his client. We require some practical tests with special regard to London requirements.

NOTES.

The Lands Transfer Act, which was passed last session, gave power to the Privy Council

to select one county in England in which the registration of title to land should be made compulsory. It appears that the Privy Council have selected the county of London for the new experiment, and the London County Council have asked the opinion of various local bodies on this selection. The Vestry of Kensington have issued a clear and concise statement to the effect that compulsory registration of title should be tried at first in some county other than the so-called county of London. The reasons which they give for this opinion are, it would seem, sound, and it must certainly be admitted that if the effect of the Act is regarded with so much uncertainty that it is only to be put into operation as an experiment, in that case the importance and complexity of the interests in London render it a bad place for such an experiment. Let the Act be tried in a county where at any

rate, if it is a failure, it may do as little harm and cause as little expense as possible.

The Eng'neers' Conference.

So much public attention is day by day directed to the incidents of this industrial struggle that it is unnecessary to comment on the present deadlock in detail. It is desirable, however, to point to one matter upon which there seems to be some misapprehension. It is said that the conditions formulated by the employers are an attempt to crush the Unions. This does not seem to be their effect. The masters desire to negotiate in regard to engagements with the individual workman; in so doing they are acting in favour of individual freedom. Nor does this prevent trades-unions, where there is a general feeling among the workmen as to a particular rate of wages from pressing their views. The masters' so-called ultimatum would enable every workman to make his own terms. It is not desirable that trades-unions should be constantly interfering between masters and men; when there is a question upon which the general body of workmen in a particular trade have arrived at some general conclusion, then the matter will be discussed by the employers receiving, as they agree to do, a general deputation of workmen.

A BILL is being promoted to empower the County Councils of Middlesex and Surrey, or either of them with consent of the other, to demolish, sell or utilise the materials of, the present structure, and rebuild it. It is proposed to raise and widen the approaches on both sides of the river, and to erect a temporary bridge, with approaches, a short distance up-stream. The new bridge is to become a county bridge, and will be maintained and repaired accordingly. The first bridge at this spot was built, in terms of an Act of 31 Geo. II., by R. Tunstall, proprietor of the ferry—it had seven wooden arches, and four of stone and brick. In 1782 an Act was passed for replacing Tunstall's with the existing bridge, designed by James Payne (who was the architect also of the bridges at Richmond, Walton, and Chertsey), and opened in September, 1789. It is 400 ft. long, and has seven arches of varying width; the middle arch has a span of 66 ft., and is 22 ft. high; the southern approach is carried over a line of small arches. It is 24 ft. wide, and the gradients are steep, the shores having a low incline. In 1873 a joint Committee of the Corporation of London and the late Metropolitan Board of Works freed it from toll at a cost of 57,300*l.* Further particulars of the bridge's history will be found in our columns of July 13, 1895.

The Paris Salons.

As we have already announced, it had been arranged that the two Paris Salons should hold their next exhibitions side by side in the Galerie des Machines, but each with its own entrance. The next move is that it has been agreed on both sides that, as a provisional experiment and, as the lawyers say, "without prejudice," for 1898 and 1899 the two exhibitions should be accessible by the same entry and at the price of a franc for admission to the whole Gallery. It is to be hoped that this is a first step towards the fusion of the rival Salons, which will be a great deal better for French art than the annual effort to fill two large exhibitions.



Plan of the Site of the Cripplegate Fire.

Site of the
Cripplegate
Fire.

WE may supplement the particulars already given on this subject by a plan of the ground prepared by Mr. Charles E. Goad, C.E., from his very valuable series of maps of London's principal fire "risks." No illustration could more clearly show where the fault lies. No district covered on these lines with buildings of the most dangerous class could resist any serious outbreak of fire; and yet, as we have said before, after the great St. Mary Axe fire not the slightest improvement was shown in the erection of the buildings which take the place of those destroyed. If the Fire Prevention Committee* already referred to, which has been formed with the view of advocating better planning and construction, and our protection from fire generally, obtains the influence which is hoped, its first work will have to be in regard to the division of "risks," and doing away with common areas or yards in warehouse property, which practically serve as ducts or flues directly a fire has got a hold in a building. Of course the common yard or area has its advantages as far as the lighting of premises goes, but surely their width at least should be restricted, and the protection afforded by shutters made compulsory. Of course, in any movement for fire prevention the practical requirements of business premises have to be considered, and the great value of ground in the most crowded parts of the City. A practical minimum of risk by the adoption of modern methods,

materials, and appliances, is all that can be attempted to begin with.

Ostrakon of
Themistokles.

THE recently-discovered ostrakon of Themistokles is published in the last number of the *Mittheilungen* of the German Institute at Athens (1897, xxii., 3). It was found, it will be remembered, a little to the north-west of the Areopagos, not far from the modern road and the ancient Panathenaic Way. Two points about the inscription (*Θεμιστοκλῆς φρεῖππος*) show that we have to do, not with an ordinary potter's inscription, but with what was undoubtedly a voting potsherd; first, the addition of the deme name; and, second, the fact that the letters have evidently been scratched on after, not before the potsherd was broken off. The ancient voting form was simply name and father's name. From the time of Kleisthenes the deme name was substituted for the father's name. The only point that cannot be cleared up is whether we have to do with the first ostracism in 483 B.C., when Themistokles triumphed over Aristides, or with the later one when he was defeated. The same number of the *Mittheilungen* contains two valuable papers on early Greek ceramics, one on the survival of "Mycenean" decorative motives in later pottery, the other on a find of archaic vases in Aegina.

Railway Station
Architecture.

M. DE BAUDOT, in a lecture at the Trocadero at Paris last week, referred to the elaborate architectural exterior of one of the Paris

railway stations as contrasted with the barrenness of its interior, and suggested that this was the inversion of the proper order of things, since every one coming up to a railway station is thinking of being in time, and cannot stop to admire the exterior architecture of the station, whereas he will often have to wait a considerable time inside, and would be glad of something worth looking at. This is no reason, however, for starving the exterior architectural treatment of railway stations; they form an important element in the architecture of a city, and there are other people to look at them besides those going to the trains; but the architectural bareness of the interior is a just cause of complaint, and applies equally to English railway stations, if it were not for the way it is partially but not happily disguised by a motley array of advertisements.

More Arcades
for
Birmingham.

It appears that there is a desire to form a new shop arcade system in Birmingham, with entrances from New-street, High-street, and Union-street, the arcade consisting of three covered streets at different angles. There is no greater convenience and comfort in a town, in bad weather, than is afforded by such covered streets of shops, and it is surprising that this way of building shops has not been more largely made use of in large towns in this country, with its wet and uncertain climate. The *Birmingham Weekly Post* gives a sketch of the proposed New-street front of the new arcade, which is evidently intended to be one of the "busy" terra-cotta façades now so popular

* Offices, 21, Waterloo-place, S.W.

in Birmingham. The serious defect of the design is that the large and solid-looking arch forming the entry appears to rest upon and start from nothing but a vacancy below the springing, occupied by the angle door and angle window of shops flanking the entry. In an architectural sense this has the worst possible effect, and it is to be hoped it will not be allowed to be built in this way, or it will be an object of ridicule to architectural critics. It is surely worth while to sacrifice a little plate glass for the sake of getting a monumental façade at the entrance.

The Willesden
Surveyor's
Report.

THE annual report by Mr. Claude Robson, the Engineer and Surveyor to the Willesden District Council, is, as usual, very full and very well drawn up. Among points to be noted is the increased expenditure on highways, partly owing to the traffic to and from buildings in progress, on a loose clay soil, partly to the demands of the cyclist, "for whose benefit a steam roller is demanded for every stone that may be loosened from the surface, and what was formerly accepted as reasonable repair for carriage traffic is now utterly unfit for the pneumatic tyre of the cycle." A large number of additional trees have been planted in various thoroughfares under powers conferred upon the Council by Section 43 of the Public Health Acts Amendment Act, 1890; but it is remarked that unless discretion be used in the choice of streets for this work, trouble will be encountered in the future as the trees mature. Already the paving and adjoining forecourt walls are showing signs of disturbance by the roots of some of the older trees, and that there is a possibility of considerable damage occurring in future years where trees are planted in narrow streets with the houses closely abutting upon the pathway. Endeavours have been made, by the construction of weirs with sluices, to improve the condition of the River Brent by ensuring a flow of the generally stagnant stream, and it is urged that if the authorities in the lower part of the river were to organise a similar system of weirs and sluices, and the river could thus be treated for its entire length, the Surveyor is confident that improvement would ensue.

Decorations for
Wakefield
Council House.

LAST week Mr. H. C. Fehr, the sculptor, exhibited at his studio some interesting coloured plastic decoration that he has recently executed for the County Council buildings at Wakefield. It consists of a frieze some four or five feet deep, and illustrates scenes in the Wars of the Roses, in which Wakefield took so prominent a place. The subjects represented are:—1. "The Battle of Wakefield;" 2. "The Procession of Henry VII. and Elizabeth of York through the Town;" 3. "Bosworth Field, the Crowning Scene;" 4. "Marguerite of Anjou delivering her Son to the Robbers in the Woods." Mr. Fehr has shown in this work how well mediæval pageantry lends itself to decorative effect; the battle scene is full of movement and vigorous modelling, the colouring throughout is effective; in the foreground rich trappings, the gleam of armour of men and horses, in the middle distance the subdued colouring of foot soldiers with their pikes, then far away glimpses of landscape in colder colouring. This is a kind of interior decoration which, no doubt, if

popularised and carried out by inferior hands, may easily degenerate into tawdriness; it requires the hand of an artist.

Mr. Wake
Cook's Drawings.

AT the Fine Art Society's Gallery is a collection with the rather fanciful and pretentious title, "Water-colour Drawings on the Quest of Beauty in the Sunny South and in Utopia," by Mr. E. Wake Cook, which, in spite of the title, are of rare beauty and delicacy. The latter quality is perhaps a little overdone; the drawings are marked by minute finish and prettiness rather than by power and breadth of effect; but within their own lines they merit the highest praise. Some of the smaller ones among the Italian scenes remind one rather (perhaps intentionally) of the kind of work in Turner's "Vignettes" for book illustrations. Those of the larger ones in which architecture is illustrated are admirable in regard both to care in drawing and delicacy and truth of colour; to be noted especially is "The Gates of the Loggetta, Venice" (16), in which the architectural detail is beautifully made out, and the "patina" on the metal work; and the figures are as complete and finished as the architecture, which is seldom the case in architectural water-colours. However, Mr. Cook is an accomplished figure draughtsman also, as is evident in his charming composition of Endymion (32). As to the Utopia scenes, they seem to aim at a little more than they effect; there is one of "The Home of the Gods" (17), which we care not much for; one of the Garden of Eden—"Nature's Paradise" (43), the composition of which is a good deal suggested by Turner's "Golden Bough," and a companion or pendant to the last named under the title "The Paradise of Art" (54), a dream of imagined architectural glories, which is effective as a whole, but the detail of the Utopian Gothic does not attract us very much. The imaginary cities in "Marianne's Dream" (44), illustrating some lines from Shelley, form the most successful of these ideal subjects. But we sympathise very much with the author's plea for idealism in art in his short preface; "with science treading on our heels, artists must go where the camera cannot follow them."

Views in
Wolmer Forest.

A COLLECTION of oil and water-colour views in Wolmer Forest, by Mr. J. H. Vignoles Fisher, is on view at Messrs. Dowdeswell's Galleries in Bond-street. The oil-paintings are a good deal occupied with forest scenes in which straight fir stems, not too close together, make vertical pillars crossing the picture; there is a little sameness about these, and the method of execution strikes one as rather hard and dry. But the water-colour drawings, which are the more numerous, are admirable examples of the best school of water-colour sketching. Among the best are "A Coming Shower" (14), with a grand sky; "Heathland" (24); "A Forest Pool" (29); "A Heath Road" (44); "On Passfield Common" (51); and best of all the one entitled "Moorland and Sky" (32), in which the artist has reproduced the effect of masses of rounded white clouds, in strong light, seen over the edges of a dark undulating stretch of heath, with almost startling vividness and reality; it is a little work which "Old Crome" might have been glad to own.

Nature's
Decorative
Art.

AT Mr. Dunthorne's small gallery in Vigo-street, is an exhibition such as it is unusual to find in an art gallery, but which yet has a very close relation with one form of art. This is a collection of more than thirteen hundred butterflies and moths, exhibited by Mr. Denton's new method, by which, instead of being stuck on pins, the creatures are spread out on a white tablet with glass over it pressing the wings flat, while a sinking in the middle of the tablet leaves room for the body of the insect. The method will be of interest to butterfly and moth collectors, but the real interest of the exhibition is in the endless variety of beautiful colouring and design which is shown in the wings of these creatures, and which can only be fully realised by the study of such a number of them together. The announcement of the exhibition struck us as an odd one to come from the proprietor of an art-gallery; but after seeing the collection we could only come to the conclusion that it was quite in place there, and that it is one which every decorative artist ought to take the opportunity of seeing.

"Société
Internationale
de Peinture."

THE "Société Internationale de Peinture et Sculpture" has opened its fifteenth annual exhibition at the Georges Petit Gallery in Paris. Among the best works there are the portraits by MM. Alexander, Callot, Rondel, and Carrier-Belleuse. Landscapes form a large proportion of the exhibition, among the best of which are "Le Vieux Port" by M. Baertsoen; "Sous les Saules" by M. Boucher; "Landscape in Picardy" by Mr. Brangwyn; Studies on Breton sites by M. Albert Dagnaux; "Le dernier Sillon" by M. Albert Fourie; and some charming scenes on the banks of the Seine by M. Fritz Thaulow. Among the sculptors exhibiting, M. Vernhes deserves special mention for his statuettes in wax, as well as for a marble bust of "Une Bretonne." Generally speaking, the exhibition forms a very good collection of examples of the work of some of the younger French artists of the day.

The R.I.B.A.
Dinner.

THE Festival Dinner of the Royal Institute of British Architects, of which a report, with the names of those present, will be found in another column, was a success so far as numbers, good fare, good singing, and the presence of a good many eminent guests, could render it so; though we are of opinion that it would have been a far greater success had it been held at the earlier period first proposed. Of the speeches it may be said that those which had most matter in them were least effective in delivery, and those which occasioned the most entertainment were rather threadbare in ideas, if we except Dr. Collins's, in which matter and delivery were best balanced. It is not generally supposed, of course, that one is to talk philosophy in an after-dinner speech, but at a dinner of artists it may be allowed that one or two speeches should be devoted to the intellectual side of the subject; and in this respect the President's utterances on the occasion will be found not without interest from a critical point of view; this we suppose is the reason that no report whatever of them is given in the *Times*, which reports all the other speeches more or less. There is one question, however, to be asked—who over-

looked the proof of the menu-card? This document contained the statement that the dinner celebrated the sixtieth anniversary of her Majesty's "Accension," that the grace was "Deum Laudat," that one toast was proposed by "Mr. Ashton Webb," and that the final toast was "Architecture and the Allied Trades." It would be interesting to know from whom this last bit of satire emanated; but it is not creditable that a card so full of absurd blunders should have been put in the hands of members and guests. We may add that we think the Art Committee of the Institute might have been called in to consider the devising of a special artistic menu-card for the occasion; which would almost certainly have been done at a similar dinner among French or German architects.

THE ARCHITECTURAL ASSOCIATION: THE PLANNING OF HIGH SCHOOLS FOR GIRLS AND ENDOWED SCHOOLS.

THE ordinary fortnightly meeting of this Association was held in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, on Friday last week, Mr. Hampden W. Pratt, President, in the chair.

The minutes of the last meeting having been read and confirmed, the following gentlemen were elected members:—Messrs. C. J. Barker, A. St. John Diamant, A. G. Ross, J. Henry, and W. H. Williams. Mr. A. G. Angel was re-elected.

On the motion of the Senior Hon. Sec., Mr. E. Howley Sim, a vote of thanks was accorded to Messrs. G. B. Carvill, F. D. Clapham, Leonard Butler, and cast for the entertainment given on the 20th ult. in connexion with the conversation of the Association, and to Messrs. R. Phené Spiers, Alfred H. Hart, W. H. Atkin Berry, W. G. B. Lewis, A. C. Dickie, for the use of drawings and photographs exhibited on the occasion. The name of Mr. Cox was also included in the vote of thanks for the design on the cover of the programme.

The Chairman said they were all very much indebted to the gentlemen who had taken part in the entertainment for the amount of time and trouble which they had given on the occasion.

The Chairman announced that the Lyric Club concert would be held in the Club-rooms, Swallow-street, on the 10th instant. He also announced that a General History Class would commence on the 23rd instant.

Mr. Sim announced some donations to the library, and a vote of thanks was passed to the donors.

Mr. J. Osborne Smith then read the following paper on "The Planning of High Schools for Girls":—

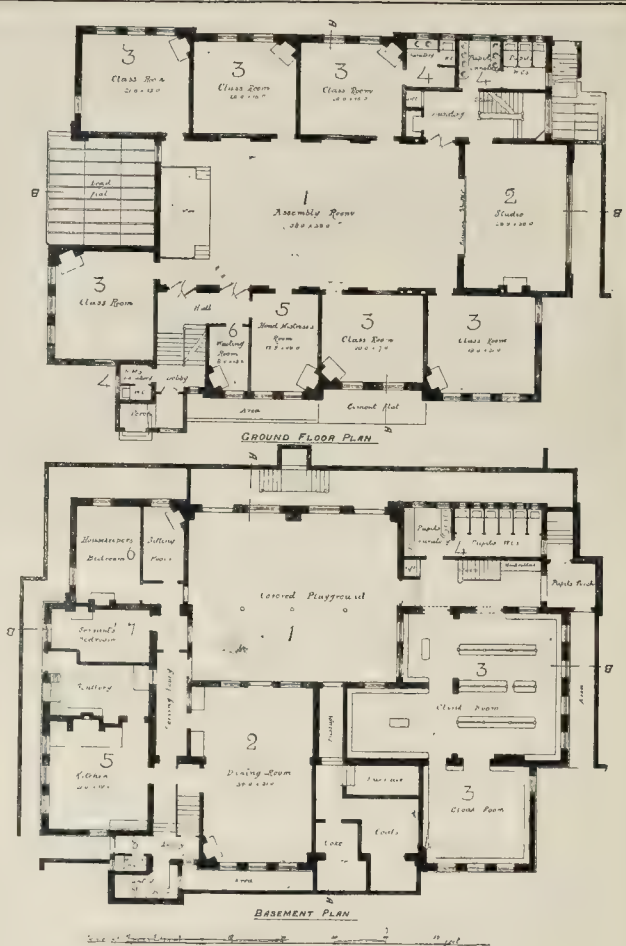
During the past twenty-five years a goodly number of these schools have been established, and for a lesser number special buildings have been erected.

The requirements have naturally grown, and experience has, as usual, taught many valuable lessons to all concerned.

High schools, I may remind you, are superior day schools for girls of all classes above those provided for by the Elementary Education Act. There were no high schools twenty-five years ago: the word "high" was not used as applied to schools until the incorporation of the Girls' Public Day School Company, Limited, in June, 1872. The starting of this company to establish and maintain in London and the Provinces superior day schools forms an epoch in the education of the larger half of the inhabitants of England. It was an attempt to meet and correct the defects pointed out in the report of the Schools' Inquiry Commission:—"Want of thoroughness and foundation; want of system; slovenliness and showy superficiality; inattention to rudiments; undue time given to accomplishments—and these not taught intelligently or in any scientific manner; and want of organisation."

The first school was opened in January, 1873, at Chelsea, in an old house adapted for the purpose. There are now thirty-four schools belonging to this company, and various others have been established by limited liability companies, which were formed usually to establish individual schools.

Existing buildings, more or less adapted for



Wimbledon High School: Basement and Ground Plans.

Ground Floor Plan.

1. Assembly Room.
2. Studio.
3. Class-rooms.
4. Lavatories and water-closets.
5. Headmistress's Room.
6. Waiting Room.

REFERENCES.

Basement Plan.

1. Covered Playground.
2. Dining-room.
3. Cloak-room.
4. Lavatories & water-closets.
5. Kitchen and Scullery.
6. Housekeeper's Rooms.
7. Servants' Bedroom.
8. Servants' water-closet.
9. Pantry.

the purpose, formed the first homes of many flourishing schools now housed in buildings, the planning of which is based upon the knowledge thus gained. Work carried on in buildings originally erected as private residences, or for other purposes, revealed almost hourly weak places where time was lost, where adequate supervision was impossible, and where it was hopeless to combat the evils attendant upon temporary and ineffective means of ventilation, low and small rooms, narrow staircases, weak floors, falling ceilings, small and dark cloak-rooms, small fireplaces, insufficient light, and other defects.

These drawbacks to effective teaching were well remembered, discussed, and digested whenever a new home was in view, and the new school-house, planned and erected for a definite purpose, became at once an added pleasure to the daily lives of both mistresses and pupils, and an effective aid to education.

It is difficult to find existing buildings suitable for high schools, or that can be made efficient without great expenditure; this sometimes leads to two or more houses (not necessarily adjoining) being occupied by one school—a most trying arrangement for the teaching staff.

To follow in detail the growth and development of these schools in the adapted buildings

would make an interesting paper by itself. I propose to dwell this evening upon the types of plans which experience has proved to be best suited for the work which is carried on in high schools.

One of the most prominent characteristics of a high school should be cheerfulness produced by ample lighting, plenty of sky visible, possibility of the sun himself being able to peep into every room, pleasing wall surfaces, good pictures, &c.; all these, except, perhaps, the last, form a part of the design, and if the architect will make tempting provision for hanging pictures in suitable positions, the pictures will soon follow. Gloom, semi-darkness, and all the opposites to bright airiness should find no place where children are being taught.

Spaciousness, too, is an important quality to secure; ample floor space is here meant—not loftiness. Class-rooms need not be lofty to be healthy; an excessive cubic space above the pupils' heads makes ventilation and warming more difficult, and is simply enclosed space in the wrong place. It is obvious, also, that inasmuch as it is found desirable to limit the number of children in a class to thirty or forty, the floor space must be limited to dimensions which will enable the mistress to keep the



Ground Floor Plan.

First Floor Plan.

Sheffield High School for Girls.

REFERENCES

Ground Floor Plan.

1. Pupils' Entrance.
2. Cloak-rooms.
3. Teachers' Room.
4. Lavatories.
5. Covered Playground.
6. Dining-room.
7. Serving-room.
8. Kitchen.
9. Scullery.
10. Larder.
11. Tradesman's Entrance.
12. Bedrooms.
13. Coals.
14. Heating Chamber.

First Floor Plan.

1. Porch.
2. Vestibule.
3. Waiting Room.
4. Hall.
5. Headmistress's Room.
6. Ante-room.
7. Assembly Room.
8. Class-rooms.
9. Music Room.
10. Lavatories.

pupils well under control, to speak to them all effectively without strain and have access to each desk without disturbing the pupils at adjoining desks. These considerations, as well as those of access to the room, space for and around the mistress's desk for teaching apparatus, &c., must be regarded as determining the extent of floor space, even when it is not urgently necessary to keep always in mind the cost of every cubic foot of space you may wish to enclose.

When the room is warmed by the usual open

fireplace, the best position for that cheerful, if wasteful, contrivance must not be overlooked, because it also demands a portion of the available floor space.

The relative positions of the door and fireplace in relation to the windows deserve more consideration than is usually given. Waste of space necessarily arises where both door and fireplace are not situated at the end of the class-room occupied by the teacher. It is not convenient for the fireplace to be in the centre of the end wall; sometimes it may be well

placed near the door. The corner of the room on the right hand of the teacher is a position with many advantages.

The fireplace should contain some form of ventilating or warm air producing grate, with fresh air brought to it from outside well above the ground, all inlets being short and accessible for cleaning; the air chamber for warming the incoming air ought also, for cleanliness' sake, to be readily accessible. In large rooms, or where there are two or more external walls, it is sometimes found desirable to supplement the fire by hot-water pipes under the windows or along the wall opposite to the mistress. Open fireplaces should not be omitted from schools of this kind without very full and serious consideration of the means to be employed to warm and ventilate the buildings, and especially the class-rooms.

This slide [exhibited] shows a form of class-room for thirty pupils, which from its frequent use may be accepted as convenient both in shape and size. The dimensions given are not extravagant, but they are found sufficient when adequate means for ventilation are provided, and used. The allowance of floor space per pupil is 13 ft. 6 in. super (or 13'6" ft., to be quite accurate), and the cubic space 163'8 cubic feet per child.

Space should be provided between the walls and desks for access for supervision, and to enable the children and mistress to write or draw upon the slates or blackboards upon the walls. Movable blackboards are inconvenient appliances, but as they are less costly than continuous slates the inconvenience still prevails in too many instances. It is possible still to find class-rooms with windows, blackboards, and desks so arranged that it is impossible for all the scholars to read what has been written or drawn for their instruction.

The ceilings should be as much as possible unobstructed by beams or other timbers which prevent the ready flow of air or check or divert the air currents.

A point which affects the health and comfort of teachers is the provision of windows at the back of the children. If these windows happen to be in a south wall, the evil becomes very trying. A teacher told me a few months ago that one of his eyes was seriously injured from having to face a south window; moreover, under such conditions some of the pupils' features are in shade, and it is not possible to distinguish the effect of the teacher's remarks upon the children, which is so very desirable, and adds to the interest and pleasure of teaching. Except in cases of special difficulty, it is possible to effectively light any class-room, large or small, from windows in *one wall only*. An additional window may be useful for obtaining direct sunlight in an otherwise sunless room, or for securing cross ventilation not otherwise obtainable, or for other sufficient reasons, but it will in any case be found desirable to make that window smaller than the rest, or to place it in a corner of the room, or to arrange means of regulating the light from it when required.

The chief use of the assembly room or central hall is to accommodate all the pupils at one time daily, and its size is fixed accordingly. If the school is thought likely soon to expand beyond a nominal standard this room may be built to accommodate a maximum number of possible pupils; in other cases, where a smaller number of pupils are provided for, with no reasonable prospect of extension, the assembly-room may be of lesser dimensions. As will be noted further on, this hall may serve for access to the class-rooms upon two floors, a consideration by which its height is often determined. Naturally, the supplementary purposes for which it is used also affect the floor space, shape, and dimensions.

This important room should be near the principal entrance, and have ample means for access; it was a common defect in the earlier schools that only one entrance was arranged. This should be regarded as inadmissible, except in very small schools.

The position of this room in relation to the class-rooms is probably the most important factor in determining the general plan of a school.

Side-lighting for this hall is preferable for the sake of ventilation. Where top-lighting is used, great care and judgment are required to avoid too much glass, which, moreover, should be placed as near the sides as possible, in order to prevent deep shadows being cast upon the floor from the balconies. Centre top-lights are rarely successful for school-rooms of any kind.

Good acoustic conditions ought to be secured for this room.

For convenience of consideration, plans may be divided into three types, viz. :—

1. Those which have the principal class-rooms and the assembly-room separated by corridors.

2. Those where the class-rooms are grouped round a central hall.

3. Those which have class-rooms on one, two, or three sides of the assembly-room, leaving the fourth side an external wall.

The difficulties of a contracted or otherwise comparatively unsuitable site—while increasing the architect's interest and enjoyment of his work—often lead to varieties of treatment not included in either of these types. These may be regarded, however, as exceptional plans adapted to special situations rather than typical examples.

Sometimes a feeder is fostered in the form of a kindergarten room, which should be exceptionally cheerful, on the sunny side of the ground floor, near to the pupils' entrance, and to separate lavatories.

The Requirements.

A spacious room for drawing purposes facing north or east, with as much floor space as can be afforded, and wide doorway, fitted with cupboards, rails and shelves for models, racks for boards, drawers for paper drawings and materials, a sink, dark blinds, &c., well lighted from one side or end. Usually the best situation for this room is upon the top floor.

Laboratories for teaching chemistry and physics (separate rooms for each if possible), with impervious floors, ample side or top lighting, and special means for ventilation, fitted with working tables, with water, gas, and electricity laid on. Also a small room for balances, cupboards for stores, apparatus, &c.

The size of the laboratory must depend upon the extent to which science is taught in the school. It should be lofty, well lighted, with the windows just above table height and extending to the ceiling; ventilation must be specially studied, particularly the means of readily producing cross currents of air at the levels of the work tables and ceiling. It is convenient sometimes to plan a separate building for science teaching.

A covered playground fitted as a gymnasium.

A luncheon-room for mistresses and pupils, with the kitchen, and offices, and housekeeper's rooms adjoining.

These domestic rooms should be planned with a separate entrance, and be cut off from the school rooms with prompt access from the kitchen to all the school entrances, and from the school to the dining-room. On no account should any of the noise or odours from the domestic rooms be allowed to enter the school proper.

Well-lighted and ventilated cloak-rooms, not less than 9 ft. high, and large enough to afford floor space for fittings.

The best position for cloak-rooms is, of course, near the pupils' entrance; stands for coats should be about 6 ft. apart from centre to centre, and about one lineal foot of stand space should be allowed for each pupil, with means for drying wet clothes.

A sitting-room for assistant mistresses should overlook the playground and its entrances, and be reasonably near to the head mistress's room. A small cloak-room and lavatory are convenient and desirable adjuncts. It should not be less in size than an average class-room. The glass line of the windows should be nearer the floor than in the class-rooms; in this, as in other respects, the room should be regarded as a work-room and sitting-room combined.

The head mistress's room with secretary's room and a small waiting-room must be near the chief entrance, and the platform end of the assembly-room. Neither of them need be so large as a class-room, but from the windows of the head mistress's room it should be possible to see the main entrances to the building. This room is a work-room and also a reception-room: it should be well lighted, cheerful, and convenient, with a lavatory near at hand.

Stairs should be of reasonably fire-resisting materials which will not become slippery, have easy gradients, wide treads, and shallow risers, suitable for the younger children, thoroughly well lighted, and at least 4 ft. wide, to enable two files of pupils to pass each other. Those to cloak-rooms, or where there is an exceptional amount of traffic, should have hand-rails

on both sides to prevent accidents, and be, say, 5 ft. wide.

The position, form, and size of the staircases are most important; no greater inconvenience in a school can be conceived than a carelessly designed staircase in the wrong place. A building designed to accommodate more than, say, 150 children, should have two distinct staircases, as far apart as possible, but both near the assembly-room.

Winders and circular or elliptical staircases are inconvenient, and ought never to be planned for these schools, wherever it is possible to avoid doing so.

The rise of each step should not exceed 6½ in., 6 in. is better when obtainable; 11 in. should be the minimum width of the tread (from nosing to nosing). Staircases need not be lofty, if sufficient head room and ample lighting be secured.

Lavatories with wash-basins to accommodate, say, 5 per cent. of the pupils at one time, and closets for, say, 3 per cent., can be in most cases conveniently arranged on two or more floors in a separate wing or other suitable position, disconnected from the main building by a staircase or well-ventilated corridors.

A bicycle store or shed has now become an essential requirement, as girls now ride to school in great numbers. It has been said that "one want creates another," and covered stores for cycles, now they have apparently come to stay, must be considered, and placed as near to the pupils' entrance as may be safe and convenient.

Last, but not least, a spacious levelled playground for tennis and other games, small border gardens for the pupils' botany specimens, cricket and hockey meadow, &c.

The endowed schools have often extensive playgrounds. Trees upon the site should be judiciously preserved for their own sake as beautiful objects, and for the sake of the shade afforded in hot weather.

Seven feet is a desirable width for main corridors, which should not be of less height than the rooms adjoining. Windows at each end are essential, and there should be ample lighting throughout, especially at points where they deviate from a straight line.

Having thus briefly noted the requirements, let us now consider the three types of plans before mentioned.

It will be seen that in this type the assembly room is treated as a separate room and does not afford access through it to other rooms. It can therefore be used for drill, singing lessons, special classes, and other purposes without causing inconvenience and hindrance to work going on in the class-rooms, and also without the work going on in the assembly room being interrupted by children passing through from the class-rooms. That is an obvious advantage provided at the cost of constructing the corridor.

The corridor constitutes the chief variation between this type and another, as will be seen later on. In this design the most important story is the first floor, which is approached by covered stone steps (see perspective). The head mistress's room is on the right of the vestibule, and a waiting lobby on the left; two class-rooms and a corridor are entered from this lobby; other class-rooms are on the right, and two at the left in a line with the assembly-room.

Two well-lighted staircases, one at each end of the corridor, lead from the ground floor to the second floor, and there are large borrowed lights between the assembly-room and corridor, and over each class-room door.

On the second floor are class-rooms over those below, a small laboratory over the head mistress's room and vestibule; one of these class-rooms is fitted as a science lecture-room, and a large studio at end of assembly-room.

On the ground floor are the pupils' entrance, with cloak-rooms on the right and dining-room on the left, a gymnasium under part of the assembly-room, mistress's room, lavatories, tradesmen's entrance, kitchen, and offices, two rooms for special work, furnace chamber, fuel store, serving room, &c. There is access to the playground at three points. Most of the class-rooms are lighted from the south-east, the assembly-room faces north-west, and the studio north-east. This school accommodates 320 pupils, and is found, after being in use for twelve years, to be convenient and suitable for the purpose. The playgrounds attached to the school are exceptionally extensive for a High School. Classes are held there under the trees in summer.

Where the rooms are grouped round a central hall some of them will be less cheerful than others, owing to the diminution of direct sunlight. The noise of drilling and singing will interfere more or less with the work going on in the adjoining class-rooms, and the passing of children from the class-rooms to other parts of the building will tend to disturb the work going on in the assembly-room. To set against these drawbacks, which are possibly more apparent than real, there are many advantages, viz., compactness of plan, economy of space, increased facilities for effective supervision, &c. The assembly-room gives access to two stories of class-rooms, the upper ones being entered from a gallery arranged on all four sides.

This form of hall is easier to light than would appear at first sight. In fact, one has to be very careful indeed to avoid having too much lighting surface, which, it must never be forgotten, is also chilling surface in cold weather and heating surface in summer time. It is a common and fatal error to underestimate the value of a square foot of top-light—fatal to comfort, convenience, and health.

The assembly room is occasionally used also for prize distributions, lectures, concerts, private theatricals, and similar functions, and by this plan the adjoining rooms and galleries can be used to increase the accommodation for visitors and parents.

Plans of this type are a variation upon the central hall type, inasmuch as there are no class-rooms upon one side, from which the hall is lighted through windows in the only external wall. In this form of plan the class-rooms are grouped along the quietest or most cheerful side of the building, the assembly room, studio, laboratory, cloak-rooms, and other rooms occupying positions which are less important in this respect. Galleries are required only on one or two sides, and the drawbacks of the central hall type of plan are somewhat less in this type.

The conditions of the site usually settle which type of plan shall be used. There are, of course, some sites where all sorts of variations and adaptations will be found necessary.

Some peculiar and exceptional opportunities for skilful and picturesque planning arise when one has an existing building to utilise and fit in.

The width of doors to class-rooms should be limited to dimensions which will permit the passage of the usual movable furniture; 3 ft. to 3 ft. 3 in. is usually sufficient. Those to studios, corridors, cloak-rooms, dining-rooms, entrances, &c., should be wider, with pairs of doors hung folding or to swing as may be found desirable.

Glazed upper panels in doors and also a second door leading from one class-room to another are very useful in assisting supervision and maintaining discipline. Glass panels are sometimes objected to for apparently good reasons, but they are usually found to be convenient.

The essential points to be borne in mind regarding windows are :—

The chief lighting for all rooms, except those for science teaching, should be in one wall only, that on the left-hand side of the pupils, with an extra window conveniently arranged where possible for cross ventilation or extra sunlight.

The glass line should be as near the ceiling as possible, and not nearer the floor than 3 ft. 6 in. or 4 ft. in class-rooms, and the glass should be clear, except in lavatories and a few other positions.

The window frames should be as near the outer surface of the wall as appearance, Building Acts, and other circumstances will permit, to afford means for obtaining admission of air without interfering with blinds, &c., and also to allow the maximum of floor space to be used without the desks being placed too close to the glass.

All windows should be made so as to be opened easily by children, and to the fullest extent possible, and should be constructed to permit portions of them to remain open if desired while work is going on, without the possibility of downward currents of air being felt by the pupils.

The most suitable kinds of windows are those which can be opened most readily, and which when open will not admit rain or expose the occupants of the room to strong currents of air.

French casements and centre-hung sashes, although very useful in some positions, are not as a rule desirable for class-rooms. Double-

hung sashes, with hopper casements over them hung to the transome are a common and useful form of window. Hopper casements hung to sill and to transome, with centre or side hung sashes between them, are found convenient, and comply with the conditions above referred to.

In the wall opposite to the windows, openings near the ceiling, fitted with hopper casements, are extremely useful in obtaining cross ventilation of the rooms during the intervals for recreation and when the school is closed.

Fireplaces are conveniently arranged in the wall facing the children, not in the centre, if it is possible to place it either near the door or in the corner near the windows, especially when warm air grates or stoves are used, as then the cold air inlets are short and accessible; it is very important that all stoves or grates used for warming the air should be capable of being taken to pieces to allow the air channels to be kept clean.

Cloak-room Fittings.

Stands from 5 ft. to 6 ft. from centre to centre; seats and boot-racks, with hot-water pipes below them, are usually provided. Where this is not possible, other means for occasional drying of damp clothes are desirable.

Cement, asphalt, tiles, wood blocks, or similar materials capable of being readily cleaned are most suitable for the floors; cement or varnished wood for dados.

Lavatory Fittings.

The water should be laid on to the basins and water-closets direct from the high-pressure mains, or from cisterns placed at a considerable height above the lavatories.

The diameter of the pipes will depend, of course, upon the size of the lavatory ranges or the number of closets to be served, as well as their position below the main cistern. A very important point to bear in mind is that the closets and lavatory basins are often all in use during the same time, therefore all service pipes must be exceptionally large. There are so many disadvantages connected with the small flushing cisterns which water companies insist upon, that other methods of flushing the closets are arranged when water is supplied through a meter, such as lead-lined trough and spindle valves over water-closets or continuous cistern. The stoneware trough and automatic flushing-tank arrangement for water-closets partially avoids these difficulties; but a separate water-closet apparatus and flushing arrangement has many advantages over the trough method. Ranges of water-closets in or adjoining a building should be invariably separated from the corridor or stairs which gives access to them by a well-ventilated lobby or passage, in which may be placed the lavatory basins. These lavatories should be roomy enough to allow pupils to pass freely to and from the water-closets while others are using the basins.

The height of the lavatories and water-closets need not exceed 8 ft. 6 in. or 9 ft.; a separate window for each water-closet, inlet ventilators near the floor of the lobbies or lavatories, and outlet flues from the ceiling level up to above the roof are desirable.

Walls.

Walls must, of course, be built of sufficient substance to resist heat, cold, and moisture. Hollow walls in very exposed situations are useful, in spite of their disadvantages; but solid walls of good materials are better for ordinary positions. All openings in walls, flues, chases, &c., should be made accessible for cleaning.

The greatest care should be taken, and thoroughly effective means should be adopted to prevent moisture penetrating the walls from above downwards, or from the ground upwards. Solid damp-proof courses, formed of asphalt, slate, cement, &c., ought alone to be used, being much more effective than the various glazed perforated substitutes.

Roofs.

Roofs, if of the usual wood rafters, and slate, tile, or lead coverings, should be close boarded, and have some non-conducting material under the outer coverings.

Floors.

Floors of class-rooms should, if possible, be impermeable, and covered with wood. Where wood joints are used special care should be taken to ensure rigidity, and provide effective means of checking the passage of sound and air through the floors.

Floors of all lavatories and science-rooms should be solid, with hard, non-absorbent

coverings. The use of porous breeze concrete for such floors is not to be commended. Wood floor coverings should be polished, and have skirting fillets of sufficient width to keep the desks from injuring the wall surfaces.

Ventilation and Warming.

The cost of forming and maintaining a system of mechanical ventilation, and the desire for an open fire for the sake of cheerfulness and prompt control, account for the fact that in most of the schools of the kind under consideration the open fireplace has been utilised.

If a school building be designed to allow currents of air to sweep entirely across it during the pupils' absence, and each class-room be provided with two 9 in. by 9 in. or 14 in. by 9 in. shafts or flues from the floor to above the roof, with inlets to each at floor and ceiling levels, in addition to a large warm-air grate and suitable windows, it is found in practice that reasonably adequate means for warming and ventilating are thus economically obtained.

Their effective use depends greatly, of course, upon the mistresses in charge of the rooms, but it is an exception to find a head-mistress who is not keenly alive to the value of the means afforded and familiar with the use of them.

Vertical inlet tubes, deep sill fillets to windows and the various valve ventilators, are all useful as aids, *when kept clean*; but unless air is warmed before it enters a school, the inlets will remain closed during six months of the year when fires are in use. This fact accounts for the popularity of the various ventilating grates, most of which can be taken to pieces periodically for cleaning, and work best when doors, windows, and ventilators are closed.

The assembly-room, corridors, cloak-rooms, lavatories, laboratory, entrance lobbies, and staircases can be more conveniently warmed by hot-water pipes. It should be possible to raise the temperature in the corridors, cloak-rooms, lavatories, &c., to about 50 deg. or 55 deg. during cold weather, for the purpose of preserving a fairly equable temperature inside the building and protecting the sanitary arrangements and water services from disorganisation by frost.

The small pipe medium pressure apparatus is found very useful for warming schools, on account of the small quantity of liquid used, enabling heat to be produced in less time than with larger pipes. These small pipes, moreover, can be used under skylights and in other positions where the larger pipes could not conveniently be placed.

The practice of arranging hot-water pipes in channels below the floor of the spaces to be warmed, with open gratings above them, is unnecessary, wasteful, and dangerous, because of the difficulty of keeping the pipes and channels free from foul matter from boots and floors. Enclosing hot-water coils in ornamental casings is objectionable for the same reason.

The last word upon warming and ventilating crowded rooms has not yet been said; the present methods are not perfect. The air in streets is polluted in a manner which it is to be hoped will be regarded with amazement in the near future, when thick clouds of unconsumed fuel, foul exhalations from so-called sewer ventilators at the level of the roadway, and the fibrous filth from wood pavements, are no longer allowed to adulterate the precious air, which ought to enter our houses unsullied by such dangerous and unpleasant companions. At present the windows and doors are often closed, and the air refused admittance, *because it cannot enter alone*. Air in buildings will always require warming in winter, but it need not require washing and filtering as it does now.

The problems met with in endowed schools for girls are very similar to those in high schools, and are solved in much the same way. Endowed school governors are too often not overburdened with funds, the endowments having been usually severely taxed to provide new buildings for the education of the boys before it was thought desirable to make similar provision for girls.

In conclusion, I venture to hope that the movement for giving increasing facilities for secondary education to girls will continue, and that those of us who form part of the lesser half of the population will assist with all our energies in this desirable work, even if it should lead to provision being made for training and encouraging women to study architecture in the coming new home of this Association.

Mr. Banister F. Fletcher, in proposing a vote of thanks to the lecturer, said the paper was one of the most practical that they had had for some time past. They had been told recently so much about the importance of technical education that it was quite a pleasure to hear a paper on planning, which was, of course, the basis of architectural design. There were several questions he would like to ask Mr. Osborne Smith; the first being in regard to the plan of the class-room which showed provision for five desks deep. Was not that contrary to the rules of the Education Department, who did not permit more than three desks deep?

The Department considered that with five desks in front of him the teacher had to unduly strain his voice. That also brought them to the type of window they should adopt in dealing with schools for secondary education. There was the mulioned type of window, which was in use in such centres as the Universities of Oxford and Cambridge, and there was the sash treatment, the double-hung sash, which was practically universally in use, he believed, in the London Board Schools. Had the lecturer any preference for one or the other, and could he give his audience an idea of the relative cost of the two for giving effective light to class-rooms and schoolrooms? A design was quite dependent upon the type of window adopted, and for buildings for secondary education the mulioned type of window gave a more academic design; and, provided it gave proper light, it was one which many of them would naturally prefer. Then, as to the ventilating grate, he knew an architect's office where a ventilating grate had been put in by the makers on trial. When it was opened and used as a grate, the place was covered with soot and smut, so that it was never opened except to show a pupil the working of a ventilating grate! The lecturer's remarks about thoroughly lighting class-rooms and schoolrooms were patent to everybody, but had he any rule as to the amount of superficial area to the cubical contents of the building? There were great possibilities in the way of making corridors more attractive, though not much could be done with a 7 ft. wide corridor. With a 10 ft. corridor, and sufficient light, a picture gallery could be arranged, and the gallery would then have a certain amount of character which it would not otherwise possess. In using the double-hung sash-window, he supposed they could not do better than adopt the principle of the London School Board. That answered the purpose of ventilation by means of the transom light. In the matter of cleaning from the inside there was no doubt that the "N. A. P." windows were admirable for the purpose. As to floors, he thought that as there was so little difference in cost between ordinary combustible timber floors and floors made with coke-breeze concrete and steel one should naturally use coke-breeze floors. As to ventilation, he did not quite understand the lecturer, who said that he provided one or two flues to each room, and one or two openings. Would not the results vary from time to time, and in the different rooms? He (the speaker) thought that the way to ventilate such buildings was to carry off by flues in the chimney-stacks, because they were always more or less warm.

Mr. W. H. Seth-Smith, in seconding the vote of thanks, said the paper embodied a large amount of experience, and was of great value. In view of the projected legislation on the subject of secondary education they might expect that some of the remarks of the lecturer would be considerably modified in time. In answer to the last speaker he might say that the Education Department had nothing whatever to do with high schools. The Department was responsible for elementary education, while the Charity Commissioners had to do with the endowed schools, so that the rules of the Department as to cubic contents and floor areas did not affect high schools. Otherwise the lecturer would not have advocated 10 ft. as the height of the class-rooms.

Mr. Osborne Smith: What I said was that 12 ft. was ample. It is unnecessary to go beyond.

Mr. Seth-Smith said he was quite agreed, and he thought that certain rules of the Department were perhaps a little excessive. Those heights were not always necessary, especially where the ventilation had been carefully considered. He quite agreed with the lecturer as to the difficulty, and the enormous cost, of adapting an old building, and in giving advice on that point they would do well to recommend

that old buildings on a site should be cleared away, even on the score of cost. Alterations and adaptations involved not only the sacrifice of planning and convenience and health, but the cost was almost always prohibitive. He was very glad that the lecturer insisted so much on aspect. He (the speaker) had had to do with the planning of several buildings of this kind, and he had always insisted upon getting the maximum sunlight, without inconveniencing pupils in their class-rooms. He would like to know the lecturer's opinion as to the minimum distance between the end wall where the teachers' desk is and the front desk. The lecturer in his plans showed them rather close together—much closer than the Department would allow; but he (the speaker) did not think there was any objection to it if the room was well ventilated, especially as it was a saving expedient, which was a consideration in this class of school. As to the position of the fireplace, he thought the best place was between the door and the teacher's desk, otherwise there would be a draught passing from the door across the teacher. The lecturer would say that heat was lost by having flues so near to the door, but in order to avoid draught he (the speaker) thought that was necessary. As to the ventilating fireplaces, he had found them useful, but he advocated the outlet from all such grates being above the stove itself, otherwise there would be a down current. The lecturer apparently advocated single desks. Undoubtedly they were the best for supervision, but they were very expensive. He would like to know what kind of plaster the lecturer preferred for finishing walls internally—whether the more impervious cements or otherwise; or whether he had tried adamantine, which made a very good surface. Some other questions he would like to ask were: The lecturer's ideas as to the standard of floor area of the hall per child? Whether in any of his schools he had been asked to provide a museum? (he, the speaker, had been asked to do so). As to the isolation of the music-room (sometimes a very costly arrangement); and the desirability of insisting upon provision for ample supervision by mistresses? In reference to lavatory and water-closet accommodation, it must be remembered that in a building that was not a domestic building a very much smaller percentage of apparatus was all that was necessary. In reference to the uses of the hall, he thought that the lecturer's reasons for preferring an isolated hall were excellent. Another advantage of the isolated hall occurred at the periodical examination. Absolute quiet was required on such occasions, and, where the class-rooms opened out of the hall, it was extremely difficult to isolate the desks and obtain this. In planning a building care had to be taken in regard to noise from the streets. He knew a large and expensive school in London where double windows had had to be provided in order to keep out the noise. In the new premises for the Association this point would have to be very carefully considered. Then, as to the gallery of the assembly hall, did the lecturer provide room for one or two rows of seats? and did he see any objection to placing blinds on the transome instead of carrying them up to the top of the ventilating hopper? One of his (the speaker's) greatest difficulties in this kind of work had been to obtain absolute isolation between the closets and the corridors, and to prevent, in hot summer weather, the smells passing to the main building. He did not find that one lobby was sufficient, or even two. Hollow walls weakened a building very much, and where possible they should be avoided. He was sorry that no head mistresses of schools were present that evening to take part in the discussion.

Mr. Howley Sim said he would like to know how the corridors in some of the lecturer's plans were lighted. As far as he could see, light was obtained only from the two ends of the corridors. The lecturer had made a great point about the through ventilation of class-rooms. The fanlight of the door was some considerable distance below the fanlight of the window, and it did not seem at all certain that a through draught would be obtained. Even if that were so, would not the cold air fall upon the heads of the pupils in the rooms? If they put the fanlight over the door on a level with the ceiling that difficulty might be obviated.

Mr. Osborne Smith: That is where they are always placed.

Mr. Howley Sim, continuing, asked what were the ages of the children who attended

the schools. He should like to know also whether the class-rooms were warmed entirely by the open grate? The open grate was very effective, but to warm a room a fire had to be lighted a long time before the room was to be used. In regard to lavatory arrangements it was very difficult to get any taps that were perfectly suitable, and did the lecturer know of any that were free from objections?

Mr. R. Langton Cole said that he had two of his daughters at a high school, and his experience was that they suffered very much from draughts. It was possible to overdo cross ventilation, especially in winter. He felt that there was a tendency to provide too much ventilation of this kind.

Mr. L. Jacob said, in regard to the plan of a class-room, five rows of seats were not excessive. As to the position of the fireplace, he did not like putting it between the teacher's desk and the door. He thought that plans giving class-rooms on one or two sides of the hall were far the best. Corridors were objected to by masters and mistresses as being difficult to supervise. It was as well in large halls to have the gallery round as few sides as possible consistent with getting to the upper floors. He was surprised that the lecturer permitted lavatories and closets being attached to the buildings, for he thought, as far as endowed schools were concerned, that the Charity Commissioners objected to anything of the kind. It would be very convenient if architects were permitted to do the same. As to the arrangement of the chemical laboratory, the benches, according to the lecturer's plans, did not run with their ends to the windows, and he (the speaker) always thought that was desirable. The cloak-rooms also, apparently, had one door only, and most of them led out of a corridor. Was that a good arrangement, seeing that children coming in and going out might collide with one another? Would it not be better to provide two doors? Had the lecturer any objection to staircases leading directly out of the large hall? It seemed to him that some arrangement of that kind might be an advantage.

Mr. G. Tolley asked what provision was made, in the event of the galleries being used in connexion with any function taking place in the hall, for special means of exit.

The Chairman, in putting the vote of thanks, said that it was certain that when the question of the regulations for secondary schools was really taken up seriously, it would be very desirable to thoroughly thrash out the subject. The question of the assembly hall was a very difficult one where there were two sexes, and not one, to consider; and he did not think it was possible to arrange a satisfactory plan except on the corridor principle. Even when but one sex had to be provided for, it was not satisfactory for the class-rooms to enter directly out of the hall. Did not the lecturer consider that, where possible, it was desirable to have a corridor, rather than enter the rooms direct from the hall? He had intended to ask a similar question to that put by the last speaker in regard to a separate entrance or exit. He believed he was right in saying that in large secondary schools it was the rule to provide a separate staircase leading direct from the hall to the playground. It seemed an advantage to be under no control as to height of class-rooms in these schools as against elementary schools. Instead of having to provide a height of 13 ft. or 14 ft., he could build his room to the height of 12 ft., and obtain the necessary cubical contents by useful additional floor area.

Mr. Osborne Smith: 12 ft. is the maximum. The Chairman, continuing, said that the size of the desk affected the area of the room; that could be the only objection to the single desk, which was superior to the dual if space could be afforded. He was rather surprised to see, according to the plans, that the lavatory, &c., arrangements were absolutely connected with the main buildings. No doubt it would be said that there were not the same objections to such arrangements in a high school as in an elementary school, but surely the same principles applied. In elementary schools there were no water-closets inside the building except occasionally for lady teachers; and whether it was permitted or not, he was inclined to think that it would be better to make provision in a building entirely separated from the main structure. In regard to music-rooms, some of them, according to the plans, were very close to the class-rooms! Did the lecturer make any special arrangement so as to exclude the sound from those rooms? or were

the music-rooms used only when instruction was not being given in the ordinary class-rooms? In regard to the assembly-hall, the lecturer apparently always put the platform at the end of the room. What was his experience in regard to placing it on the long side instead? The question of the aspect of a room was a very important one. With regard to the position of a fireplace, his (the speaker's) experience was that the best position for it was on the right-hand side of the teacher, in the angle, but the misfortune was that that arrangement brought the chimney-stack in such an unfortunate place in the elevation. What the lecturer said about polishing the wood floors seemed extravagant and questionable; he would have thought that all practical purposes were answered in providing an ordinary woodblock floor without polishing. He would like to ask whether the lecturer followed the arrangements adopted in elementary schools as to the number of closets and lavatories for pupils, or did he consider that more were required in the High Schools?

The vote of thanks was then put and carried by acclamation.

Mr. Osborne Smith, in reply, said that in reference to children catching cold, what he said was that it was no use providing means for ventilation and warming unless the apparatus were used, and he emphasised that in order to convey the impression that it was not always used. He often had to explain to teachers the ventilating appliances—which was not surprising, for teachers could not be expected to know as much about ventilation, &c., as architects did. In reference to water-closets, &c., he had never found the slightest inconvenience arising from having closets and lavatories attached to the main building, and if proper precaution were taken by the provision of ventilated lobbies the sanitary offices were practically disconnected. He had never had any complaint of inconvenience due to this arrangement. In regard to the assembly-room, 350 children could be comfortably accommodated in a room 60 ft. by 30 ft., allowing for platform. Museum cases were sometimes arranged in the corridors, but he did not appropriate a special room for a museum. In regard to the finishings of walls, he generally used distemper and painted the bottom part upon ordinary plaster, using sometimes a cement dado, especially in the corridors, where there was much rubbing. As to music-rooms, they were not built as a rule because music lessons were not usually given while other classes were being taken. Class-rooms, built a little larger than the rest to hold a piano-forte, were used for the purpose in the after-part of the day. He had had to do with buildings where it had been necessary to isolate the music-rooms, and he put them in the roof and made a good non-conducting floor with silicate cotton and used double doors. With regard to five rows of seats in a class-room, he thought the arrangement was a good one. The nearer they approached a square the better for class-rooms, and 21 ft. by 19 ft. 6 in. gave a very good room for thirty single desks. The company with which he was connected did not use dual desks at all, and where they could be afforded single desks were preferable. As to the width of corridors, he would like to be able to make his 10 ft. wide and make picture galleries of them; but these things had to be paid for! In regard to the question of draughts, it was a mistake to suppose that because the fireplace was arranged in the angle therefore the teacher would feel a draught from the door. The assembly room and the class-rooms being both warmed, there could be no draught. The reason why the fireplace was placed in the corner was twofold. In the first place, they got the radiating surface nearest to the chilling surface, and if the fireplace were anywhere else there were more disadvantages than when it was placed in the corner. He would very much like to use mullion windows if he could, but the question of cost again operated,—unless they used wood, which in a stone country looked mean. The N.A.P. windows were good. Coke breeze floors, while good, were more expensive than the ordinary wood joist floors. He polished the floors of schools for sanitary reasons. All cracks were thus stopped up, and the children soon got used to the polish. They did not polish the floors like a mahogany table. He liked to provide two ventilating flues in each class-room, to above the roof, starting from the floor with two openings into the same flue. That arrangement made

a large number of chimneys, but it afforded an opportunity of making a special feature of them. He had nothing to do with the rules of the Education Department. He felt very strongly in regard to the sufficiency of 12 ft. as the height of the class-room. Whatever height above that they provided was wasteful and extravagant. He had built some at 11 ft. 6 in. and some at 12 ft. 6 in., but now he kept to 12 ft. As to the distance between the wall and front desk in a class-room, if they got sufficient room to pass and repass freely, that was all that was required. The best type of plan, in his opinion, was that with the corridor, if they could afford it. He would like to get all his class-rooms on the sunny side, but that was not always possible. As to the percentage of water-closets, it was found that three per cent. of closets and five per cent. of basins was about the right proportion. He had no experience of the platform being placed on the long side of the assembly hall. Cloak-rooms should have at least two doors, and he liked to provide double swing doors. He thought there would be objections to stairs leading direct from the hall on account of noise. In regard to panic exits, they were not needed, as it was not likely that there would be more than 400 children in the assembly hall at one time, and two staircases 4 ft. wide, leading direct to entrances, would allow ample means of exit in case of panic. He had never had any trouble with District Surveyors in the matter. In regard to the floor area in the assembly hall, a room for about 300 children was 58 ft. by 28 ft. He calculated for just the number in the school. He put galleries in the class-rooms sometimes, but not always. He did not approve the arrangement of the blinds at the transome referred to by Mr. Seth Smith. The sunshine came through the fanlight above the transome. As to the age of the children, in some schools there was a kindergarten, and the children were as young as six and seven; but they were of all ages up to twenty years. In regard to the use of a gallery in the assembly hall, it was necessary to determine whether the hall was to be used for school purposes only or for functions—prize distributions, entertainments, &c.—as well. If an important gathering was to take place, a hall was usually hired for the purpose, for an enormous room would have to be built to provide for parents and children at the same time. When a function was held in the hall, however, the galleries were used to accommodate one row of people, but usually they were used for nothing but passage ways.

The Chairman announced that the next meeting would be held on the 17th instant, when a paper would be read by Mr. L. A. Shuffrey on "House Decoration."

The meeting then terminated.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS: FESTIVAL DINNER.

THE Festival Dinner of the Royal Institute of British Architects, in commemoration of the Sixtieth Anniversary of Her Majesty's Accession and the incorporation of the Institute, was held on Thursday, the 2nd inst., in the Banqueting Hall, Whitehall Rooms, Hôtel Métropole. The President, Professor Aitchison, A.R.A., occupied the chair. The following invited guests were present:—The Bishop of London, the Rt. Hon. the Lord Mayor, Dr. Collins (the Chairman of the London County Council), Sir E. J. Poynter, P.R.A., Sir E. Maunde Thompson, K.C.B., Sir J. Wolfe Barry, K.C.B. (President of the Institution of Civil Engineers), Sir William McCormick (President of the Royal College of Surgeons), Sir William Godden (President of the Incorporated Law Society), Mr. Christopher Oakley (President of the Surveyors' Institution), Sir W. B. Richmond, R.A., Mr. Alfred Gilbert, R.A., Mr. George Frampton, A.R.A., Sir James D. Linton, P.R.I., Sir G. Scott Robertson, K.C.S.I., Sir Henry Howorth, K.C.I.E., M.P., Sir Henry Trueman Wood, Sir Stuart-Knill, Bart., Sir G. Young, Bart., Sir G. Hayter Chubb, Mr. W. Ellison Macartney, M.P., Mr. Thomas Hardy, Mr. W. R. Bousfield, Q.C., M.P., Mr. Hugh C. Smith, Governor of the Bank of England; the Hon. Willoughby Burrell, the Rev. Canon Clayton, the Rev. W. Bazely, Mr. R. M. Beachcroft, Vice-Chairman L.C.C.; Professor Corfield, Colonel Waller, R.E.;

Captain Donaldson, Dr. Gervis, Mr. F. Layland-Barratt, High Sheriff of Cornwall, Captain Moseley, Herr H. Mathesius, and Mons. J. M. Poupinel. The following members and others were also present:—Messrs. F. W. Albury, J. Macvicar Anderson, C. B. Arding, W. Wallis Baldwin, T. Barnes Williams, Charles E. Barry, George Benson, Thomas Blashill, Edward Boardman-Boyce, C. W. Brooks, James Brooks, H. Brown, J. M. Brydon, William J. Bull, J. J. Burnet, W. D. Caroe, T. E. Colcutt, J. Collings, H. H. Collins, George Corson, H. O. Creswell, J. D. Grace, G. R. Crickmay, A. G. Cross, A. W. S. Cross, Percivall Currey, Thomas W. Cutler, T. Raftes Davison, Rudolf Dircks, Arthur Dixon, John Dunn, William Emerson, Robert Evans, Robert Evans, jun., W. M. Fawcett, H. L. Florence, Charles Fowler, Ernest George, William Godden, William Goldring, Alexander Graham, G. E. Grayson, E. A. Gruning, Albert L. Guy, W. W. Gwyther, Axel Haig, Edwin T. Hall, F. H. A. Hardcastle, W. H. Harrison, Jas. Hine, George Hornblower, F. C. Hunt, E. B. I'Anson, Benjamin Ingelow, Lewis H. Isaacs, H. O. Jenkyn, George Judge, Zeph. King, G. F. Lambert, W. J. Locke (Secretary), E. H. Martineau, H. E. Milner, James A. Morris, Andrew Moseley, E. W. Mountford, James Neale, G. Northover, John Norton, A. E. Lloyd Oswell, H. A. Pelly, F. C. Penrose, H. R. Perry, Horatio Porter, Hampden W. Pratt, Marshall Robinson, T. R. Ronald, E. O. Sachs, W. H. Seth-Smith, George Sherrin, John Slater, H. B. Smith, Hugh C. Smith, J. Osborne Smith, P. Gordon Smith, A. Saxon Snell, H. Saxon Snell, Lewis Solomon, Henry Spalding, N. J. Stanger, H. H. Statham, R. S. Stokes, William Strang, W. H. Strudwick, A. W. Tanner, Henry Tanner, J. C. Tanner, Herbert Taylor, Sir John Taylor, K.C.B., Lewis Thomas, Arnold Thorne, W. H. Thorp, Silvanus Trevail, Frederick Wallen, Paul Waterhouse, T. H. Watson, Aston Webb, William White, Alfred Williams, W. E. Willink, W. S. Witherington, H. A. Woodington, William Woodward, Chas. H. Worley, R. Selden Wornum. The following journals were also represented, viz.:—*The Times*, *the Builder*, *the Standard*, *the Daily News*, *the Morning Post*, and *the Central News*.

The President, in proposing the toast of H.M. the Queen, said that the Institute owed her a peculiar debt of gratitude for bestowing each year the Royal Gold Medal on the architect selected by the Institute for that honour. The honour was not confined to the architects of this country, but was conferred upon the architects of all civilised countries where architecture flourished, and in this way English and foreign architects were made to feel that they were one body, determined to make their great art famous.

The President also gave the toast of "H.R.H. the Prince of Wales and the Royal Family."

Mr. J. Macvicar Anderson, Past President, proposed "The Houses of Lords and Commons," and in doing so said he would refer to the Houses of Parliament as ancient edifices, and as ancient edifices those buildings called forth their reverence and their affection. Unfortunately there were those who had no sympathy with the light and shade that time alone could impart, and which gave the greatest charm to such edifices. Referring to the House of Lords, he said that only the previous day he had heard of a dear old tower, attached to a church in Cornwall, which was threatened with destruction. There were those who had no appreciation for ancient work. One Goth had subscribed 1,000*l.* on condition that the tower should be removed and a modern one put in its place; other sums had been given on similar conditions; and, worst of all, the vicar or rector of the parish—who of all others should be expected to preserve such an ancient landmark—aided and abetted them. If the tower were removed, its place would be taken by some lofty Babel tower, a monument alike of the conceit and ignorance of its promoters. Such vandalism, he hoped, would be prevented. There was a well-known law in architecture as to obtaining a due and just proportion of window and wall space in an edifice, and he thought that even the most ardent admirers of the House of Commons must admit that the oratorical voids in that assembly have assumed an enormous disproportion to the wall spaces of useful work; but notwithstanding these and other influences of time, they must all hope that these ancient edifices would withstand the ravages of future centuries. With the toast he coupled the names of the

Bishop of London and Mr. W. G. E. Macartney, M.P.

The Bishop of London, in the course of his reply for the House of Lords, said it was pleasing to think that a society of architects had resolved itself into a society for the protection of ancient buildings. He then briefly and humorously referred to some of the advantages of a second Chamber, and concluded by saying that so long as the House of Lords rendered advice in measures inaugurated by the House of Commons—so long as it did that, with the gravity and wisdom, consideration and attention to business which characterised its proceedings, it deserved and received the approbation of the country.

Mr. Macartney, in responding for the House of Commons, said that that body occupied one of the lasting monuments of the genius of British architecture, and he trusted that in the future, as in the past, those who had the privilege of conducting the affairs of the nation in that magnificent palace would be inspired by the great traditions which no doubt occupied the attention of the Institute of British Architects, and which ought always to influence the representatives of the nation.

Mr. Aston Webb then proposed "The Lord Mayor and Municipal Corporation." As architects they welcomed the Lord Mayor because he and the Corporation held a power over matters which very much interested architects. With the Corporation lay the power to realise to a great extent the ideal cities which architects naturally had in their minds—cities with broad streets bright and clean, with trees and parks and open spaces; cities well drained, supplied with wholesome and pure water; cities with happy populations as far as laws could make them so; and cities (and here as architects they were specially concerned) which possessed buildings of a municipal character which added distinction to the city or town in which they were placed—buildings in which painting and sculpture had combined with architecture in making them all that art could make them—buildings which strangers would come from far to see, and which should represent, as much as art could, the beauty and dignity of city life. It was work of this kind that Lord Mayors and Municipal Corporations had in hand.

The Lord Mayor, in the course of his response, said that the Institute of Architects was commemorating the sixtieth anniversary of her Majesty's Accession, and the incorporation of the Institute, and that afternoon they had been celebrating in the City the anniversary of one of the grandest old buildings in London—viz., the two hundredth anniversary of the opening of St. Paul's Cathedral—a building which was, perhaps, the greatest monument to any man who ever followed the profession of an architect. By their character, past Lord Mayors had built up the Corporation of the City of London, and was there any reason why they should be swallowed up by the County Council? They were an old-established Corporation, and they would be glad to see the County Council become a similar institution, but that could only be accomplished in the course of time; and, in the interval, the Council would be better occupied with the business of the County of London rather than in attempting to destroy the old City of London. As a consequence of the great fire in the City, it was equally important to the City, as to the great profession to which they belonged, that something should be done in order that such a catastrophe might not occur in future. He hoped that the Corporation would shortly be able to make some suggestions in regard to the matter, and if any members of the architectural profession could give him any hints on the subject he should be happy to lay them before the Corporation.

The President proposed the toast of "Art, Literature, and Science." He gave Art first for many reasons; but it was only necessary to name two, viz., that it was the first of the fine arts that appealed to man before Literature or Science existed; and, secondly, because it was that form of beauty that nature offered freely to the eyes of every one who was not blind, and she offered this for man's solace, purification, and delight. All writing, from the Egyptian hieroglyphics to the Chinese, was short-hand from pictures. We saw in the painted bas-reliefs of Egypt and Assyria that history, that catalogue of great national events, was given by a series of pictures. Everything that nature offered to our eyes was sculptured and painted, and these coloured forms produced for us the beautiful, the lovely, the sublime,

and the terrible; so that, by the various emotions they raised, our souls might not perish through stagnation. In all civilised countries whole classes of gifted men devoted themselves to the portrayal of these evanescent scenes of beauty, sublimity, or terror; and they did more when man was the subject chosen for their chisel or their brush, for they not only portrayed his form and action and gave us ideals of beauty, of swiftness, or of strength, and of those forms that denoted the possession of courage, wisdom, benevolence, or malignity, but re-created for us the stirring scenes of the past. Among these artists the architect was enrolled, though he was like the chariot drawn by the divine and earthly steeds, and had to combine the useful with the sublime. In this he was assisted by the sculptor and the painter. They had that night with them the President of the Royal Academy, who took the visual fine arts under his wing. Though Literature was a later creation than Art, it had thrust itself to the forefront, for it had time and thought in its hands, and had associated music and melody with itself. No fine art could invade another's domain, for, could one die out, all the rest would not supply its place; a beauty might have her form immortalised by the sculptor, but the painter alone could give her colour. The useful prose had borrowed some of the adornments of her elder sister, poetry, and gave melody and rhythm and eloquence, while in the depiction of conflicting emotions it rivalled poetry itself; still it was to our poets we must look for immortality, for in poetry was concentrated the pith of thought crystallised and polished. He knew not if we could claim equality with the past, in the masterpieces of the visual fine arts, but we might do so with the poetry. Our poets, too, have given "jewels five words long, that on the stretched forefinger of old Time sparkled for ever." They had with them that night the keeper of all the best poetry and prose that had come down to them since literature was invented. Sir E. Maunde Thompson, of the British Museum. Lastly, he came to Science, or rather to those who had turned the discovered laws of nature into man's obedient servants; and in that respect Great Britain was better off than with poetry. They did not know that all the world estimated Shakespeare, Milton, Burns, Shelley, and Tennyson as we did, but it would hardly deny them the discoveries of Watt, of G. Stephenson, of Arkwright, and of Wheatstone. He did not want to be insular, and it would ill become them to forget Edison, who had given them the electric light. The chemist, the mechanician, and the engineer had revolutionised the world for them. Puck's boast that he could "put a girdle round about the world in forty minutes" had been outdone by the telegraph, and did not the engineers "lift the hills and roll the waters, flash the lightnings, weigh the sun?" He thought he might safely say that from the scientific discoveries of the last hundred and fifty years mankind were better fed, clothed, and housed than they ever were before, and that they were more numerous, more healthy, and longer lived. If life be happiness, the sum of happiness had been vastly increased. They had with them as a representative of science a distinguished engineer, Sir J. Wolfe Barry, whose Tower Bridge they all knew.

Sir E. Poynter, P.R.A., replying for Art, said it was a large subject, and he did not feel equal to giving that elaborate disquisition on the subject which the President seemed to expect from him, especially as he would have to deliver shortly an address on the subject in another place. Nor would he indulge in commonplace and platitudes on the advantages of art as an education. He would rather turn to the alliance of the arts of painting and architecture as exemplified in the old friendship between their President and himself, which began when he was a boy in Rome, which was strengthened and cemented by the admiration which they held in common for their late President, Lord Leighton, who was at that time a youth of twenty-three, and full of his first enthusiasm in that passionate devotion to art which was the object of his life. Their President had extended his friendship and kindness to him all through his (the speaker's) life, and he could not say how much he had profited and how much he owed to him. Their President had always entertained exalted views as to the dignity of art, and he had never failed to express them. In the name of the painters

and sculptors, he thanked the Institute for the high compliment they had paid them.

Sir E. Maunde Thompson, K.C.B., responded for Literature. He said he had more acquaintance with the outside than with the inside of books, and he could almost weep when he paced down their long corridors at the British Museum and saw the charnel-house of literature all lying on their shelves, and no one referring to them. His only consolation was that the paper upon which they were printed was so abominably bad that final dissolution must come and save posterity from a monstrous amount of literature. But there was yet another consolation. Although there was this great mass of literature pouring into the world in the present day, we were not bound to read it. He was at the head of a great institution, which was not only a library but a repository of art, and he wished to express his thanks to the President for the many kindnesses they had received at the Museum from him whenever there was any question of arrangement in their collection of antiquities.

Sir J. Wolfe Barry, K.C.B., in responding for Science, said that, as the son of an architect who must have been one of the original members of their Institute and a President; as the brother of one of their past Presidents, and brother of one of their Vice-Presidents, it gave him much pleasure to be present that evening, and to be called upon, as President of the sister society, the Institution of Civil Engineers, to reply for Science. The particular branch of science with which he and they were connected was applied science, and that science had been well described as the hand-maid of art. It was a servant, useful, sturdy, and trustworthy, but like such servants in ordinary domestic life (who possessed those qualities) it was not to be trifled with. The science they had to deal with in their profession had its sanitary branch, which was of great importance to the health of the world, as statistics of the duration of life showed; and another branch of the application of science was that known by the word "constructional," which involved making the most of those new discoveries in various kinds of materials and various means of executing buildings, which of course appealed to architects who had to deal with new problems of a very different kind from those which were dealt with by the ancients, from whom architects obtained their great principles of art. As time went on, the newer developments of science in the way of construction would have more and more to take their proper place in the art of architecture. Another application of science which called for great attention in this great City was that which had been alluded to by the Lord Mayor, namely, in trying to make large blocks of buildings less susceptible to the ravages of fire than was the case at the present moment. A few days ago he visited the scene of the great City fire, and one could not help being struck with the fact that there must be something very faulty with the construction of modern buildings that they should fall down and be destroyed in a few hours from a fire which, he supposed, if it had been attacked in the first half-hour, would, under proper modes of construction, have had no great danger to any surrounding houses. He thought he was right in saying, therefore, that architecture had much to learn from science, and that science had something to learn from art. He could not see why things which were useful and served a distinctly utilitarian purpose should necessarily be ugly. He thought that engineers might with very great advantage study some of those great principles of beauty with which architects were more particularly concerned. He recollected that his father used to impress upon him that the great principle of a well-designed and beautiful structure was great attention to proportion. He thought that engineers in the present day might very well consider whether some of our bridges, stations, and other structures might not be a little more beautiful than they are.

Dr. Collins, Chairman of the London County Council, then gave the last toast, viz., "The Royal Institute of British Architects and Allied Trades" (*sic*). He cordially reciprocated the sentiments of the Lord Mayor in saying how close should be the association of municipal enterprise and architecture. Before the year 1837 architecture had no learned Association or Royal Society to represent it. The Charter of the Institute was obtained in 1837, and they were celebrating that night their sixtieth anniversary. No doubt great progress had

been made since 1837, and the Institute had had as members those whose names would long survive. The speaker then referred to the close contact of architects with the London County Council, referring to the London Building Act of 1894, with its 218 clauses, and the Tribunal of Appeal which was instituted by that Act. The London County Council recently required the assistance of an architectural critic upon the work of the Works Department, and a gentleman of ability had been found in the person of Mr. Gruning. He would also take that opportunity of saying how much London owed to Mr. Blashill, the Superintendent Architect of the Council. In that connexion he might refer to the careful supervision, under the direction of Mr. Blashill and the District Surveyors, of the stands, &c., which were erected for the sightseers at the time of the Queen's Jubilee. Alarming prophecies of catastrophe had been made in connexion with that event. The County Council had a keen regard for the preservation of buildings of historic interest and architectural value. At a recent conference, to which the Institute sent representatives, they considered how best to preserve such buildings, the existence of which they learned only when they were threatened with destruction. It was suggested that they should make a register of historic buildings, and they were now seeking powers to that end. He must congratulate the Institute upon the high repute in which it was held. It was, he believed, the only recognised architectural body which was incorporated under Royal Charter, and he was glad to know that there were some fine representatives of the allied societies with them that evening, including representatives from Wales, Scotland, Ireland, and New South Wales. They must all think, as they walked through the principal streets, that, after all, there was a vast amount of ugliness and prosaic quality about our public buildings, and, no doubt, they sometimes asked how it was that with such an array of architectural talent things were not better than they are. The Institute was an examining body, and the teaching of architecture was the province of the Architectural Association, the Royal Academy, the National Art Training School, and one or two other institutions; but it was a matter of agreement, he thought, that architecture was not at the present time taught in London in a manner worthy of the City. He had often wondered why architecture had not received that recognition in our Universities which it ought to have done. They heard so much of the humanities, but, after all, were not literature and architecture humanities; the exquisite in form, that which was implicit in thought. Architecture, as a German philosopher had described it, was frozen music—harmony crystallised into form; and he (the speaker) thought it should find some place in our University examinations. He was not sure whether it was too much to dream of a Municipal School of Architecture in London, and he would be glad to use any influence he might possess with the University of London to adopt such a measure.

The President, in reply, said that of all the fine arts practised in London there was none that was less thought of than architecture. He would ask them to consider architecture in two of its phases, its obtrusiveness and its permanence. Painting and sculpture might be put into a room, or cupboard, but architecture met people everywhere, and surely that was a reason why a city should be made beautiful and not ugly. Then in regard to the enduring character of architecture, although it was true that large and important buildings might be destroyed by invaders, by natural convulsions, or by neglect, yet if these two former did not occur and care were taken they lasted for centuries. In spite of the lapse of time, of fire and earthquake, they had still the remains of the Parthenon at Athens—a building which caused the perennial admiration of those who were sufficiently educated to understand its beauty. Then there were the remains of architectural splendours of Rome and elsewhere; but in his opinion insufficient notice was taken of the claims which architecture made on the admiration and gratitude of mankind. Architecture taught many lessons and excited many emotions that could be raised by it alone. No one who had visited the interior of the Pantheon at Rome could have forgotten the impression of its proportions, size, and lighting. It was the work of a great genius whose name had been lost, and it affected thousands, and had done so from its creation. It was consequently

a matter for the consideration of the architect to see if his genius and his study would enable him to produce something equal, though not like, such a building as the Pantheon. He thought it was the duty of every patriot in the country to endeavour to make the city he inhabited beautiful. It must be remembered that the great works of architecture that he had referred to must be visited, for they could not be exported for the benefit of people in other lands. The Institute had done what it could to improve the education and to raise the aims of the young architect. He wished that more could be done, but the difficulty was to know how to do more. Every man who embraced the profession should endeavour to make himself as capable as possible, and should regard architecture not as a mere means of making a livelihood, but something by which his country might be distinguished. He might say that the excellence and progression of their great profession are more dear to him than anything that could happen to himself. They must recollect that Aristotle considered architecture as one of the master arts of the world. In regard to the street architecture of London, M. Paul Sedille expressed in a book he wrote about the architecture of England the opinion that its domestic works were admirable. He hoped and believed that genius would spring up to make the larger and more important buildings equal to those of any other country. The greatest hope and desire he had was that the next century should produce works of architecture in England which would vie with the great works of Greece, Rome, the Middle Ages and the Renaissance. He thought it was because architecture had got into the wrong groove that they did not succeed in producing work of the greatest excellence, and until that was remedied they should never proceed very far. The only people about whose progress in architecture we knew anything were the mediaevals, and he could not help thinking, although he was opposed to imitation, that nothing could be better than the methods those people followed, and that if we tried to follow their methods architecture would again proceed on its way. They had with them that night two gentlemen from abroad, viz., Herr H. Mathesius, who had come to this country to study our architecture, and one of the secretaries of the Société Centrale of Paris, M. J. M. Poupinel, who had just handed him a telegram which he had received from his Society to the following effect:—"We pray you to present our most sincere and most cordial felicitations to the Royal Institute of British Architects on its sixtieth anniversary." The telegram was signed by the Vice-Presidents, MM. Hermant and Lucas and the Principal Secretary, M. Boileau. No doubt they would desire to send their sincere thanks to the Society for the great interest they had taken in the Institute and for their congratulations. The proceedings then terminated.

THE REPORT OF THE GOVERNMENT OFFICES SITES COMMITTEE.

The following is the second and, we suppose, final Report of the Committee which has been considering and taking evidence on the subject of the sites for proposed new Government Offices:—

"In continuation of our Report dated July 23, 1896, we beg leave to state that we have taken further evidence upon the plans laid before the Committee last year.

Having regard to certain criticisms made from an architectural point of view upon those plans, we have thought it well to examine representatives of the Council of the Royal Institute of British Architects, and other qualified members of the profession.

Various alternative plans have been submitted to us by these gentlemen, but whilst we have availed ourselves of some of their suggestions, we have felt unable, owing partly to the enormous cost involved, and partly to other considerations, to recommend their schemes generally for acceptance.

Upon a review of the whole evidence, we have arrived at the following conclusions:—

We are of opinion that the new public offices on the "Parliament-street" or "Great George-street" site should be erected mainly on the lines of Plan No. 1 in the Appendix to the Report of last year, with a frontage in a line with the frontage of the Home Office, and parallel to the east side of Parliament-street; but we recommend that the south-eastern corner of the new building should be square and not rounded. The land between this new frontage and the present west side of Parliament-street would, if this plan were adopted, become part of the

public street; and, in our opinion there is no need to make special provision for separating the traffic at this point.

It appears to us reasonable, in view of the great metropolitan improvement here to be carried out at the cost of the Government, that the London County Council should be requested to consider whether they should not put into operation the powers possessed by them under the Public Offices (Westminster) Site Act of 1869, and contribute a share of the total value of the land, which under this scheme would become part of the public street.

We recommend the appropriation of this site for the Board of Trade, the Education Department, and the extension of the Local Government Board.

As regards the Whitehall site, having considered the alternative schemes for the War Office which have been placed before us this year, we adhere to the recommendation made in our Interim Report, being satisfied that a building satisfactory in appearance and accommodation can be erected on that site within its present boundary lines; and we are of opinion that the details as to the arrangements of buildings, courts, &c., should be entrusted to the discretion of the Office of Works, in conjunction with the architect selected. We think that a sub-way should ultimately be formed under the street between the War Office and the Admiralty.

Schemes have been submitted to the Committee by the Royal Institute of British Architects and by Colonel Edis for a widening of Charing Cross and of the north side of the Office of Works, but we cannot recommend that the taxpayers should be asked to bear the cost of this metropolitan improvement, which, if undertaken, comes more properly within the duty of the Local Authorities.

We, however, strongly advise that the Mall should be opened into Charing Cross on the north side of the Victoria Memorial.


We do not contemplate the passage of any other than light traffic through the Mall, and are satisfied that the skill and experience of the police would supply satisfactory means of overcoming any difficulties of traffic which might to some extent follow such opening.

We think that no decision should be arrived at as to building on the triangular site in Spring Gardens until the houses standing there have been removed, and the ultimate requirements of the Admiralty considered.

We recommend that Nos. 11 and 12, Downing-street, occupied respectively as a residence for the Chancellor of the Exchequer, and as an office for the Patronage Secretary to the Treasury should be removed, as unworthy of the site they occupy; but we are of opinion that the principal block of No. 10, the historic residence of the First Lord of the Treasury, for reasons of practical necessity and on account of its associations, should be retained, the Downing-street front being masked by erecting a new building with a good architectural facade, and the Park front being cased in stone, so as to harmonise with the north and west fronts of the old Treasury buildings, and the garden ground being enclosed with a screen or railing of handsome design.

We do not recommend any further building on this site. We are of opinion that whatever other office accommodation is required, which cannot be conveniently found in existing Government buildings, should be provided for by an extension of the Great George-street site in the direction of Delahay-street and St. James's Park, in which case some readjustment of the arrangement at present shown in the plan of the Office of Works might have to be made."

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—At the general meeting of this Institute on the 1st inst., Chancellor Ferguson, F.S.A., in the chair, Mr. C. Edwards exhibited twelve Romano-British pewter vessels, part of a remarkable deposit of thirty-three vessels found at Appleshaw, near Andover, by Rev. G. Engleheart. They consisted of three round dishes of about 15 in. in diameter, ornamented in the centre with geometrical patterns. The other nine vessels were cup-shaped, resembling well-known types of Samarra, and a small dish in the shape of a fish, and having an ornament in the centre of a fish, as well as a shallow circular bowl having the symbol  on its base, show their connexion with Christianity. It was announced that the British Museum had acquired the whole collection.—Dr. Wickham Legg read a paper on the "Eastern Omphorion and the Western Pallium." Many years ago G. B. de Rossi had pointed out to him that the modern vestments of a Greek bishop corresponded to those of an emperor or consul: the *stochiarion* and *saccos* to the two undergarments shown in a consular diptych, and the *omphorion* to the consular scarf. The *epigonation*, not seen in the diptych, Dr. Legg referred to the lozenge-shaped ornament seen on the emperor and his courtiers in the mosaics at Ravenna. With the aid of illustrations from mosaics and pictures, the relation between the two forms of omphorion and pall, the one broad and silken,

the other narrow and woollen, was discussed, and numerous points of resemblance in detail pointed out. The pall in the East was the distinctive episcopal ornament, much as the stole is considered the distinctive presbyterial ornament in the West.—Mr. H. S. Cowper gave an account of the examination of a "bloemery," or old iron smelting furnace, at Coniston. Very little is known of these sites, which in the Furness district are numerous, and hitherto no attempt has been made to elucidate them by excavation. It is known that the Abbey of Furness had three smelting hearths in Hawkshead parish, and that after the dissolution the smelting was leased to a private firm by the Crown. These, however, were stopped in the time of Elizabeth, on account of the damage to the woods, but the decree allowed the tenants to continue making iron for their own use. Heaps of slag are, however, found not only in the manor belonging to the Abbey, but also in the adjacent lay manors, and to the latter class the Coniston example belongs. The excavations conducted by Mr. Cowper and Mr. W. G. Collingwood failed to bring to light anything to put a date to the site; but the foundations of the circular hearths were small and rude, and point to very primitive methods having been in use. A very difficult point to explain is the fact that all such sites are close to a stream, and as the ore was brought a long distance, it is thought washing would have been done before its arrival at the furnaces. The actual situation of the mounds of slag in some cases renders it difficult to suppose that the stream was to drive a wheel for an air blast; and it seems possible that iron was wrought at every site as well as made, which might show the use of the stream. Mr. Cowper thinks, however, that in spite of the rude methods, many of these furnaces were post-Reformation in date, and used by the people for making iron for farm uses; but it may well be that different "bloemeries" represent very different ages.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The third meeting of the present session of this Association was held on December 1 at the rooms in Saville-street, Piccadilly, Mr. Thos. Blashill, Hon. Treasurer, in the chair. Mr. Patrick, Hon. Secretary, stated that the Council that afternoon had considered the letter of a correspondent referring to the threatened demolition of the ancient and interesting "Whitgift Almshouses" at Croydon, and it had been resolved that a letter should be addressed to the Mayor and Corporation, and the Governor of the Charity respectively, asking them carefully to consider whether it is possible to preserve these useful and picturesque historical buildings, which are in good repair and apparently fulfil their purpose, and, at the same time, add so much to the attractiveness of the town.—The first portion of a most interesting paper was read by Mr. Andrew Oliver, on the buildings of "Vanished London." This was abundantly illustrated by a large number of scarce and valuable old engravings and maps of the London of the last two centuries and the early years of the present century. Amongst others exhibited were views of Furnivals Inn, Guildhall Chapel, the Stocks Market, and Ely Palace as it appeared about the year 1536. In this building died Chancellor Hatton in 1591. The last of the Hatton family died in 1772, when the property reverted to the Crown. Views of Holborn Hall in Shoe-lane, the site of which is now occupied by Messrs. Pontifex & Co.'s works, and Bangor House were exhibited and described. In the discussion which followed, the Chairman and others took part, and Mr. Williams remarked that the first house rebuilt after the great fire in 1666 was still situated at the corner of Friday-street. Mr. Gould also spoke as to the actual position of Ludgate, and mentioned that when pulling down Paul Pindar's house in Bishopsgate it was found to be built entirely of oak which had been white-washed over, and was not of timber and plaster as supposed. The front elevation of this picturesque house is now, as our readers are probably aware, in the South Kensington Museum.

INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution on the 7th inst., Sir John Wolfe Barry, K.C.B., F.R.S. (President), in the chair, it was announced that twenty-seven Associate Members had been transferred to the class of Members, and that 101 candidates had been admitted as Students. The first ballot of the session 1897-1898 resulted in the election of nineteen Members, thirty-two Associate Members, and five Associates.

Illustrations.

MCEWAN HALL, EDINBURGH UNIVERSITY.

WE give two illustrations and a plan of this hall, which was formally opened last week.

The plan of the hall is based on the form of the ancient Greek theatre; this form was adopted by the architect as best suited for an auditorium, and likely to give good acoustic results. The architectural treatment is the same as the rest of the new University buildings, viz., Early Italian Renaissance. The flat side of the semi-circle abuts on the Medical School on the west, while the principal elevation is directly opposite on the east. Here is situated the principal entrance, 30 ft. in height, and 16 ft. in width, flanked on each side by double pilasters, and crowned by a semi-circular pediment containing a carved representation of the ceremony of conferring Academic degrees. Besides this there are other six entrances to the hall from the outside.

The external wall is divided vertically by projecting buttresses containing niches for statuary. It is divided horizontally into three sections; the lower section is panelled and is pierced by the circular windows which light the interior corridor. The intermediate section is blank, with the exception of one panel which contains the inscription recording the donor's gift to the university, in these terms:—

HANC AULAM ACADEMICAM
GULIELMUS MCEWAN
UNIVERSITATI EDINBURGENSI
LIBENS ANIMO DONAVIT.
MDCCCXCIV.

This section is divided from the upper by a band of Italian ornament, with panels at intervals containing the coats of arms of James VI. (the founder of Edinburgh University); the City of Edinburgh; the University of Edinburgh; the donor of the hall, Mr. Wm McEwan, M.P. for the Central Division of the City; the late Sir Alex. Grant, Principal of the University; the late Right Hon. John Inglis, Chancellor of the University; the Right Hon. A. J. Balfour, Chancellor; Sir Wm. Muir, Principal; Sir Wm. Turner; and the late Mr. J. Christison, W.S., Trustees of the Hall.

The upper of the three horizontal sections is arched in red stone, and is surmounted by an architrave, frieze, and cornice, and an open balustrade. The height of the outer wall from the base to the top of the balustrade is 64 ft.

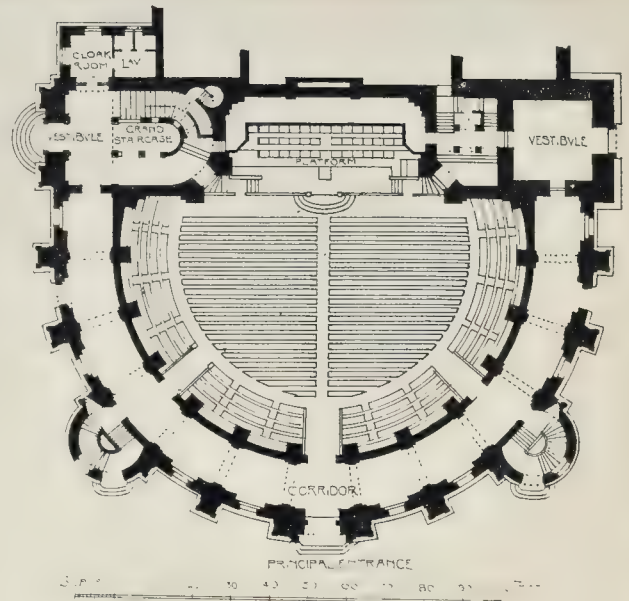
An interior wall concentric with the outer encloses the Hall proper, and, rising above the outer wall, to which it is joined by flying buttresses, supports at its summit the dome-shaped steel roof, which is surmounted by an ornamental lantern 30 ft. high. The total height from the street level to the top of the lantern is 130 ft. The outer and inner walls of the Hall are 12 ft. apart, and the space between them is, on the ground floor, utilised as a corridor.

This corridor is divided into compartments by pilasters and is vaulted, the panels of walls and vaults being filled in with fine red brick. The flooring is of marble mosaic. The corridor runs round the entire auditorium, and gives communication between the various staircases, entrances, and exits.

The entrance to the principal staircase is from the quadrangle of the University buildings. This staircase is oblong in form, and is carried on pillars and arches which are vaulted; its broad, shallow steps are guarded by a balustrade of stone. The groined ceiling is decorated in colour, the main features being a series of coats of arms, including those of the late Rector, the Right Hon. J. P. B. Robertson, and the present Rector, Lord Balfour of Burleigh, besides those of the already-mentioned dignitaries of the University, which are placed on the outside wall. On the mosaic flooring of the landing are panels containing the arms of the donor, the City and the University.

From the first landing entrance is gained to the reception-rooms (set apart for the assembling of the Senatus, distinguished guests, &c.).

The staircases leading to the galleries are placed in the round projections at the south and north-east angles of the building. Two staircases are placed in each projection, one leading to the first gallery, the other to the second, so that the two currents of people going to and



McEwan Hall, Edinburgh. Plan.

coming from these parts of the house, are kept entirely separate from one another, and greater facility of entry and exit is provided. From the corridor on the ground floor entry to the hall is gained by five separate doors.

The internal diameter of the hall is 106 ft., while the height to the dome light is 90 ft. This gives an ample floor space, and provides abundant room for the placing of two galleries.

The area floor is laid with blocks of oak in patterns, and in order to allow of it being used for other than formal academic functions the seats on it are of a movable character, only round the circumference are four tiers of fixed fauteuils, also in oak. The wall is panelled in oak up to the height of the first gallery.

The galleries are placed over the corridor on the ground floor, in the space between the outer and inner walls of the hall. The inner wall is opened up to the interior of the hall by means of an arcading of thirteen bays, each 15 ft. in width, and rising from the floor to the top of the arch a distance of 48 ft., upon columns of red Corsehill stone, supported as far as the balustrade of the first gallery by square moulded freestone bases, and surmounted by gilded Corinthian capitals. The pews in the galleries are of oak, placed on a sloping platform, and the galleries are also guarded by an open balustrade of the same material. These balustrades have central panels, those of the lower gallery being filled with appropriate designs, carved and gilded. At the wall head is a carved stone frieze and cornice. Above is a carved clearstory with circular windows 7 ft. in diameter, while the hall is covered in with a dome constructed of steel and panelled with wood. In the centre of this dome is a circular light 22 ft. in diameter, which, with the clearstory windows, lights the hall in the daytime.

The flat side of the hall, that abutting on the new University buildings, is reserved for the platform, and the arrangements of it are specially designed for University ceremonies, as the original conception of the hall was for purely academic purposes. At the back of the platform is a series of stalls, constructed of solid oak, for the members of the Senatus Academicus, University Court, &c., with special seats in front for Chancellor, Rector, and Principal. As, however, if restricted to its original purpose, the hall would only be used two or three times a year, Mr. McEwan expressed a desire that its uses should be extended, and that it should as much as possible be made available for high-class concerts. Following up this idea a magnificent organ, probably the finest in Scotland, has been placed in the hall. Considerable difficulty was experienced in

arranging for the placing of the organ in a hall which was never intended for one. The construction of the organ was committed to the Hope-Jones Electric Organ Company, and as the nature of the mechanism admits of the organ being broken up into sections, a position was ultimately contrived for it. The organ gallery, carried on carved oak pillars, projects over the back row of stalls, and the great organ is placed immediately above. Two other sections of the organ are placed high up on each side of the platform recess.* All three are enclosed in handsome carved oak cases, gilt and coloured corresponding to the rest of the woodwork of the hall.

A movable orchestra has been constructed capable of holding 300 people. The framework is of light steel, the floor and seats of wood. It is made so as to fit over the stalls on the platform, and is so arranged that it can be easily taken to pieces and put away, and as easily put together again.

The hall is lit by electricity. Before arriving at the present arrangement a long series of experiments was made by the architect, and Messrs. King & Co., the electrical engineers, as to the best method of lighting the hall. The result is considered by all who have seen it to be most satisfactory. A large pendant hangs from the dome. Above the cornice, but concealed, is a series of lamps round the whole circumference of the hall, these throw a light on the decorations of the dome. The galleries are lighted by placing lamps concealed behind the pillars and the lower beams of the gallery fronts. The result of this concealed disposition of the lights is that the hall is lighted without the eye being distracted by the numerous small brilliant points of light from the lamps.

The complete design for the hall includes a great tower at the north-west angle rising to a height of 230 ft. The lower part only has been executed; it has been carried up to the height of the roof of the hall.

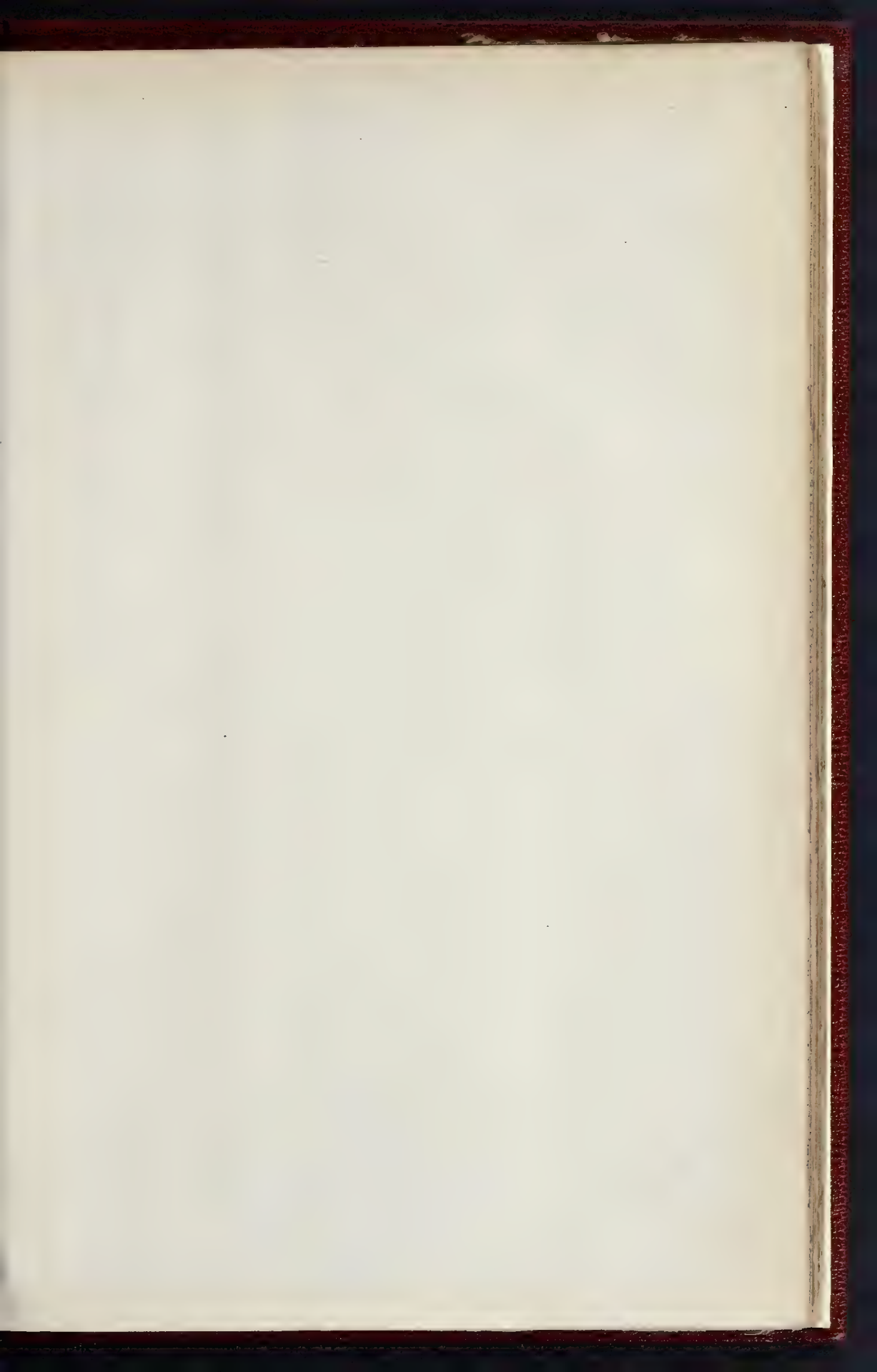
The great object of the architect in designing the hall was, not to give it the appearance of a hall designed to hold the maximum number of people in a given space, but to give it as much of a monumental character as possible, consistent with the requirements of a good auditorium.

R. A.

HOUSES IN SOUTH-STREET, MAYFAIR.

The drawing shows the south fronts, towards South-street, Mayfair, on the Grosvenor estate.

* This gets over the architectural difficulty, no doubt, but it is not a good way to arrange an organ from a musical point of view. Ed.



THE BUILDER, DECEMBER 11, 1897.



THE MCEWAN HALL, EDINBURGH.—DR. ROWAND ANDERSON, ARCHITECT.
EXTERIOR VIEW.

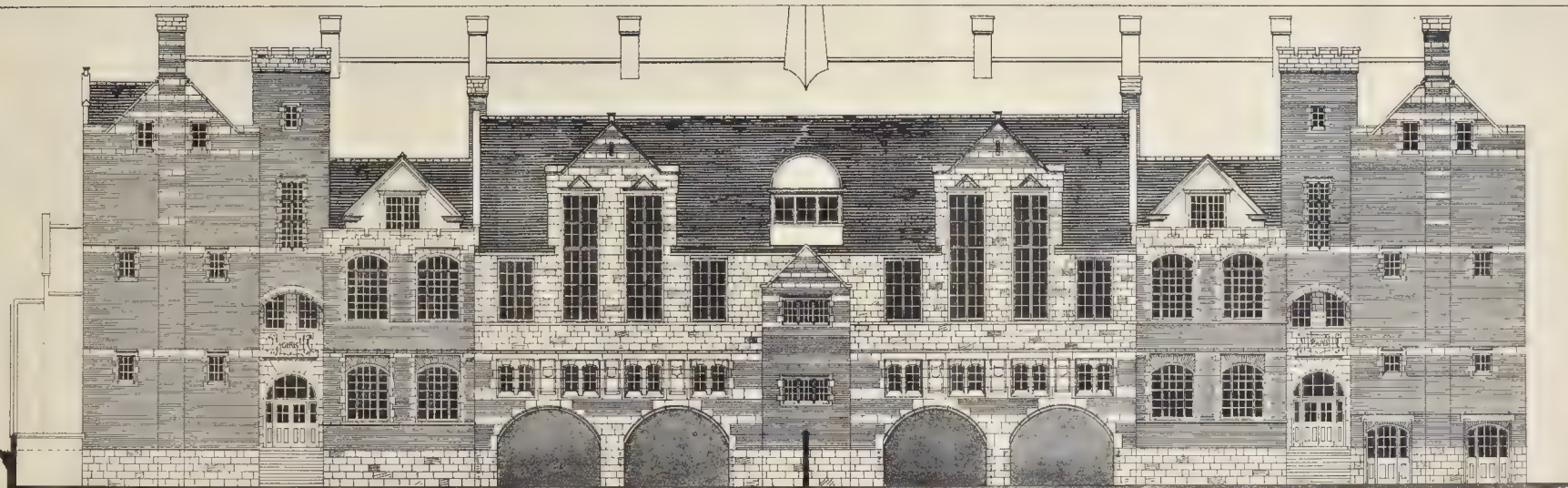


THE MCEWAN HALL, EDINBURGH. (DR. ROWAND ANDERSON, ARCHITECT.
VIEW IN INTERIOR OF LARGE HALL.

HOUSES IN SOUTH STREET
MAYFAIR.
J. C. STANFORD, ARCHT.

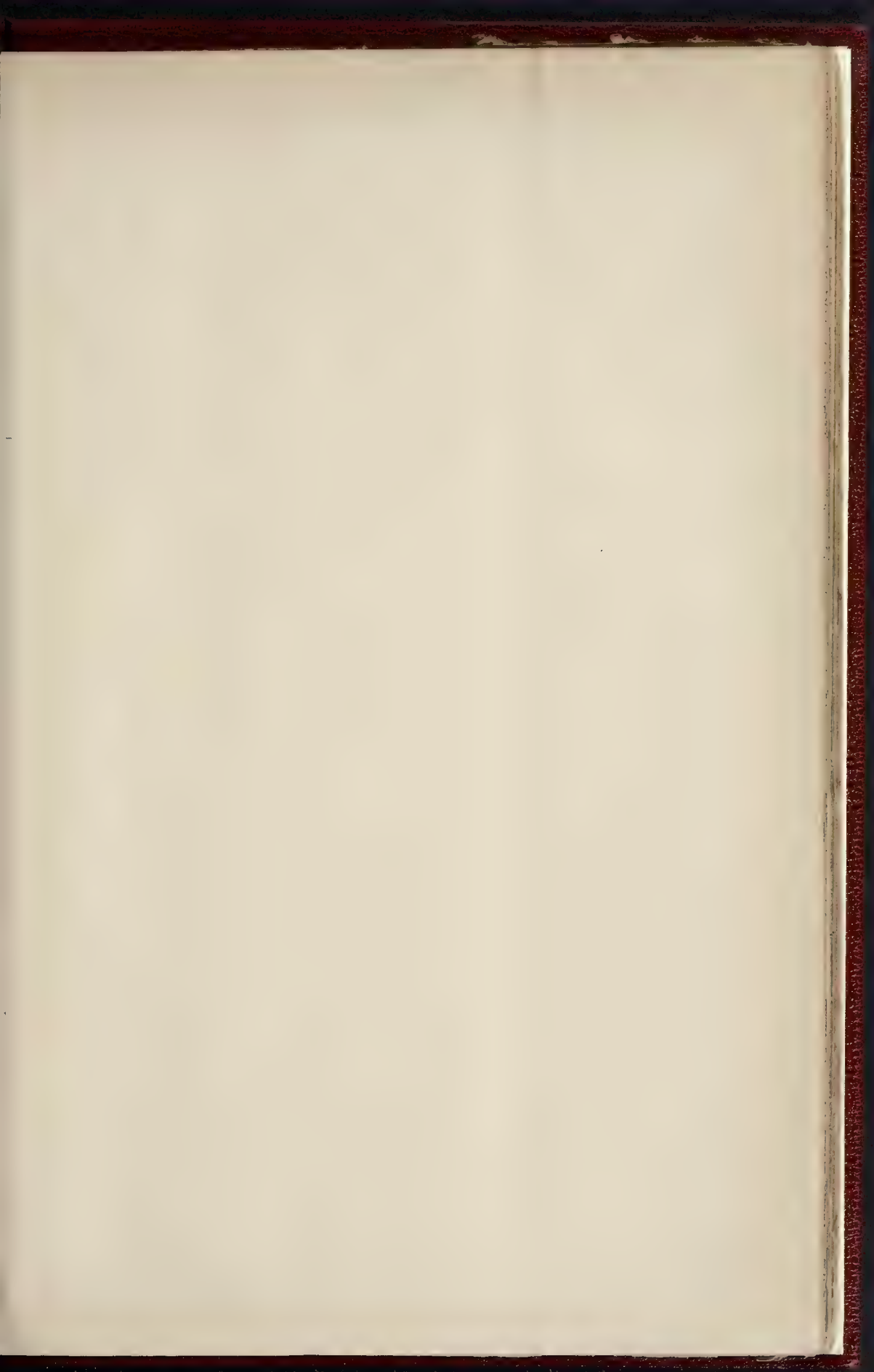


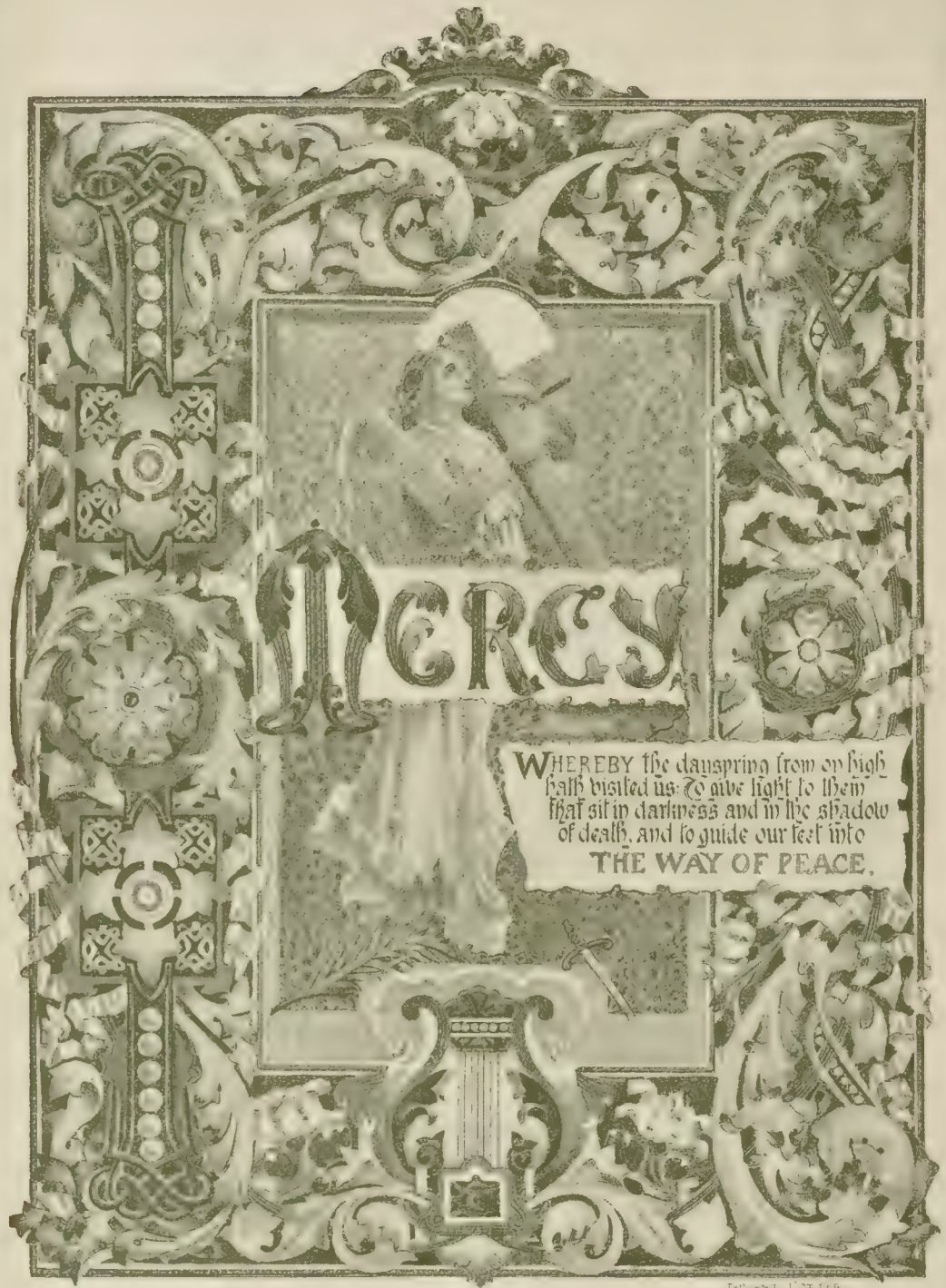
THE BUILDER, DECEMBER 11, 1897.



DESIGN FOR SCHOOL, SCARBOROUGH—By MR A. S. JONES, A.R.I.B.A.

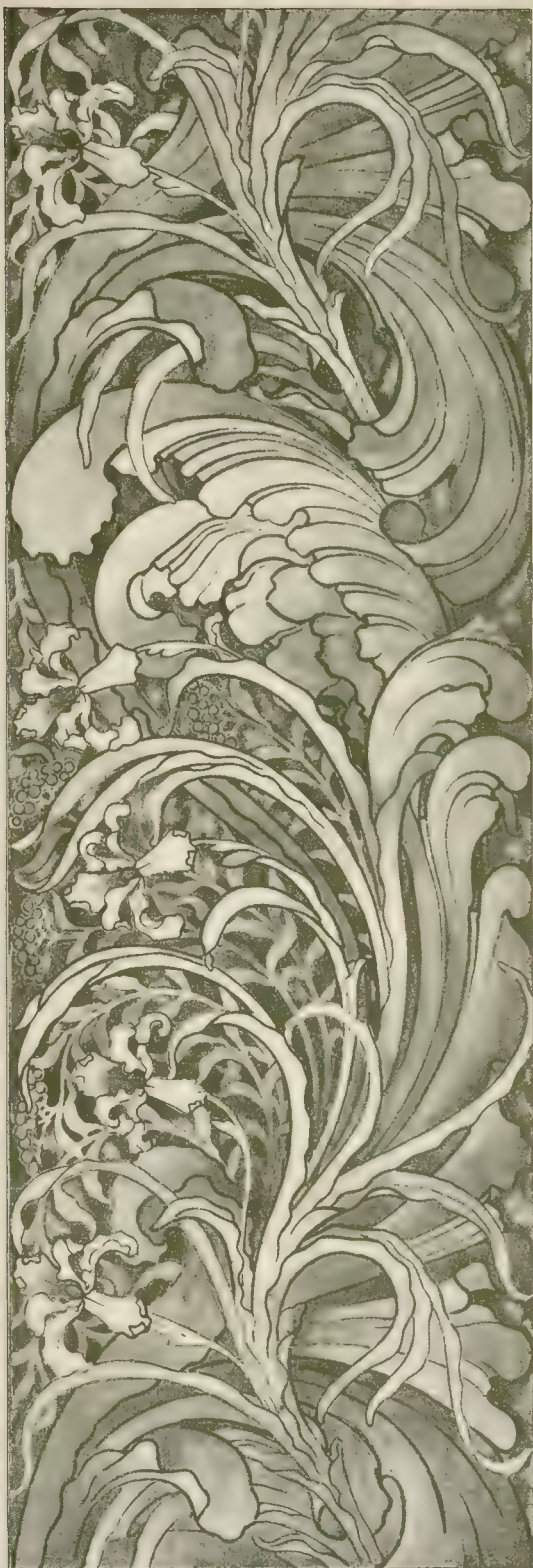
1/4" PHOTOGRAPHIC SCALE. 1/4" 1/2" 3/4" 1" 1 1/4" 1 1/2" 1 3/4" 2" 2 1/4" 2 1/2" 2 3/4" 3" 3 1/4" 3 1/2" 3 3/4" 4" 4 1/4" 4 1/2" 4 3/4" 5" 5 1/4" 5 1/2" 5 3/4" 6" 6 1/4" 6 1/2" 6 3/4" 7" 7 1/4" 7 1/2" 7 3/4" 8" 8 1/4" 8 1/2" 8 3/4" 9" 9 1/4" 9 1/2" 9 3/4" 10" 10 1/4" 10 1/2" 10 3/4" 11" 11 1/4" 11 1/2" 11 3/4" 12" 12 1/4" 12 1/2" 12 3/4" 13" 13 1/4" 13 1/2" 13 3/4" 14" 14 1/4" 14 1/2" 14 3/4" 15" 15 1/4" 15 1/2" 15 3/4" 16" 16 1/4" 16 1/2" 16 3/4" 17" 17 1/4" 17 1/2" 17 3/4" 18" 18 1/4" 18 1/2" 18 3/4" 19" 19 1/4" 19 1/2" 19 3/4" 20" 20 1/4" 20 1/2" 20 3/4" 21" 21 1/4" 21 1/2" 21 3/4" 22" 22 1/4" 22 1/2" 22 3/4" 23" 23 1/4" 23 1/2" 23 3/4" 24" 24 1/4" 24 1/2" 24 3/4" 25" 25 1/4" 25 1/2" 25 3/4" 26" 26 1/4" 26 1/2" 26 3/4" 27" 27 1/4" 27 1/2" 27 3/4" 28" 28 1/4" 28 1/2" 28 3/4" 29" 29 1/4" 29 1/2" 29 3/4" 30" 30 1/4" 30 1/2" 30 3/4" 31" 31 1/4" 31 1/2" 31 3/4" 32" 32 1/4" 32 1/2" 32 3/4" 33" 33 1/4" 33 1/2" 33 3/4" 34" 34 1/4" 34 1/2" 34 3/4" 35" 35 1/4" 35 1/2" 35 3/4" 36" 36 1/4" 36 1/2" 36 3/4" 37" 37 1/4" 37 1/2" 37 3/4" 38" 38 1/4" 38 1/2" 38 3/4" 39" 39 1/4" 39 1/2" 39 3/4" 40" 40 1/4" 40 1/2" 40 3/4" 41" 41 1/4" 41 1/2" 41 3/4" 42" 42 1/4" 42 1/2" 42 3/4" 43" 43 1/4" 43 1/2" 43 3/4" 44" 44 1/4" 44 1/2" 44 3/4" 45" 45 1/4" 45 1/2" 45 3/4" 46" 46 1/4" 46 1/2" 46 3/4" 47" 47 1/4" 47 1/2" 47 3/4" 48" 48 1/4" 48 1/2" 48 3/4" 49" 49 1/4" 49 1/2" 49 3/4" 50" 50 1/4" 50 1/2" 50 3/4" 51" 51 1/4" 51 1/2" 51 3/4" 52" 52 1/4" 52 1/2" 52 3/4" 53" 53 1/4" 53 1/2" 53 3/4" 54" 54 1/4" 54 1/2" 54 3/4" 55" 55 1/4" 55 1/2" 55 3/4" 56" 56 1/4" 56 1/2" 56 3/4" 57" 57 1/4" 57 1/2" 57 3/4" 58" 58 1/4" 58 1/2" 58 3/4" 59" 59 1/4" 59 1/2" 59 3/4" 60" 60 1/4" 60 1/2" 60 3/4" 61" 61 1/4" 61 1/2" 61 3/4" 62" 62 1/4" 62 1/2" 62 3/4" 63" 63 1/4" 63 1/2" 63 3/4" 64" 64 1/4" 64 1/2" 64 3/4" 65" 65 1/4" 65 1/2" 65 3/4" 66" 66 1/4" 66 1/2" 66 3/4" 67" 67 1/4" 67 1/2" 67 3/4" 68" 68 1/4" 68 1/2" 68 3/4" 69" 69 1/4" 69 1/2" 69 3/4" 70" 70 1/4" 70 1/2" 70 3/4" 71" 71 1/4" 71 1/2" 71 3/4" 72" 72 1/4" 72 1/2" 72 3/4" 73" 73 1/4" 73 1/2" 73 3/4" 74" 74 1/4" 74 1/2" 74 3/4" 75" 75 1/4" 75 1/2" 75 3/4" 76" 76 1/4" 76 1/2" 76 3/4" 77" 77 1/4" 77 1/2" 77 3/4" 78" 78 1/4" 78 1/2" 78 3/4" 79" 79 1/4" 79 1/2" 79 3/4" 80" 80 1/4" 80 1/2" 80 3/4" 81" 81 1/4" 81 1/2" 81 3/4" 82" 82 1/4" 82 1/2" 82 3/4" 83" 83 1/4" 83 1/2" 83 3/4" 84" 84 1/4" 84 1/2" 84 3/4" 85" 85 1/4" 85 1/2" 85 3/4" 86" 86 1/4" 86 1/2" 86 3/4" 87" 87 1/4" 87 1/2" 87 3/4" 88" 88 1/4" 88 1/2" 88 3/4" 89" 89 1/4" 89 1/2" 89 3/4" 90" 90 1/4" 90 1/2" 90 3/4" 91" 91 1/4" 91 1/2" 91 3/4" 92" 92 1/4" 92 1/2" 92 3/4" 93" 93 1/4" 93 1/2" 93 3/4" 94" 94 1/4" 94 1/2" 94 3/4" 95" 95 1/4" 95 1/2" 95 3/4" 96" 96 1/4" 96 1/2" 96 3/4" 97" 97 1/4" 97 1/2" 97 3/4" 98" 98 1/4" 98 1/2" 98 3/4" 99" 99 1/4" 99 1/2" 99 3/4" 100" 100 1/4" 100 1/2" 100 3/4" 101" 101 1/4" 101 1/2" 101 3/4" 102" 102 1/4" 102 1/2" 102 3/4" 103" 103 1/4" 103 1/2" 103 3/4" 104" 104 1/4" 104 1/2" 104 3/4" 105" 105 1/4" 105 1/2" 105 3/4" 106" 106 1/4" 106 1/2" 106 3/4" 107" 107 1/4" 107 1/2" 107 3/4" 108" 108 1/4" 108 1/2" 108 3/4" 109" 109 1/4" 109 1/2" 109 3/4" 110" 110 1/4" 110 1/2" 110 3/4" 111" 111 1/4" 111 1/2" 111 3/4" 112" 112 1/4" 112 1/2" 112 3/4" 113" 113 1/4" 113 1/2" 113 3/4" 114" 114 1/4" 114 1/2" 114 3/4" 115" 115 1/4" 115 1/2" 115 3/4" 116" 116 1/4" 116 1/2" 116 3/4" 117" 117 1/4" 117 1/2" 117 3/4" 118" 118 1/4" 118 1/2" 118 3/4" 119" 119 1/4" 119 1/2" 119 3/4" 120" 120 1/4" 120 1/2" 120 3/4" 121" 121 1/4" 121 1/2" 121 3/4" 122" 122 1/4" 122 1/2" 122 3/4" 123" 123 1/4" 123 1/2" 123 3/4" 124" 124 1/4" 124 1/2" 124 3/4" 125" 125 1/4" 125 1/2" 125 3/4" 126" 126 1/4" 126 1/2" 126 3/4" 127" 127 1/4" 127 1/2" 127 3/4" 128" 128 1/4" 128 1/2" 128 3/4" 129" 129 1/4" 129 1/2" 129 3/4" 130" 130 1/4" 130 1/2" 130 3/4" 131" 131 1/4" 131 1/2" 131 3/4" 132" 132 1/4" 132 1/2" 132 3/4" 133" 133 1/4" 133 1/2" 133 3/4" 134" 134 1/4" 134 1/2" 134 3/4" 135" 135 1/4" 135 1/2" 135 3/4" 136" 136 1/4" 136 1/2" 136 3/4" 137" 137 1/4" 137 1/2" 137 3/4" 138" 138 1/4" 138 1/2" 138 3/4" 139" 139 1/4" 139 1/2" 139 3/4" 140" 140 1/4" 140 1/2" 140 3/4" 141" 141 1/4" 141 1/2" 141 3/4" 142" 142 1/4" 142 1/2" 142 3/4" 143" 143 1/4" 143 1/2" 143 3/4" 144" 144 1/4" 144 1/2" 144 3/4" 145" 145 1/4" 145 1/2" 145 3/4" 146" 146 1/4" 146 1/2" 146 3/4" 147" 147 1/4" 147 1/2" 147 3/4" 148" 148 1/4" 148 1/2" 148 3/4" 149" 149 1/4" 149 1/2" 149 3/4" 150" 150 1/4" 150 1/2" 150 3/4" 151" 151 1/4" 151 1/2" 151 3/4" 152" 152 1/4" 152 1/2" 152 3/4" 153" 153 1/4" 153 1/2" 153 3/4" 154" 154 1/4" 154 1/2" 154 3/4" 155" 155 1/4" 155 1/2" 155 3/4" 156" 156 1/4" 156 1/2" 156 3/4" 157" 157 1/4" 157 1/2" 157 3/4" 158" 158 1/4" 158 1/2" 158 3/4" 159" 159 1/4" 159 1/2" 159 3/4" 160" 160 1/4" 160 1/2" 160 3/4" 161" 161 1/4" 161 1/2" 161 3/4" 162" 162 1/4" 162 1/2" 162 3/4" 163" 163 1/4" 163 1/2" 163 3/4" 164" 164 1/4" 164 1/2" 164 3/4" 165" 165 1/4" 165 1/2" 165 3/4" 166" 166 1/4" 166 1/2" 166 3/4" 167" 167 1/4" 167 1/2" 167 3/4" 168" 168 1/4" 168 1/2" 168 3/4" 169" 169 1/4" 169 1/2" 169 3/4" 170" 170 1/4" 170 1/2" 170 3/4" 171" 171 1/4" 171 1/2" 171 3/4" 172" 172 1/4" 172 1/2" 172 3/4" 173" 173 1/4" 173 1/2" 173 3/4" 174" 174 1/4" 174 1/2" 174 3/4" 175" 175 1/4" 175 1/2" 175 3/4" 176" 176 1/4" 176 1/2" 176 3/4" 177" 177 1/4" 177 1/2" 177 3/4" 178" 178 1/4" 178 1/2" 178 3/4" 179" 179 1/4" 179 1/2" 179 3/4" 180" 180 1/4" 180 1/2" 180 3/4" 181" 181 1/4" 181 1/2" 181 3/4" 182" 182 1/4" 182 1/2" 182 3/4" 183" 183 1/4" 183 1/2" 183 3/4" 184" 184 1/4" 184 1/2" 184 3/4" 185" 185 1/4" 185 1/2" 185 3/4" 186" 186 1/4" 186 1/2" 186 3/4" 187" 187 1/4" 187 1/2" 187 3/4" 188" 188 1/4" 188 1/2" 188 3/4" 189" 189 1/4" 189 1/2" 189 3/4" 190" 190 1/4" 190 1/2" 190 3/4" 191" 191 1/4" 191 1/2" 191 3/4" 192" 192 1/4" 192 1/2" 192 3/4" 193" 193 1/4" 193 1/2" 193 3/4" 194" 194 1/4" 194 1/2" 194 3/4" 195" 195 1/4" 195 1/2" 195 3/4" 196" 196 1/4" 196 1/2" 196 3/4" 197" 197 1/4" 197 1/2" 197 3/4" 198" 198 1/4" 198 1/2" 198 3/4" 199" 199 1/4" 199 1/2" 199 3/4" 200" 200 1/4" 200 1/2" 200 3/4" 201" 201 1/4" 201 1/2" 201 3/4" 202" 202 1/4" 202 1/2" 202 3/4" 203" 203 1/4" 203 1/2" 203 3/4" 204" 204 1/4" 204 1/2" 204 3/4" 205" 205 1/4" 205 1/2" 205 3/4" 206" 206 1/4" 206 1/2" 206 3/4" 207" 207 1/4" 207 1/2" 207 3/4" 208" 208 1/4" 208 1/2" 208 3/4" 209" 209 1/4" 209 1/2" 209 3/4" 210" 210 1/4" 210 1/2" 210 3/4" 211" 211 1/4" 211 1/2" 211 3/4" 212" 212 1/4" 212 1/2" 212 3/4" 213" 213 1/4" 213 1/2" 213 3/4" 214" 214 1/4" 214 1/2" 214 3/4" 215" 215 1/4" 215 1/2" 215 3/4" 216" 216 1/4" 216 1/2" 216 3/4" 217" 217 1/4" 217 1/2" 217 3/4" 218" 218 1/4" 218 1/2" 218 3/4" 219" 219 1/4" 219 1/2" 219 3/4" 220" 220 1/4" 220 1/2" 220 3/4" 221" 221 1/4" 221 1/2" 221 3/4" 222" 222 1/4" 222 1/2" 222 3/4" 223" 223 1/4" 223 1/2" 223 3/4" 224" 224 1/4" 224 1/2" 224 3/4" 225" 225 1/4" 225 1/2" 225 3/4" 226" 226 1/4" 226 1/2" 226 3/4" 227" 227 1/4" 227 1/2" 227 3/4" 228" 228 1/4" 228 1/2" 228 3/4" 229" 229 1/4" 229 1/2" 229 3/4" 230" 230 1/4" 230 1/2" 230 3/4" 231" 231 1/4" 231 1/2" 231 3/4" 232" 232 1/4" 232 1/2" 232 3/4" 233" 233 1/4" 233 1/2" 233 3/4" 234" 234 1/4" 234 1/2" 234 3/4" 235" 235 1/4" 235 1/2" 235 3/4" 236" 236 1/4" 236 1/2" 236 3/4" 237" 237 1/4" 237 1/2" 237 3/4" 238" 238 1/4" 238 1/2" 238 3/4" 239" 239 1/4" 239 1/2" 239 3/4" 240" 240 1/4" 240 1/2" 240 3/4" 241" 241 1/4" 241 1/2" 241 3/4" 242" 242 1/4" 242 1/2" 242 3/4" 243" 243 1/4" 243 1/2" 243 3/4" 244" 244 1/4" 244 1/2" 244 3/4" 245" 245 1/4" 245 1/2" 245 3/4" 246" 246 1/4" 246 1/2" 246 3/4" 247" 247 1/4" 247 1/2" 247 3/4" 248" 248 1/4" 248 1/2" 248 3/4" 249" 249 1/4" 249 1/2" 249 3/4" 250" 250 1/4" 250 1/2" 250 3/4" 251" 251 1/4" 251 1/2" 251 3/4" 252" 252 1/4" 252 1/2" 252 3/4" 253" 253 1/4" 253 1/2" 253 3/4" 254" 254 1/4" 254 1/2" 254 3/4" 255" 255 1/4" 255 1/2" 255 3/4" 256" 256 1/4" 256 1/2" 256 3/4" 257" 257 1/4" 257 1/2" 257 3/4" 258" 258 1/4" 258 1/2" 258 3/4" 259" 259 1/4" 259 1/2" 259 3/4" 260" 260 1/4" 260 1/2" 260 3/4" 261" 261 1/4" 261 1/2" 261 3/4" 262" 262 1/4" 262 1/2" 262 3/4" 263" 263 1/4" 263 1/2" 263 3/4" 264" 264 1/4" 264 1/2" 264 3/4" 265" 265 1/4" 265 1/2" 265 3/4" 266" 266 1/4" 266 1/2" 266 3/4" 267" 267 1/4" 267 1/2" 267 3/4" 268" 268 1/4" 268 1/2" 268 3/4" 269" 269 1/4" 269 1/2" 269 3/4" 270" 270 1/4" 270 1/2" 270 3/4" 271" 271 1/4" 271 1/2" 271 3/4" 272" 272 1/4" 272 1/2" 272 3/4" 273" 273 1/4" 273 1/2" 273 3/4" 274" 274 1/4" 274 1/2" 274 3/4" 275" 275 1/4" 275 1/2" 275 3/4" 276" 276 1/4" 276 1/2" 276 3/4" 277" 277 1/4" 277 1/2" 277 3/4" 278" 278 1/4" 278 1/2" 278 3/4" 279" 279 1/4" 279 1/2" 279 3/4" 280" 280 1/4" 280 1/2" 280 3/4" 281" 281 1/4" 281 1/2" 281 3/4" 282" 282 1/4" 282 1/2" 282 3/4" 283" 283 1/4" 283 1/2" 283 3/4" 284" 284 1/4" 284 1/2" 284 3/4" 285" 285 1/4" 285 1/2" 285 3/4" 286" 286 1/4" 286 1/2" 286 3/4" 287" 287 1/4" 287 1/2" 287 3/4" 288" 288 1/4" 288 1/2" 288 3/4" 289" 289 1/4" 289 1/2" 289 3/4" 290" 290 1/4" 290 1/2" 290 3/4" 291" 291 1/4" 291 1/2" 291 3/4" 292" 292 1/4" 292 1/2" 292 3/4" 293" 293 1/4" 293 1/2" 293 3/4" 294" 294 1/4" 294 1/2" 294 3/4" 295" 295 1/4" 295 1/2" 295 3/4" 296" 296 1/4" 296 1/2" 296 3/4" 297" 297 1/4" 297 1/2" 297 3/4" 298" 298 1/4" 298 1/2" 298 3/4" 299" 299 1/4" 299 1/2" 299 3/4" 300" 300 1/4" 300 1/2" 300 3/4" 301" 301 1/4" 301 1/2" 301 3/4" 302" 302 1/4" 302 1/2" 302 3/4" 303" 303 1/4" 303 1/2" 303 3/4" 304" 304 1/4" 304 1/2" 304 3/4" 305" 305 1/4" 305 1/2" 305 3/4" 306" 306 1/4" 306 1/2" 306 3/4" 307" 307 1/4" 307 1/2" 307 3/4" 308" 308 1/4" 308 1/2" 308 3/4" 309" 309 1/4" 309 1/2" 309 3/4" 310" 310 1/4" 310 1/2" 310 3/4" 311" 311 1/4" 311 1/2" 311 3/4" 312" 312 1/4" 312 1/2" 312 3/4" 313" 313 1/4" 313 1/2" 313 3/4" 314" 314 1/4" 314 1/2" 314 3/4" 315" 315 1/4" 315 1/2" 315 3/4" 316" 316 1/4" 316 1/2" 316 3/4" 317" 317 1/4" 317 1/2" 317 3/4" 318" 318 1/4" 318 1/2" 318 3/4" 319" 319 1/4" 319 1/2" 319 3/4" 320" 320 1/4" 320 1/2" 320 3/4" 321" 321 1/4" 321 1/2" 321 3/4" 322" 322 1/4" 322 1/2" 322 3/4" 323" 323 1/4" 323 1/2" 323 3/4" 324" 324 1/4" 324 1/2" 324 3/4" 325" 325 1/4" 325 1/2" 325 3/4" 326" 326 1/4" 326 1/2" 326 3/4" 327" 327 1/4" 327 1/2" 327 3/4" 328" 328 1/4" 328 1/2" 328 3/4" 329" 329 1/4" 329 1/2" 329 3/4" 330" 330 1/4" 330 1/2" 330 3/4" 331" 331 1/4" 331 1/2" 331 3/4" 332" 332 1/4" 332 1/2" 332 3/4" 333" 333 1/4" 333 1/2" 333 3/4" 334" 334 1/4" 334 1/2" 334 3/4" 335" 335 1/4" 335 1/2" 335 3/4" 336" 336 1/4" 336 1/2" 336 3/4" 337" 337 1/4" 337 1/2" 337 3/4" 338" 338 1/4" 338 1/2" 338 3/4" 339" 339 1/4" 339 1/2" 339 3/4" 340" 340 1/4" 340 1/2" 340 3/4" 341" 341 1/4" 341 1/2" 341 3/4" 342" 342 1/4" 342 1/2" 342 3/4" 343" 343 1/4" 343 1/2" 343 3/4" 344" 344 1/4" 344 1/2" 344 3/4" 345" 345 1/4" 345 1/2" 345 3/4" 346" 346 1/4" 346 1/2" 346 3/4" 347" 347 1/4" 347 1/2" 347 3/4" 348" 348 1/4" 348 1/2" 348 3/4" 349" 349 1/4" 349 1/2" 349 3/4" 350" 350 1/4" 350 1/2" 350 3/4" 351" 351 1/4" 351 1/2" 351 3/4" 352" 352 1/4" 352 1/2" 352 3/4" 353" 353 1/4" 353 1/2" 353 3/4" 354" 354 1/4" 354 1/2" 354 3/4" 355" 355 1/4" 355 1/2" 355 3/4" 356" 356 1/4" 356 1/2" 356 3/4" 357" 357 1/4" 357 1/2" 357 3/4" 358" 358 1/4" 358 1/2" 358 3/4" 359" 359 1/4" 359 1/2" 359 3/4" 360" 360 1/4" 360 1/2" 360 3/4" 361" 361 1/4" 361 1/2" 361 3/4" 362" 362 1/4" 362 1/2" 362 3/4" 363" 363 1/4" 363 1/2" 363 3/4" 364" 364 1/4" 364 1/2" 364 3/4" 365" 365 1/4" 365 1/2" 365 3/4" 366" 366 1/4" 366 1/2" 366 3/4" 367" 367 1/4" 367 1/2" 367 3/4" 368" 368 1/4" 368 1/2" 368 3/4" 369" 369 1/4" 369 1/2" 369 3/4" 370" 370 1/4" 370 1/2" 370 3/4" 371" 371 1/4" 371 1/2" 371 3/4" 372" 372 1/4" 372 1/2" 372 3/4" 373" 373 1/4" 373 1/2" 373 3/4" 374" 374 1/4" 374 1/2" 374 3/4" 375" 375 1/4" 375 1/2" 375 3/4" 376" 376 1/4" 376 1/2" 376 3/4" 377" 377 1/4" 377 1/2" 377 3/4" 378" 378 1/4" 378 1/2" 378 3/4" 379" 379 1/4" 379 1/2" 379 3/4" 380" 380 1/4" 380 1/2" 380 3/4" 381" 381 1/4" 381 1/2" 381 3/4" 382" 382 1/4" 382 1/2" 382 3/4" 383" 383 1/4" 383 1/2" 383 3/4" 384" 384 1/4" 384 1/2" 384 3/4" 385" 385 1/4" 385 1/2" 385 3/4" 386" 386 1/4" 386 1/2" 386 3/4" 387" 387 1/4" 387 1/2" 387 3/4" 388" 388 1/4" 388 1/2" 388 3/4" 389" 389 1/4" 389 1/2" 389 3/4" 390" 390 1/4" 390



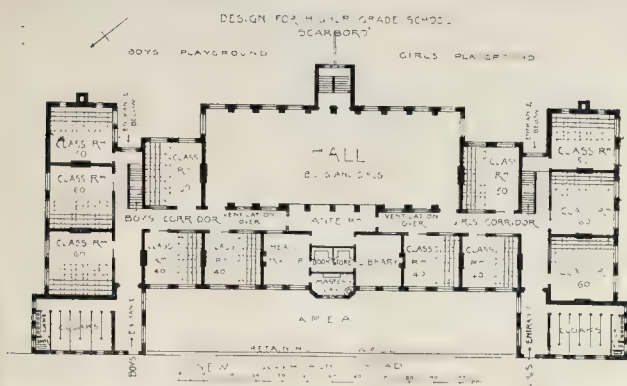


WHEREBY the dayspring from on high
hath visited us: To give light to them
that sit in darkness and in the shadow
of death, and to guide our feet into
THE WAY OF PEACE.

"MERCY": DESIGN FOR ILLUMINATION. By MR. TENNANT POTTER



DESIGN FOR FRIEZE - BY MR. ARTHUR GWATKIN



of five houses now nearly completed, which have been built for sale by Mr. Willett, of Sloane-gardens, replacing smaller houses on the same site, no longer suited by their want of accommodation and modern conveniences for houses in this situation.

They are planned so that what are usually the backs of the houses, with the open spaces between them for light, are the main fronts towards the street; thus giving a more interesting elevation and more light and shadow than the usual unbroken line of street frontage. The backs of the houses, which face the public gardens belonging to the Vestry, are also designed as if they were principal elevations.

The street fronts as shown in the illustration are of red brick with stone quoins and steep slated roofs with mullioned windows and stone dormers, suggesting, though not following closely, some examples of old French domestic architecture. The floors throughout are fireproof. The houses are, of course, fitted with all modern conveniences and requirements.

Mr. J. Stevenson is the architect; Mr. Willett is his own builder. The carving has been executed by Mr. Lawton.

The drawing was exhibited at the last Royal Academy Exhibition.

DESIGN FOR HIGHER-GRADE SCHOOL, SCARBOROUGH.

THE principal floor in this design is planned to accommodate 600 children, distributed in twelve class rooms; one large hall and the central administrative department separating boys and girls. It being considered inexpedient that the boys and girls should both enter their respective class rooms directly from a common hall, separate corridors are provided.

Under the principal floor there are rooms for conducting instruction in cooking and laundry work, a gymnasium 20 ft. high, dining rooms, manual training room, heating chamber, &c., whilst under the large hall covered playgrounds are provided. The top floor is devoted to science rooms, containing chemical and physical laboratories, drawing-class room, lecture room, teachers' rooms, &c.

There is a fall of about 20 ft. in the ground from front to rear of building, which accounts for the school entrances being on a level with the proposed approach road, while the entrances on the playground side are on a level with the lower floor.

It was the intention to construct the whole of the floors and staircases of fireproof material, and the whole of the rooms and corridors were to be warmed by means of steam coils. The elevation was intended to be faced with red brick and local stone dressings, and the roofs to be covered with tiles. The elevation here reproduced is of the playground (or lower) side of the building.

The drawing was exhibited at this year's Royal Academy Exhibition.

ARTHUR S. JONES.

"MERCY": DESIGN FOR ILLUMINATION.

THE border in this design consists of two single branches of conventional foliage and lilies issuing from either side of a harp at the base, and interlocking at the top. Interlaced

with these are the flowing ends of a scroll, which passing across the design bears its title, "Mercy," and the words "Whereby the Day-spring from on high hath visited us, to be a light to them that sit in darkness and in the shadow of death, and to guide our feet into the way of peace."

In the centre, on a diapered background, floats the figure of an angel bearing a cross, and looking upwards intercedingly to a crown which surmounts the whole.

The prevailing colours, in the original drawing, are shades of violet and grey, enriched with gold, and are painted in clear tints, instead of body colour.

The design is by Mr. Tennant Potter, and the drawing was exhibited at the last Royal Academy Exhibition.

DESIGN FOR A FRIEZE.

IN this frieze, which was designed by Mr. Arthur Gwathkin for a house in London, the prevailing colours are blues to yellow-browns; the ground is a rich dark blue, the flowering water-grass forming a kind of underprint, with a lighter wash of the same colour.

The iris leaves are a light green, springing from foliage of yellow-browns and yellows, graduating to green-browns. The effect is soft, and yet very decorative.

The design has since been produced by Messrs. Wylie & Lochhead as a 30-in. wide frieze with the outline in relief, and the colouring by hand in transparent oil colours.

MAGAZINES AND REVIEWS.*

THE *Architectural Record* gives an article to the work of an American architectural firm, Messrs. Clinton & Russell. An article on an old English house, Nevill Holt, will be of interest to English as well as American readers. Professor Goodyear outdoes himself in this number in his efforts to induce the reader to accept all the settling and spreading of walls and piers and arches in St. Marks and other ancient Italian buildings as architectural beauties contrived on purpose, and is driving his hobby to the point where it becomes merely absurd. He quotes a passage from Evelyn's diary about a visit to old St. Paul's, and the opinion of "Mr. Chicheley and Mr. Pratt" that "the main building, which they found to recede outwards," had been built so *ab origine* for an effect of perspective, in regard of the height; but I was, with Dr. Wren, quite of another judgment. Wren had too much common-sense for such "fads," in fact. The Prospectus of the "Classic Design and Detail Company" is a good piece of humour; it would be out of date for this country, but we presume the editor of the *Architectural Record* has reason to believe that the satire is appropriate in the States.

The *Architectural Review* (Boston), No. VII. of the current volume, contains an illustration of the design submitted by Messrs. Howard

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

Cauldfield and Mr. J. M. Lyle in the competition for the Armory at Providence, which is curious as an instance of the imitation of the French which is going on in America; the whole thing, both in manner and in the execution of the drawing, looks like a competition drawing for an *Ecole des Beaux-Arts* prize. The Shephard Memorial Church, by Mr. Harvey Shephard, is interesting, especially the carved redwood ceiling of which a separate illustration is given.

The *Engineering Magazine* contains an interesting article by Mr. A. D. F. Hamlin on "The Tall Building from an American Point of View," which is very reasonably and well written, and contains some good critical remarks. The following passage, in regard to the treatment of the window openings in these tall buildings, is worth quotation:—

"It is readily granted that multiplied repetition of an architectural feature is one of the surest means to the end of impressiveness. The Colosseum is justly cited in support of this proposition; the long vistas of English cathedrals furnish another illustration. But the feature thus repeated must possess intrinsic dignity or artistic value; it must have scale. This is precisely what office-buildings do not and cannot possess. The office-floors average 10 or 11 ft. clear in height; window sashes more than 4 ft. wide are awkward to handle. These are not heroic dimensions. The bays at the Colosseum average 20 ft. on centres and 30 ft. to 40 ft. in height; its four storeys equal the height ordinary ten or twelve storey office-building. The front of the Pitti Palace at Florence is most impressive, with a vast number of windows all exactly alike, but they are colossal. The three storeys of the palace are each nearly 40 ft. high. How to make 200 to 300 windows 4 ft. by 8 ft. each (or thereabouts) into an impressive composition is really the *crux* of tall-office-building designing."

The *Art Journal* includes an article on "Irish Lace" with some very interesting illustrations, and some illustrated notes on designs for wall-papers and book-covers. Mr. Snowden Ward's article on "Camera Craft" attaches, to our thinking, too much importance to the present artistic efforts in photography. He refers to a photograph in an exhibition, for instance, which "emphasised the brilliant colour of an outdoor scene and the delicate graceful lines of a light-costumed lady who forms its central object." We remember the photograph; the figure was not graceful or delicate; a painter would have made it so. That is the weakness of photographic pictures. An article on Mr. Dudley Hardy's work as a painter forms a good illustration of the gulf which separates photography from art. What photographer's arrangement could ever have produced these pictures?

The *Art Annual* is devoted to the life and works of Mr. Orchardson, one of the most intellectual English painters of the day. Among the illustrations one is struck by the admirable way in which his diploma work "On the North Foreland" comes out in black and white; it is a small and rather slightly executed painting, but in the reproduction it assumes a character of much more importance, and is certainly a design full of poetry.

The *Studio* (November*) also has its examples of book-cover designs, likewise a good many illustrations of Scandinavian carving, and also an illustrated article on the productions of the French ceramic artist Delaherche, which are much more noteworthy for artistic feeling than most work of this class turned out in France.

The *Artist* devotes an article and many illustrations to the beautiful and intellectual sculpture of Mr. Harry Bates, who may be called the modern successor of Flaxman. An article on "Toledo" under the head of "Sketching Grounds," and some account of the Musée Galliera at Paris, are among the rather mingled contents of the number.

The *Magazine of Art* includes an article by Mr. R. Phené Spiers on "The Development of Modern English Architecture." Anything that Mr. Spiers has to say on such a subject will be read with interest. The article is to a great extent based on a consideration of Nesfield's work, and of the progress towards a simplicity equivalent to "cutting out the adjectives" in literature.

Decorative Kunst deals largely this month with textile and paper designs, but we fear that the style of the designs illustrated is rather too much what it is the fashion to call "up-to-date," which generally means eccentric rather than really artistic.

In the *Antiquary* Mr. Haverfield continues his "Quarterly Notes on Roman Britain,"

* The *Studio* is published in the middle of the month.

and Miss Peacock her illustrated essay on "Domestic and other Mortars." Among the contents of this number are also engravings of two very curious ancient sculptured stones at St. Alkmund's Church, Duffield. We agree with the suggestion made, that they are probably symbols of two of the Evangelists.

The *Revue des Deux Mondes* contains an article by the well-known French art critic M. de la Sizeranne, on the question "La Photographie est-elle un art?" which may be of interest to those who aim at being artistic photographers.

The *Gazette des Beaux-Arts* includes a short article on William Morris, by M. Frantz, and one on Hadrian's Villa by M. Pierre Gusman.

Blackwood contains a well-written article under the title "The Story of St. Paul's." In regard to the decoration at present being carried on the writer remarks:—

"A more common criticism of the work than that there is incongruity in having such mosaic at all in St. Paul's, is the other that Sir William Richmond is designing it on too small a scale and in too grey a manner. That is how it strikes us. His carefully calculated methods in the roof seem to be too subtle to have full effect below the level, say, of the panels under the clerestory windows. Possibly Sir William Richmond himself feels this, for, as the work proceeds, there is an increasing breadth in the designs. The effect is being reached by simpler roads. This is partly due, no doubt, to a greater command of the material, some forty different tints of glass now doing the work that over 150 did at the beginning. The work now being executed in the quarter-domes is greatly freer, and cruder to the eye close to it, than any in the choir. There, it has to be remembered, the artist always had to contend with the necessity of conveying a sense of loftiness to the roof, which he has sought to do by the mossy effects in the domes. Then, again, in certain weather conditions one is weighted with the sense of an overloading of ornament. But, however, there may be differences of opinion about the work done, as there are differences of taste as to the manner in which it ought to be done, the promise it gives of a decorated interior removes a reproach against us of nearly two hundred years' standing in connexion with our National Cathedral."

The *Century* devotes a short article to the German painter Von Uhde, who has endeavoured to represent the incidents of the life of Christ in what would be a purely realistic aspect, but that his figures are not clad in the costume of ancient Jews. His work is very interesting and often very pathetic, but there is an intellectual contrariety about it, an impossible blending of the supernatural with everyday life, which it is impossible to get over.

The *Pall Mall Magazine* includes an illustrated article on Belyov Castle.

The *Gentleman's Magazine* contains a review of "The Evolution of Telegraphy during the Victorian Era," by Mr. Charles Bright, and an article by Mr. Roger Ingpen on the fantastic French artist Callot.

The *Investors' Review* contains an article on "The Engineers' Strike; by an Employer," from which we quote the following pithy remark:—

"The engineering trade now is very different to the time when the writer served his apprenticeship some thirty years ago. Then bone and sinew played a large part in determining the amount of a day's work, which was ten hours. The hammer and chisel, the file and the ratchet-brace, faced and smoothed, and drilled the different parts of the machines before they were put together. Now the mechanic has to stand before and attend to automatic planing, milling, and drilling machines, which have to a large extent superseded manual skill. The machines, not the men, now do the work. Therefore, when the men say they could do as much work in eight hours as they now do in nine, the masters know better, because if a machine is running at its proper speed and feed, it cannot produce so much in eight hours as in nine; and this is the eight hours' question in a nutshell, from the manufacturer's point of view."

We have received also the *Essex Review* (October quarter—it seems to come out very much after date), containing description and illustrations of Great Clacton Church (No. XX. of *Essex churches*); *Knowledge*, and the *Genealogical Magazine*.

COMPETITIONS.

CHURCH, ABERDEEN.—Nine local architects have been invited to lodge, before the end of January, competitive designs for a new Free Church at Beechgrove, Aberdeen, the church to accommodate 800 persons, and the hall in connexion 400, while the total cost of buildings is not to exceed 8,000.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.—The fourth meeting of the present session was held at 56, Great Marlborough-street, on the 1st inst., Mr. Matthew Garbutt, Chairman of the Section, occupying the chair. The paper of the evening was by Mr. A. R. Jemmett, on "The Possibilities of Examinations in Art." Mr. Jemmett said that when the Royal Institute of British Architects made their examinations compulsory many architects protested against them, on the grounds that it is impossible to examine in art, and that the examination in architecture, so-called, was of little use in making architects; to which supporters of the Institute replied that their examination did not pretend to be an examination in art, but an examination to test a man's knowledge of those things which it is essential an architect should be master of. This seemed to be accepted by every one, and the discussion had ceased. He thought it worth while to reconsider whether it is really a fact that a man cannot be examined in art. He quoted Viollet-le-Duc's definition that "art is an instinct, a craving of the mind, which, in order to express itself, employs various forms," and that "in order to live, art must be free in its outward expression, though strictly regulated as regards principles; it dies when its principle is disregarded and its expression enthralled." He then proceeded to argue that art being an expression of human feeling and the art of architecture a language whereby the artist expresses his ideas and sentiments, it must be possible to understand and to teach this language. It was evident the artist would not appeal to his contemporaries if he clothed his thoughts in the language of a Greek or a Moslem, or a thirteenth-century Frenchman. The artist should know the possibilities and limitations of expression of which his art was capable, and what ideas and emotions were most appropriate to his particular method of expression. During the last few centuries most buildings had failed to express any definite idea or sentiment whatever; artistic expression, where such was desired, was supposed to be obtained by the introduction of sculpture. We were apt to forget that though architecture appealed to the emotions, the process whereby we obtained a knowledge of the principles which produced great buildings was not an emotional process. He thought the Institute might examine more in reasons and principles than in facts; that they should ask, not so much what a great man did, as why he did it; that instead of laying stress on dates and features and mouldings, they should ask for analyses of design; that instead of asking students to draw actual examples, they should ask for a type of some particular style. His arguments, however, led him to the conclusion that to make such an examination possible there must be a large body of artists all agreed as to the principles of their art, and a high standard of art in the community at large. When such a time arrived an examination would hardly be necessary at all.—The discussion was opened by Mr. H. V. Lanchester, who thought that art began where a knowledge of the principles left off. The artist was not usually a reasoning animal; he might be able to say whether a building or a drawing was or was not a work of art, and yet be quite unable to say why. It did not necessarily follow that because a man knew the rules that had governed good designs he could produce a work of art; he might be quite unable to apply those principles in practice. He considered the Institute examinations not examinations in art at all.—The discussion was continued by Messrs. Crawforth-Smith, H. A. Satchell, Brodie, Hopkins, and the Special Visitor, Mr. Reginald Blomfield. The latter pointed out that they could only examine in matters of absolute fact; it must be possible to put a question to which there was only one right answer. They could not examine in ideas and opinions. The only way to examine in art was to criticise actual pictures, sculpture, and buildings. He thought the idea of having an examination in principles of architecture a pernicious one. If every one must be taught to say the same thing in the same way the result would be the production of academical, lifeless architecture. The Institute Examination had been a great hindrance to the production of good architecture: it passed men out as capable architects whose study might have been wholly from books. There was no time now for the young man to study old work. Architecture was getting more slovenly every day. It

should be their object to train men to make experiments and to deal with the actual problems of life. Mr. E. S. Prior also attended the meeting and contributed some remarks to the discussion.—The next meeting of the Section will be held on the 15th inst., when Mr. A. W. Cleaver will read a paper on "An American Hospital: its Heating and Ventilation."—In our report of the last meeting we omitted to mention that the chair was taken by Mr. F. C. Eden.

ARCHITECTURAL SECTION, GLASGOW PHILOSOPHICAL SOCIETY.—A lecture by Mr. Francis H. Newbery, of the Glasgow School of Art, was delivered on the 29th ult. before the Architectural Section of the Philosophical Society, the subject being "The Sum of Tradition." Under this heading the lecturer dealt with the heritage in art, more especially as apparent in architecture that has been handed down to us. There were three ways of treating tradition:—(1) To ignore, which is foolishness; (2) to blindly copy, which is foolishness; and (3) to rightly use, where alone is wisdom. To do this last was, in the first place, to thoroughly learn the lessons tradition taught. He insisted that tradition was not a fixed quantity, and that we ourselves by our works were daily adding to it. What was for our fathers could be for us, if it were found acceptable after proof, but we were free to ignore or accept according as the artist in us dictated. After all, much that was called original matter was in many cases merely assimilated material, and many great artists were such because of their wisdom, as shown in assimilation. It was a question of granting the man, and that done all the rest became possible. The lecturer ridiculed the idea that the teachings of tradition could be summed up in a code, and then taught as laws for the guidance of the student. Those who advised such impossibilities could neither be artists nor authorities, but outsiders incapable of producing a work of art themselves or of understanding its traditions. After speaking of the part that schools should play in this treatment of tradition, and mentioning that those alone who could produce a work of art could impart a right knowledge, the lecturer summed up by hoping that in the future the freest possible form of art education would be allowed. The student should be hindered in nothing, and should be allowed to attempt anything. What the student might have to do in after life, that he should attempt under the freest conditions while studying, for the student was from the beginning the artist, and the mature artist ever remained a student.

EDINBURGH ARCHITECTURAL SOCIETY.—A meeting of this Society was held on the 1st inst., Mr. J. A. Williamson, A.R.I.B.A., President, in the chair. Professor Baldwin Brown delivered a lecture, entitled "Notes on Some Edinburgh Buildings and Monuments." He began by explaining that his intention was to touch upon Edinburgh buildings, not from the historical point of view, but only as illustrating matters of general interest to those embracing the profession of architecture. The foremost question of the hour on the artistic side of architecture was that of the meaning and value of architectural styles in modern practice. Many of the younger members of the profession were repudiating the idea of being bound down in their work by the traditions of the past, and were claiming for the designer freedom to work out the solution of modern problems in a modern spirit. The past history of the art, however, showed that the "styles" had not fettered freedom, and that some of the best architects, as, for example, Wren and Playfair, cared comparatively little what forms they used so long as they obtained those effects of grouping at which they aimed. The truth was that architectural effect depended not so much on the forms themselves, but on the designer's sense of proportion in their combination. There was a distinct advantage in the use of well-understood established forms, because the eye was able to judge better of their relations without the attention being drawn off to the forms themselves. The present age had really its own architectural style, and a very good one, brought down from the Tuscan Renaissance and established here by Adam and Playfair. The fact that we had this tradition of style was, however, obscured by the numerous revivals of which the nineteenth century had been the scene. The lecturer discussed some of these revivals, "Gothic," "Classic," and "Scottish Baronial," in their effect on Edinburgh architecture, and urged architects, if they wished to

found a new style, to take the new materials which they used now, iron and steel, and to try and evolve from these materials suitable forms for their treatment.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The prize offered by Mr. C. King, Chairman of the Plymouth, Devonport, and Stonehouse branch of the Devon and Exeter Architectural Society, to students of the branch for the best measured drawing of any architectural building, or part of a building, has been awarded to Mr. R. Sims Baker, of St. Blazey, Cornwall, and lately a pupil of Mr. B. Priestley Shires, A.R.I.B.A., of Plymouth, for his drawing of a part of Plympton St. Mary's Church. Mr. H. E. Roskrugge, a pupil of Mr. H. G. Luff, A.R.I.B.A., of Devonport, obtained second place for his drawing of part of Maker Church.

NORTHERN ARCHITECTURAL ASSOCIATION.—A meeting of the members of this Association was held recently at the Art Gallery, Newcastle, when a lecture on the "English Cathedrals," with limelight illustrations, was delivered by Mr. John Lane, of York. The President (Mr. F. W. Rich) was in the chair. Mr. Lane dealt largely with the picturesque features of the various cathedrals in England and Wales. Dealing with the outward effect of the cathedrals, he said many of them lost much by being built on a low level in the midst of large towns. Lincoln, on the other hand, stood on a hill, and was visible thirty miles across the fens. Along with St. Cuthbert's, at Durham, which looked down upon the Wear, it possessed a site which was unrivalled. A vote of thanks was afterwards moved by the President to Mr. John Lane for his lecture, and to Mr. Burleigh (Secretary of the York Association), who introduced Mr. Lane to the Newcastle Association. Mr. J. H. Morton seconded the vote of thanks, which was carried, and both gentlemen having responded, the meeting terminated.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Hackney Vestry 37,100l. for Jarrah and granite paving works; the Westminster Vestry 18,000l. for Karri and asphalt paving works; the Islington Vestry 3,050l. towards the cost of the Blackstock-road improvement and 14,250l. for electric lighting purposes; the Newington Vestry 3,100l. for sewer works; the Westminster Vestry 23,000l. for sewerage and paving works and street improvements; the Shore-ditch Vestry 2,000l. for the construction of a store and workshops in Kingsland-road; and the St. Marylebone Guardians 36,540l. where-with to purchase the freehold site of their workhouse.

Thames Conservancy.—The General Purposes Committee submitted correspondence between the Council and the Thames Conservancy Board with reference to the statement made by Mr. Idris at the Council on October 12 that the refuse of London was constantly taken up and down the river in leaky and rotten barges. The Board said that it was doubtless a fact that, in the tideway, refuse was carried on the river; but this was below Teddington, and much below the intakes of the London water supply. On the part of the river above Teddington there had been during the present year one case where it was reported that refuse of a foul character was being carried, and although it since appeared that the refuse was only ashes, immediate steps were taken for the removal of the barge before any harm could be done.

Mr. Beachcroft (Chairman of the Committee) pointed out that since the report had been drawn up a further letter had been received from the Board.

Mr. Thornton moved, and Mr. Payne seconded, that the matter be referred back to the Committee for further information.

The Committee agreed to take the matter back, and Mr. Thornton's proposal was withdrawn.

Taxation of Ground Values.—The report of the Local Government and Taxation Committee on ground values and new sources of revenue came up for discussion. The first proposal was "(a) That it is advisable that a new source of revenue should be obtained by means of some direct charge on owners."

Mr. H. P. Harris moved as an amendment:—"That, with a view to the Royal Commission framing proposals for alterations in the law in the event of its coming to the conclusion that 'site values' do not contribute equitably to taxation, the recommendations of the Committee under Section A, viz., (a) to (i) of this report, be submitted to the Commission as suggestions for its consideration, and that there also be submitted to the Commission the report of the Statistical Officer bearing on the question whether and how far all kinds of property contribute equally to taxation, and the report of the valuer on the incidence of rates as between owners and occupiers."

Sir Harry Poland seconded, but after a long debate the amendment was rejected on a division by 53 against 50, and the recommendation was agreed to on another division by 55 against 47. The consideration of the remaining recommendations was postponed.

Proposed Theatre of Varieties, Holloway-road, Islington.—The Theatres and Music Halls Committee recommended, and it was agreed, (a) That the ten drawings, dated November 26, 1897, of the proposed theatre of varieties at the corner of Manor-gardens and Holloway-road, Islington, be approved, on condition that any alterations which may be found to be necessary to the transformer chamber be carried out to the satisfaction of the Council, and that the works be commenced within six months, and be completed in accordance with the Council's regulations and the provisions of the London Building Act, 1894.

Protection of London from Fire.—The Fire Brigade Committee reported as follows:—"We think it well to report for the information of the Council that soon after the present chief officer was appointed we instructed him to report his views on the subject of the means to be adopted for the better protection of London from fire. The Chief Officer has given his views in reports, dated September 29 and October 27, 1897, which we have been carefully considering, and we hope shortly to be able to report our conclusions to the Council."

The Works Department.—The report of the same Committee contained the following paragraph:—

"The Council on October 20, 1896, and April 6, 1897, authorised the execution by the Works department of some repairs, painting, and drainage work required at the Rotherhithe station, the architect's estimates, being respectively 490l. and 148l., making a total of 638l. The revised estimate of the work amounts to 658l. 8s. 5d., but we are glad to report that the actual cost has been 489l. 13s., a saving of about 25 per cent. on the revised estimate. The manager of the Works department gives the following explanation of the saving:—"I attribute the greater part of this saving to the improvement in the organisation of the Works department, and the closer attention now given to detail in carrying out the work. Greater care is observed in collecting materials together before commencing the work, and advantage is taken of any circumstances by which a saving may be effected. In the present case the materials were collected in the yard and barged to the job instead of carting in small lots. We were able to save also by reason of having other work proceeding at the same time in the neighbourhood, and, further, were not interrupted by arrangements necessary for the convenience of the Fire Brigade, as is generally the case. There were other circumstances which helped to increase the saving, and which we cannot expect always to find in other works."

The Council adjourned at half-past seven.

THE SURVEYORS' INSTITUTION.

An ordinary fortnightly meeting of this Institution was held on Monday evening, in the temporary premises of the Institution, Savoy-street, Victoria Embankment, the President, Mr. Christopher Oakley, occupying the chair.

Mr. F. Funchard read a paper entitled "The Amendments of the Agricultural Holdings Act suggested in the Report of the Royal Commission of Agriculture." The lecturer dealt with the proposed amendments seriatim, and in the course of his remarks he said there was a delightful vagueness in the Commissioners' use of the word "improving," as applied to roads and watercourses, a vagueness which would have to be qualified by the addition of provisions to the effect that such improvements

must be of a durable nature, something beyond the mere putting into working order which would ordinarily fall upon the tenant, and not the necessary consequence of his failure to fulfil the covenants of his lease. He could readily imagine a claimant urging that he had improved a road by putting on a few cart-loads of stones, or a watercourse by removing from it any gradual accretions of obstructive materials which were but the natural result of his failure to carry out his covenants. A specious advocate might also urge that as the landlord would under the amended Act be unable to recover compensation for the tenant's neglect, where such neglect had existed for more than two years, any amending of the roads or cleaning out of watercourses after that period would constitute an "improving" within the meaning of the Act. Such an argument would be likely enough to arise if the proposals of the non-content Commissioners were adopted, which would avoid any notice to the landlord, and would practically hand over to the tenant the control and management of the landlord's property. But fortunately the majority of the Commissioners recognise that the landlord ought still to have a controlling hand over any permanent outlay on his estate for which he is ultimately to be held responsible, and that he must not be converted into a mere rent-charger. Notice of these improvements would have to be given to the landlord, and details furnished as to the method in which they were intended to be executed. The want of such details had in some cases deprived tenants of their rights to compensation for drainage executed under the present Act. Tenants were very careless in this respect, and commonly ignored the provisions of the Act until the time had arrived for making their claims under it. The improvements proposed to be dealt with were, with the exception of roads and watercourses, of a class which would not often be executed, and the compensation for them, when measured by their value to the incoming tenant, would be slight and of little general moment. The benefits arising from the improving of roads and watercourses were more apparent and could be more readily estimated. We seemed to be drifting to the time when the tenant would maintain nothing but his right to compensation. In regard to the suggestion that the ordinary valuation between outgoing and incoming tenant should be dealt with by the same parties and under the same awards as claims under the Act, the lecturer said that it had been the double set of arbitrators and awards and the double set of costs that had made the Agricultural Holdings Act a dead letter in many districts. In regard to the Schedule of Dilapidations, it was proposed that "the dilapidations for which a landlord may claim compensation should be scheduled," and, so long as the schedule was as comprehensive for its part as the tenant's was, there need be no demur to its institution. The Commissioners gave no reason for this proposal, but their object appeared to be to check those extravagant and unsustainable counterclaims, which were freely stated to have been the chief cause of the boycotting of the Act. Much, of course, turned upon the interpretation given to the word "dilapidations." If, as was generally understood, it was to be applied to buildings, fences, gates, drains, watercourses, and the numerous other items usually named in a covenant to repair and maintain, there would not be many of the tenant's sins of omission excluded. It was assumed that if the schedule was adopted it would carry with it the right to compensation, whether there had been any written agreement upon the several headings or not. But one question which might arise was whether, where a written covenant to repair exists, any non-fulfilment of this covenant was to be treated as a dilapidation or as a breach of covenant. If it were treated as a breach of covenant the compensation for it could not, under an amendment subsequently proposed, be carried beyond two years, but there was no such limitation proposed in the provision as to the dilapidations. In this event let them by all means have a landlord's schedule of dilapidations. The lecturer subsequently dealt with penal rents and the limitation of landlord's claims.

Mr. Willis Bund proposed, and Mr. J. W. Kemsley seconded, a vote of thanks to the lecturer, which was supported by Messrs. F. J. Smith, John Shaw, Daniel Watney, and H. Donne.

On the motion of Mr. A. Buck the debate was adjourned until Monday, January 10.

(DESCRIPTION OF WORK.)

MASON.	TILER.	CARPENTER.							
<i>Runs.</i> 10 x 3 York stone, tooled, sunk, weathered, throated, and grooved sills.	<i>Sup.</i> Tiling (description). 439.41 23.0	<i>Run.</i> Turning piece 4½ in. segmental soffit.	<i>Cube.</i> Fir in plates and lintels. 4.2 3.6 5.9	<i>Sup.</i> in. x in. battening for tiling 439.4 [Ddt.]	<i>Run.</i> Splayed edge to roof boarding. 43.6	<i>Nos.</i> Short drip in gutter, cross-rebated and rounded. Do. cross-grain. 89.6 1			
11.3	462.4	9.9	13.5						
Short fair tooled ends, including stools for jambs.	<i>Run.</i> Extra to tile and half at verge. 36.9 Pointing to verge. 19.3 Extra to hip tiles (description). 22.9 Extra to valley tile (description). 22.0 Ridge tile. 23.0 Fair end. 1 End cut to face of wall. 1 Do. to slope of roof. 1 Returned end at hip. 1	Fir framed in floors. 39.7 Do. in roofs. 37.10 20.3 58.1	in. rough boarding, edges shot to roofs. 439.4 Ddt. in. rough sound boarding on in. x in. fillets nailed to joists (joists measured in.) 249.9	Double splayed edge to 2 in. hips and ridge. 45.9 Tilting fillet. 82.9 2 x 2 double herring bone strutting to 9 in. joists. 27.9 in. x in. wrot splayed (stiff-headed, moulded, or chamfered) fascia to eaves. 28.0 1 M. 2 E.M. 1 R.E. 4					

(The description for the other trades will be given next week.)

We have received a letter from a correspondent in which he takes exception to the method given for measuring excavations as being rather redundant in figures. He cites as an example the following:—

85.4 3.5 3.0	970.8	Excavate to surface trenches, throw out return, fill in and ram around foundations.
85.4 3.3 1.6	416.0	Concrete and Deduct excavating as last and Add ditto and wheel, fill, and cart away.
85.4 1.11 9	122.8	Deduct excavating and return, fill, and ram and
85.4 1.2 1.3	124.5	Add ditto, and wheel, fill, and cart away.

and gives as an alternative the following:—

85.4 3.3 1.6	416.0	Excavate to surface, trenches and cart away, and Concrete.
85.4 3.3 2.0	554.8	Excavate to surface trenches, part return; fill in and ram to foundations, remainder wheel and cart away.

This, as he rightly argues, gives exactly half

the work, and he mentions in extenuation that "practical estimators know the usual proportions between earth 'carted away' and 'returned and rammed' to the footings of a wall." This sentence should, we think, be qualified by the addition of the word "approximately," as the proportions vary according to the thicknesses of the walls. The writer of these articles has endeavoured throughout the whole series to impress the student with the absolute necessity of sparing no trouble or time to get a correct bill of quantities, and the method given is the only one to arrive at this, with, of course, the exception of variation in form.

In the case of town work, where frequently the cost of "carting" and "shooting" is more than the digging itself, no other course should be followed. In those cases, however, where the surplus earth is merely deposited on the site (as is frequently the case in country work), the method he mentions could be adopted without injustice either to the contractor or the employer.

By taking the dimensions together, so that they can be cast before abstracting, the more correct method really takes very little more labour in proportion to the whole than the somewhat rougher method our correspondent suggests.

Correspondence.

To the Editor of THE BUILDER.

SURBITON MUNICIPAL BUILDINGS COMPETITION.

SIR,—I think that Messrs. Forsyth & Maule considerably over-rate the capability of their windows to light their building. The windows which they rely upon for their central hall, corridors, &c., certainly exist, but are quite inadequate, both because too remotely placed and too much overshadowed by projecting walls. As to the Council-chamber, it has, it is true, a single narrow window at one corner of each end, but close up to the light

side of the room, and adding very little to the general lighting of it. The room, which is very wide and low, has practically only one outer wall. It is, therefore, substantially accurate, in a brief account, to describe this room as being lighted from one side, and the statement now put forth that it "has light on three sides" is little better than a quibble.

THE WRITER OF THE ARTICLE.

POROSITY OF ROOFING TILES.

SIR,—I was recently asked by a friend to examine for him some specimens of roof tiles with respect to the amount of water which they would respectively take up. The results obtained varied within rather wide limits, and as it did not appear that anything was generally known in regard to the matter beyond the fact that one tile is more porous and will absorb more water than another, I send you the following quantitative results, which may possibly be of interest to your readers.

The fourteen tiles examined, of good quality, and varying in colour from light red to brown, were dried in an oven, allowed to cool, weighed, immersed separately in water for fifteen minutes, then wiped carefully, and quickly weighed again.

Description of tile.	Gain per cent.
Excelsior A	203
" B	24
" C	203
Broselye	67
Coalport A	27
" B	14
" C	18
Ruabon A	23
" B	201
" C	63
Doughty	52
Colebrooke	14
Unmarked Dark	27
" Light	27

The weight of water absorbed by a tile weighing 2 lb. some ounces varied from 30 gr. to over 2 oz.

I ought to say that only one tile of each sort was at my disposal, so that the above results can make no claim to represent the average absorptive capacity of the different descriptions indicated.

As a rule, the tiles of a fine light red colour absorbed much more water than those of a darker shade.

R. T. PLIMPTON.

Middlesex Hospital Chemical Laboratory.

APPOINTMENTS.

HEREFORD.—Mr. Thomas L. Miller, consulting engineer, Liverpool, has been appointed to advise the Hereford City Council on their electric lighting scheme.

SURVEYORSHIP APPOINTMENT.—Mr. A. Bowes, A.M. Inst. C.E., of the Borough Engineer's office, Salford, has been appointed Surveyor to the Urban District of Newton-in-Makerfield.

APPOINTMENT.—Mr. Percy Nevill has been appointed chief engineer to the Isle of Man Harbour Board.

OBITUARY.

MR. OCTAVIUS HANSARD.—Every habitué of the Institute of Architects' meetings will feel the greatest regret at the sudden death of Mr. Octavius Hansard, who was killed on the Metropolitan Railway on Friday last week. Mr. Hansard was for many years one of the most familiar figures at the Institute meetings, and took a great deal of interest in its affairs; and it may be said of him that he was everybody's friend, and will be regretted by all who knew him. Mr. Hansard's practice as an architect was not we believe large; he was probably not dependent on it; but although the part he took at the Institute meetings was generally in connexion with practical and professional matters, this was not from want of interest in the artistic side of architecture; and those who knew him only in connexion with discussion on matters of professional practice might have been surprised to learn that he was a very accomplished water-colour artist. His funeral was announced to take place on Thursday this week, and probably a large number of his old friends at the Institute were present on the occasion, but of this we are not able to give any report in this issue.

MR. W. S. CROSS.—We regret to announce the death of Mr. Cross, architect and rating surveyor, of the Outer Temple, Strand, on the 1st inst., aged seventy-four years. Mr. Cross was for some years Surveyor to the Sun Fire Office, and subsequently acted for the Duke of Bedford's London estates. He was a Fellow of the Institute of Architects, and one of the oldest members of the Surveyor's Institution, having joined as a Fellow in the year 1873. He had a large private practice, and among his public buildings may be mentioned the Strand Union Workhouse at Edmonton, Camberwell Infirmary, and Casual Ward and Receiving Workhouse at Bear-yard, Long Acre, in addition to numerous private residences, warehouses, &c. As a rating surveyor he acted for the Strand Union, St. George's Union, and various other parishes and vestries, and was in latter years engaged in most of the large and important appeal cases.

MR. F. R. MASSEY.—The death has just occurred, in his eighty-sixth year, of Mr. Frederick Henry Massey, engineer. In early life Mr. Massey was associated with the Marseilles engineers in transforming the Bay of Toulon into a harbour. Subsequently he entered the service of the Russian Government, and from his plans, and under his personal supervision, large shipbuilding and engine works were established at Odessa and Sevastopol. At the opening of the Suez Canal Mr. Massey, who held the rank of captain, renewed his acquaintance with M. de Lesseps. He retired from the Russian service in 1872.—*Times*.

GENERAL BUILDING NEWS.

CHURCH, STRETTON, NEAR BURTON-ON-TRENT.—On the 24th ult. the Bishop of Lichfield consecrated a new church which has just been erected at Stretton, Burton-on-Trent, at a cost of over 30,000l. The building is cruciform in plan, and has a central tower rising immediately over the choir. Stanton stone is used externally, but the interior walls are of Runcorn stone. The flooring consists of stone quarries and wooden blocks. A high screen separates the chancel and the south chapel from the nave. It is surmounted by a cross which, together with the choir stalls and other work hereabouts, and the organ case and the pulpit, has been carried out by Mr. J. E. Knox, of Kennington. The chancel is laid with black and white marble. The roof is decorated with representations of angels playing upon instruments. The roof of the nave is light in colour, and in keeping with the rest of the building. For the whole of this Mr. Charles Powell, of London, has been responsible. The only stained-glass window at present in the church is at the east end, and is the work of Sir William Richmond, having been executed at a cost of 1,000l. The subject symbolises our Lord in His Majesty. There is no reredos proper, but a low enrichment of marble and alabaster is situated immediately behind the altar. The church is lighted with hanging lamps, and the heating apparatus is so arranged that it cannot be observed by the public. The entrance doors are of teak. The font is raised on three circular steps of Frostley marble. The canopy is of carved oak, and contains in recesses eight sacred effigies. At the entrance to the churchyard is a lych-gate. The church will accommodate, with pews and chairs, 400 people. The building has been erected by Mr. Halliday, of Stamford, from the designs of Mr. J. T. Mickelthwait.—*Birmingham Post*.

ORGAN CHAMBER, WESLEYAN CHAPEL, ST. DAY CORNWALL.—The work of building an organ chamber, &c., at St. Day Wesleyan Chapel has been carried out by Messrs. Moyle (Chacewater), and Gray (Redruth), from plans prepared by Mr. S. Hill, architect, Redruth.

METHODIST CHAPEL, BURNLEY.—The memorial stones were laid recently of the new chapel which is being erected by the United Methodist Free Church connexion. The chapel will seat 675 persons. In addition to the present school the new chapel will contain two vestries and six class-rooms for the use of the scholars, whilst in the basement a heating cellar, a kitchen, and a store-room are to be provided. Mr. G. E. Balsbaw, of Southport, is the architect, the builder's work has been entrusted to Messrs. A. & R. Parker, and contracts have also been let to the following—Joinery, Messrs. R. Dean & Sons; slating, Messrs. Stanworth & Sons; painting and plastering, Mr. Smith; and plumbing, Mr. Roberts. It is expected that the cost of the chapel will be about 3,400l.

GRESHAM BAPTIST CHAPEL, BRINTON.—This chapel, which was destroyed by fire nearly two years ago, has been rebuilt, with elevations to Gresham and Barrington-roads, faced with yellow malm bricks and Portland stone dressings. The chapel is on the ground floor level, and the school-room above the chapel in the centre of the building, and lighted from the clearstory, and with class and other rooms on each side. Messrs. Whitehead & Co., of Clapham-road, are the contractors for the general works; Stuart's Granolithic Co., for the fire-resisting floors, which have been covered with wood blocks by the Westminster Flooring Co.; and Messrs. Ward & Co., for the staircases; The Educational Supply Association have executed the seating to both school-room and chapel, in pitch pine, and the gas arrangements are by Messrs. Sugg & Co.; the organ is by Messrs. Samuel Twyford. The total cost has been about 5,000l. The architect is Mr. J. William Stevens, of London.

BOARD SCHOOL, STAPLEFORD, NOTTINGHAMSHIRE.—A new Board school for boys has just been opened at Stapleford. The school is situated in Dog Kennel-lane, and has been in course of erection about twelve months. The building was designed by Mr. W. H. Higginbottom, architect, of Nottingham. The main entrance leads into the central hall, which is 61 ft. long and 25 ft. wide. Additional entrances and exits are also provided at the opposite end of the building. The class-rooms, six in number, are arranged four on one side and two on the other, each being 25 ft. by 24 ft., and accommodating sixty scholars. The building is so planned that two class-rooms may be added at a future time. Part of the floor in each class-room is made sloping. Cloak-rooms, with lavatories, are provided at each end of the hall. The master's room is arranged over the back cloak-room, and has immediate access to the balcony. The floors of the central hall and class-rooms are of wood blocks, and the floors of the cloak-rooms and corridors are of asphalt. The whole of the internal walls of the hall, class-rooms, and cloak-rooms have a glazed brick dado, 4 ft. 6 in. high, above which the walls are colour-washed. The heating is by means of low pressure hot-water pipes. The building externally is faced with red bricks, with stone dressing, and the roof is covered with slates. The school has a large playground, which is asphalted, and there is a covered play-shed in the yard. The work has been carried out at a cost of about 3,000l., and the contractors were Mr. Charles Moutt (bricklayer, &c.), Messrs. Pacey & Henson (joiners), Mr. E. Fisher (painter), all of Stapleford; and Mr. H. Shardlow (plumber), of Hyson Green.

HIGH SCHOOL FOR GIRLS, MONMOUTH.—On the 25th ult. the Marchioness of Worcester opened the High School for Girls at Monmouth. The building is from the designs of Mr. W. Stock, Architect, to the Haberdashers' Company (the trustees of the William Jones' Charity, out of the proceeds of which the school has been erected), the contractors being Messrs. Gradwell & Co., Barrow-in-Furness. The frontage of the building faces the south, and is marked by five gables, the centre containing a carved panel of the arms of the Haberdashers and of William Jones, the founder. The main block has three floors, comprising two class-rooms, in addition to the quarters of the head mistress and the staff; and to the north, at right angles to the main building, is a hall, 70 ft. by 30 ft. To the rear are the servants' quarters, kitchens, and dining-hall. The buildings are built of local red sandstone, with Bath stone dressings, and the staircases and corridors are of stone, and fire-proof. Accommodation is provided for 100 day scholars and fifty boarders.

NEW SCIENCE SCHOOL BUILDINGS, WOLVERHAMPTON.—On the 2nd inst. Mr. F. E. Kitchen (Chairman of the Technical Instruction Committee of the Staffordshire County Council) opened the new science buildings which have recently been erected on the grounds of the Wolverhampton Grammar School. The total estimated cost of the new structure is 2,000l. The building is of two stories, and the accommodation includes a lecture-room, a preparation-room, a store-room, and a balance room, on the ground-floor; and on the first floor are a chemical laboratory and a physical laboratory, the former for teaching practical chemistry or metallurgy, and the

latter for practical instruction in physics. Mr. H. Willcock was the builder, and Mr. G. H. Stanger the architect.

HOSPITAL BUILDINGS, BURNLEY.—These buildings are being erected at Kibble Bank, Lane Head. The fever pavilion is already roofed. The plans have been prepared by Mr. F. S. Bulton, and are being carried out under the supervision of Mr. Wm. Foden, clerk of works to the Joint Hospital Board.

NEW EMPIRE MUSIC-HALL, NOTTINGHAM.—The building, under construction in connexion with the new Empire Music Hall, Sherwood-street, Nottingham, are approaching completion. The proscenium opening is 29 ft. square, and the height from stage floor to grid is 48 ft. There is also a cellar 16 ft. deep. All the staircases and the dressing-rooms are to be fireproof, and the hall will be heated by hot-water pipes. With reference to the seating accommodation, there are to be fauteuils, two circles, and pit and gallery. The latter is to accommodate over 700 persons, the pit over 600, the upper circle some 400, and the dress circle about 220, whilst nearly eighty seats will be provided by the fauteuils. The architect is Mr. Frank Matcham; the clerk of the works is Mr. Chas. Greenman; the contractors for ironwork and the construction of the roof are Messrs. Whitworth & Co., of London. Messrs. Longden & Co., of Sheffield, are the contractors for the building; Messrs. Danks & Co., of Nottingham, supplied the gas-fittings, and Messrs. Blackburn, of Nottingham, have the contract for the electric lighting.

PROPOSED ALTERATIONS, ROYAL OPERA HOUSE, ST. LEONARDS.—The plans of the proposed alterations to the Royal Opera House, St. Leonards, prepared by Mr. John F. Briggs, Strand, were submitted and passed by the Hastings Town Council on the 10th ult.

NURSES' HOME, PAISLEY.—Princess Louise visited Paisley a few days ago for the purpose of opening the Brough Nurses' Home. The building, which is at Oakshawhead, is four stories in height, and is constructed of red sandstone from Crockerbriggs Quarry, Dumfriesshire, the style being Scottish Domestic. The principal feature of the frontage consists of a tower, which rises considerably higher than the main building, and in the base of which the entrance has been formed. On the right side of the hall leading from the entrance is an office, and on the other side are the matron's sitting-room and drawing-room, the dining-room being at the end. A collapsible partition divides these latter rooms. Six bedrooms are on the flat above, and accommodation for three nurses is provided on the highest landing, together with a sick-room and a servants' bedroom. There are bath-rooms on each floor. Owing to the slope of the ground there is an extra depth on the north side, and here in the basement are the kitchen, offices, district and cloak rooms, and several stores. The architect is Mr. T. Graham Abercrombie, Paisley.

GREENOCK.—PROPOSED NEW HALL.—Plans of a new suite of halls for the Gaelic Parish Church have been prepared by Mr. J. B. Stewart, architect. They show a frontage to West Stewart-street on the site of the present hall, adjoining the church. The large hall will accommodate about 200 persons, besides a class-room providing accommodation for another 100.

CO-OPERATIVE PREMISES FOR MIDDLESBROUGH.—A special general meeting of the members of the Middlesbrough Co-operative Society, Limited, was held in the Co-operative Hall recently, when resolutions approving the architect's plans of the proposed new premises in Corporation-road, and to empower the Executive to expend the requisite amount of money for their erection, were passed. The plans, specifications, &c., have been designed by Mr. Moore, architect, and the building is to be erected by Messrs. Hudson Bros., Middlesbrough.

TOWN HALL, BALDOCK.—This building has just been opened. The hall, which faces an open space where the chief streets converge, has been built at a cost of about 2,000l. It is of brick, with a tiled roof of high pitch, and has a small square tower on the north-east. On the ground floor are the offices for the Council, a fire-engine house, and the chief part of the caretaker's rooms. The first floor mainly consists of the assembly-room, which has a floor space 40 ft. long by 31 ft. 6 in. wide, a permanent platform being at one end and a small gallery over the cloak-room and landing on the other. The assembly-room will seat about 400 people. Externally the lower story is of red brick, while the upper is rough cast, except at the corners; at these the red brick is carried up to the eaves. The Council approved of the designs submitted in an open competition by Mr. Talbot Brown, of the firm of Messrs. Talbot Brown & Fisher, architects, Wellingborough; and they accepted the tender of Messrs. J. & S. Redhouse, of Stoford.

NEW BUILDINGS IN ABERDEEN.—The Established Church of Scotland are to erect a church in Midstock-road, and have appointed Mr. W. Kelly, architect, Aberdeen, to prepare plans. Practical steps are also being taken to erect a church at Torry. The War Office have instructed Messrs. D. Macandrew & Co., Aberdeen, to build a drill shed (of granite with wood block flooring) at the Mary Barracks, Castlehill. An additional story is to be placed on the purifier house at Aberdeen gasworks, at a cost of 3,200l.—The Corporation Lodging House at present in course of erection is to be

lighted by electricity.—In accordance with directions from the Scotch Education Department, Aberdeen School Board are to proceed at once with the erection of a new Board school at Hanover street. The school will be three stories high, and will accommodate over 900 standard scholars and infants. Mr. Arthur Clyne, Aberdeen, is architect.

THE MASSON HALL, EDINBURGH.—For several months past additions and alterations have been in progress at 31, George-square, Edinburgh, to provide a residence for lady students at Hanover street. The ladies attending the University. These have now been completed, and the Masson Hall, as it has been called, was recently opened. The present scheme gives accommodation for fifteen resident students. On the under flat, or basement, a portion of the garden ground to the south has been utilised to build a large dining-hall and kitchen and necessary offices. Dressing-rooms for the outside students and servants' accommodation have also been provided at the same level. On the street level is the library, which has been named the "Feiffer Room," and adjoining it is the committee-room. The flat roof of the dining-hall and kitchen is on a level with the library windows, out of which opens a long balcony, and this in turn opens on to the students' balcony. The first, second, and third flats are reserved for the residents. Right over the library and facing the south is the drawing-room for the residents. The rest of this floor has been taken up with bedrooms, and to that purpose the two upper flats have also been reserved. The lower flat is now being divided, giving each student the privacy of a separate apartment. The house is heated by means of open fires and radiators, the latter supplied by heat from a furnace in the basement. Externally, the building has been increased in height by an additional story. The architect was James J. Jones.

POST OFFICE WORKING.—A new post-office at Worthing is to be erected at the corner of Market-street and Chapel-road. The building, of which Mr. R. S. Hyde is the architect, is to be of three stories, with a frontage of 50 ft. to Chapel-road and a return frontage of 100 ft. to Market-street, the public entrance being at the corner, and the accommodation to be provided will include a sorting office measuring 50 ft. by 47 ft., and an instrument room 28 ft. by 20 ft. The public side of the counter measures 37 ft. by 11 ft.

PROPOSED TEMPERANCE HOTEL, DUNDEE.—Plans have been prepared by Mr. R. Hunter, architect, of a new temperance hotel for Dundee. The building will be five stories in height, with attic. The frontage to Whitehall-crescent, South Union-street, and Dock-street, is about 300 ft. The main entrance, situated immediately opposite the West Station, terminates in a tower, bow windows being carried up as high as the third story.

THE NATIONAL GALLERY OF BRITISH ART.—It is stated that Mr. Tate has given instructions to the builders (Messrs. Higgs & Hill) to at once proceed with the work of completing the Gallery of British Art according to the original design of the architect (Mr. R. J. Sidney Smith). This work, which will take about eighteen months to complete, will more than double the size of the existing building, giving much more space for picture hanging, and in addition to which two large rooms will be devoted to sculpture.

DRAPERY PREMISES, STRATFORD.—New premises have been erected in the Broadway, Stratford, E., for Mr. George H. Leavey, of Chatham, Maidstone, Woolwich, and Bromley. The architect of these was Mr. George E. Bond, Rochester.

BRISTOL DISPENSARY, BEDMINSTER BRANCH.—This new building is situated in Malago-road, Mill-lane, and is of brick with Bath stone dressings. The ground floor is wholly occupied with the necessary rooms for the dispensing work, and above are rooms in which the dispenser will live. The work was executed by Mr. George Humphreys, according to plans by Mr. W. V. Gough.

SANITARY AND ENGINEERING NEWS.

WATER SCHEME, EVESHAM VILLAGES, WORCESTERSHIRE.—On the 25th ult. water-supply works for parishes in the Evesham and Pebworth districts were opened. The scheme provides for a constant supply at high pressure to the villages of Bretforton, Church Honeybourne, Cleeve Prior, North and Middle Littleton, Sedgewerrow, and South Littleton, in the Evesham Rural District in Worcestershire, and in Somerville, Cow Honeybourne, Hinton, Pebworth, and Broad Marston, in the Pebworth Rural District in the county of Gloucester; and provision is made to augment the existing supply to Broadway to the extent of a maximum quantity of 10,000 gallons per day when required. The population to be supplied is 3,143. The number of houses 726, the area 15.143 acres, and the rateable value 22,355. The springs are collected by means of headings driven into the hill, at depths varying from 6 ft. to 26 ft., and the water is conveyed by stoneware collecting-pipes to two collecting chambers. From these the water is conveyed by means of a 4 in. iron pipe to the principal service reservoir at Broadway, which is constructed of concrete, and is 30 ft. by 30 ft., having a depth of 9 ft. of water, and contains 50,000 gallons. There are two other reservoirs, one at Pebworth and one at Littleton. Both of these

are at the extreme ends of the works, and are provided for the purpose of acting as compensating reservoirs, and ensuring an adequate supply to more distant villages. The distance from Broadway reservoir to Pebworth reservoir along the main is ten miles, and to Littleton reservoir eight miles. The Pebworth reservoir has a capacity of 20,000 gallons, and the Littleton reservoir of 15,000 gallons. The works have been carried out by Mr. Thomas Vale, of Stourport, whose contract was for 6,100. The iron pipes were supplied by Messrs. J. & S. Roberts of West Bromwich, whose contract amounted to 6,662. The valves and fittings were supplied by Messrs. Blakeborough & Co., of Brighouse, Yorkshire. The resident engineer (Mr. Henry C. Adams) has superintended the works throughout. The engineer of the scheme was Mr. J. E. Willcox, of Birmingham.

SANITATION IN SILESIA.—The Prince of Pless has commissioned Mr. Albert Wolheim, of London, to take in hand a scheme for the sewerage of his large estates in Silesia.

GLASGOW MAIN DRAINAGE.—Mr. John Whyte (Master of Works), Mr. A. B. Macdonald (City Engineer), and Mr. W. C. Grim (Consulting Engineer) have presented a memorandum regarding the suggested scheme for disposing of the sewage of the municipal area on the south bank of the river.

BRIGHTON WATER SUPPLY.—The Brighton Town Council resolved, on the 2nd inst., to buy up the Aldingbourne, and M. W. C. Grim (Consulting Engineer) has presented a memorandum regarding the suggested scheme for disposing of the sewage of the municipal area on the south bank of the river.

ROSCEA WATERWORKS, IRELAND.—These works have just been completed. The supply is drawn from St. John's Well, County Wick, and is conveyed by Messrs. Ryan & Hickson, Dublin, and the contractor Mr. Maher, J. P., Roscrea.

MIDLAND RAILWAY EXTENSIONS: BRADFORD.—A recent issue of the *Leeds Mercury* contains some details of the proposed extensions of the Midland Railway in Yorkshire. In regard to Bradford, a line will enter the city at a point on the north side of the new Fever Hospital at Bierley, and the whole of the distance, some two miles or so, will be tunnelling. Once inside the city boundary, the new line will proceed in the direction of Rooley-lane, and at that point will be no less than 299 ft. below the level of the ground. Thence it proceeds under Bowling Park at about the same depth, under Park Drive and the houses near Ripley's Dyeworks, striking the thickly populated parts of the city after going beneath the Ripley siding. The line will take the direction of Sloane-street, Ellen-street, under the Great Northern Railway from Leeds to Low Moor, and the same Company's line from Leeds to Bradford. Meanwhile, the depth from the surface will gradually diminish, until, at Ellen-street, it will be 70 ft., and under the Leeds and Bradford line 17 ft. The tunnel will run parallel to Rolling-street for a considerable way, beginning to divert only when Broom-street has been reached. It will then pass under Wakefield-road, Dryden-street, Frederick-street, and George-street, leaving the latter street at the corner of Ebenezer-street, and coming out at the junction of Leeds-road and Vicar-lane. So far the tunnel will be at such a depth, varying from 103 ft. to 60 ft., as not to render it necessary to interfere with the buildings on the top; but from the corner of Vicar-lane to the present Midland station in Fogg's, the tunnel will be according to the plans, be precariously near the surface. The line is shown to take the direction of Bentley-street, under the old police-station in Colliergate, Swaine-street, and as entering Forster-square. Now, from Vicar-lane to Forster-square the buildings are huge warehouses of from six to eight stories high, and as the depth of the tunnel from the surface is shown at only 19 ft. at the corner of Vicar-lane, 17 ft. 10 in. in Bentley-street, 15 ft. in Hall Ings, 13 ft. 1 in. in Brown-street, 12 ft. 7 in. in Ship-alley, and 13 ft. in Forster-square, it does seem necessary, although there is no official information on the point, to incur great expense in the purchasing of valuable warehouse property, which will have to come down. The plans show that Forster-square is to be raised to the extent of 3 ft. 6 in., but that is a matter on which the Corporation and the Company's engineers are not yet agreed, but concerning which there will be no difficulty eventually. Swaine-street, at the point under which the tunnel passes, is to be raised 4 ft. 6 in.; Brown-street is to be stopped, and so is Ship-alley. The *Argus* offices will have to come down, and just about there a junction in the new line will be made, the passenger one keeping to the left of Oastler's Monument, and entering the present station, whilst the goods line will take to the right of the Monument and enter the present station. It will be necessary to move the Monument and find it a new abiding place, either in the centre of the city, or in one of the public parks. The Bradford Beck, which runs through Forster-square, was regarded as one of the great difficulties of the engineers, but that has been got over by diverting its course. It will be taken just before crossing the route of the proposed line in Forster-square, and passed in the direction of the station under the permanent way between Platforms 4 and 5, until it has reached beyond School-street. Then it is taken almost at right angles under

the Company's property to Leeming-street, and will resume its present course at a point near to the Mill-lane Gasworks. The line within Bradford itself is just over two miles in length, and the book of reference contains the names of the owners of no less than 455 lots of property to be consulted, provided powers be obtained.

PROPOSED NEW PIER AT ROCK FERRY.—Mr. Charles Brownridge, Borough Engineer, Birkenhead, has submitted the following report to the Ferry Committee of the Corporation in regard to the new pier, bridge, and stage proposed to be erected at Rock Ferry:—The proposed pier is to be constructed on the northerly side of the existing stone slip, immediately adjoining it at the shore end, and being about 26 ft. 6 in. from it at the outer or river end. The pier for a length of about 27 ft. at the shore end is proposed to be constructed solid of masonry and concrete, and then continued in iron supported on cast columns for a distance of 791 ft. 6 in. from the river wall. It is provided with a shelter 16 ft. long in the middle, and a further shelter at the end or bridge-head 16 ft. long. The floor is of redwood 52 5 ft. above ordnance datum, and two river face moorings, each 50 ft. centre to centre the pier into two widths. The bridge is 160 ft. long and 16 ft. 6 in. wide. It is hinged to the pier at its upper end, and at the lower end rests directly on the stage, and has an elm floor. The stage is 150 ft. long and 32 ft. wide, carried on ten floating pontoons, of which the two end ones are made V shaped to act as cutwaters, and the four centre ones are lengthened under the bridge so as to give additional buoyancy and steadiness. It is proposed to moor the stage in such a position that at low water the outer face will not be less than 50 ft. from the end of the old slip, by two breast moorings, each 40 fathoms, two end moorings, each 70 fathoms, and two river face moorings, each 50 fathoms long. The estimated cost of the works is 15,000, and that included in the Parliamentary estimate, viz., 15,000.

ELECTRIC LIGHTING NEWS.

ST. HELENS.—The St. Helens Parliamentary Committee have resolved that the powers for the construction of tramways to be applied for, be amended as follows:—The proposed tramway to Whiston to be extended to Rainhill; the tramway to Sutton to be extended to St. Helens Junction; the terminus of the proposed tramway at Parr to be the junction of Newton-road with Derbyshire Hill-road; the terminus of the proposed tramway at Haydock, to be the junction of Church-road with Kenyon's-lane; the terminus of the proposed tramway to City Windle, to be the junction of Hard-lane with Moss Bank-road; that application be made for power to lay tramways to the depot at Boundaries-road, and to the depot at Parr. At a meeting of the Tramways Sub-Committee, Dr. Hopkinson submitted a report as to the introduction of electric traction. It was resolved that for the purpose of the generating-station the Boundary-road site be adopted, and the generating plant erected there, the steam to be supplied from the refuse destructor, also proposed to be erected on the said site; that on this assumption Dr. Hopkinson be requested to prepare a specification for the erection of the station, and for the system of overhead conductors. The Local Government Board have sanctioned the borrowing by the Corporation of 16,500, for electric light extension in the borough.

LLANDUDNO.—Mr. F. H. Tulloch, M.Inst.C.E., recently held an inquiry at Llandudno, on behalf of the Local Government Board, into an application by the Llandudno Urban District Council for powers to borrow a sum of 25,000, for the erection of electric lighting works and the provision of a refuse destructor. Mr. A. H. Preece, the engineer, explained the details of the electric lighting works, which it was intended to erect near the present gasworks. There would be two engines and dynamos, of 250 horse-power each, and also a large reserve battery, sufficient to supply the requirements of the town in case of any failure in the ordinary plant. The system to be adopted in the town was the three-wire system, and the scheme had been approved of by the Board of Trade. Mr. Preece also explained the manner in which feeders might be provided. It was proposed to place thirty arc lights on the promenade, extending as far as Penryn Crossing, and twenty other are lights in Mostyn-street and the streets crossing the promenade, making fifty in all, each of 1,200 candle-power. The electric lighting portion of the scheme would cost 15,300, and 1,000, had been allowed for contingencies. Mr. Stephenson, the Council's engineer, explained the plans of the destructor, which would consume about fifteen tons of refuse in twenty-four hours, the present average being about thirty tons per day. The estimate for the erection of this portion of the works was 8,591.

FOREIGN.

FRANCE.—The President has just officially opened the new Hôpital Boncauch, which occupies a site 30,000 square metres between the Rue de la Convention, Rue Lournal, Rue Cevennes, and Rue Lacordaire. The hospital consists of eight pavilions constructed in brick and iron, and planned and built

on the most approved sanitary principles. It stands in the midst of a large garden. The total cost has been 3,700,000 francs. The President took the occasion to confer the cross of the Legion of Honour on the architect, M. Legros.—It is proposed to demolish the old buildings of the Hôtel Dieu which are still in existence, and to replace them by modern buildings. The scheme is to comprise also (and we hear it with some alarm) the "restoration" of the church of St. Julien le Pauvre. A fine retable in gilt copper and enamel has been added to the collection at the Cluny Museum, with a design representing the scene of the Feast of Pentecost. It had been preserved for a long time in the sacristy of the Abbey of St. Denis, and appears to be a specimen of German art of the twelfth century.—An interesting exhibition of etchings by Wiltner is open at the Goupil gallery in the Boulevard des Capucines.—It is proposed to rebuild the Mairie of the eighth arrondissement in the Rue Faubourg St. Honoré.—The Municipal Council of Paris has decided to form a new square on Montmartre, on the ground below the front of the Church of the Sacré Cœur, at an estimated cost of 800,000 francs.—The "Association Provinciale des Architectes Français" has founded an annual competition for a gold medal and a travelling studentship. The first programme, for 1898, is "A notary's house in an important rural district."—The Cathedral of Laon is being opened out by the removal of various mean buildings which have grown up around it during the last century.—Some curious frescoes have been discovered in the church of St. Clement near Lunéville, on the walls and the vaulting, and hitherto hidden under a coating of plaster. They date from the fifteenth century, and are attributed to the Strasburg painters employed by René II. of Lorraine. They represent the Nativity, the martyrdom of St. Sebastian, the Crucifixion, and various legendary subjects.—It is proposed to construct on the shores of the lake of Thau (Hérault) a great foundry establishment of the same kind as that of Creusot, which will be one of the most important in France, and project. As some of the property to be taken is inhabited by the working-classes, provision will have to be made for reinstating the dispossessed tenants. In two years (1895 to 1897) the cattle traffic has increased from 48,577 to 209,426 cattle, besides large numbers of sheep.

GERMANY.—There is a considerable demand in South Germany at present for cheap photographs of the principal national collections, and Messrs. Bruckmann have commenced publishing a series dealing with the Munich galleries, which are considerably superior to the cheap photographs so often met with.—The Oranien Bridge at Berlin is to be rebuilt. This is one of the last bridges that will have to be reconstructed under the great scheme of canal and river regulations which has been undertaken at Berlin.—Professor Hermann Prell has just received a commission from the Emperor to paint some large frescoes at the new German Embassy in Rome.—Considerable street improvements are again proposed at Berlin, with regard to which Baurath Kyllmann seems to be the prime mover.—The Grunewald, near Berlin, which used to have a considerable reputation for the excellent paths reserved for horsemen, is now to be provided with paths for cycles; these will be about 9 ft. wide, will have a total length of 45 kilometres, and will run in all directions through the wood.—We hear of a considerable number of minor competitions being held in Germany, including one for a town-hall at Stolp, a gymnasium at Hanau, and the development of an estate at Cassel.—At Munich there is to be next year a machinery exhibition of considerable importance, and particular attention is to be given to the question of protecting machinery in such a manner as to prevent accidents to the attendants.—The *Centralblatt der Bauverwaltung* of the 27th ult. published an extensive obituary notice of Wilhelm von Riehl, the late Director of the National Museums of Bavaria, who died in his seventy-fifth year. His work was of considerable importance in the development of the great national collections in Bavaria.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The practice of the late Mr. W. S. Cross will be carried on at the same address, 18, Outer Temple, Strand, by his son, Mr. W. T. A. Cross, in partnership with Mr. A. A. Kekwick (who was associated with the late Mr. Cross for twenty years), under the style of W. S. Cross & Kekwick.

AN AUTOMATIC FIRE ALARM.—At Charing Cross Hotel on Monday a demonstration was given of Pearson's Patent Automatic Fire Alarm, the object of which is to give immediate indication of an outbreak of fire in any building in which the instrument is placed. The invention, which is fitted throughout Charing Cross Hotel, consists of a thermometer of the sixes pattern with a special fluid and a mercurial column. Two platinum wires are fused through the glass on the rising side of the column at any desired temperature, both being out of contact with the mercury except at danger. The expanding bulb and the contact or heat tube are

filled above the mercury with a heavy hydro-carbon. When a fire occurs, the mercury is pushed by the expansion of the fluid in the bulb end on to the platinum contact, thus closing the circuit, and causing an alarm to sound wherever the connexion is made. The thermometer is placed in ceilings of rooms, offices, or warehouses, and connexion is made with the district manager's offices nearest the fire stations, and at West Ham and other districts outside the Metropolitan area the alarm is connected with the fire station. In this way the premises affected are known as soon as the heat is sufficient to make the thermometer rise to danger point. The invention, which was satisfactorily tested on Monday, has, it is claimed, received the approval of some of the fire insurance companies, and has been adopted by the War Office for use at the Royal Arsenal, Woolwich, the Army and Navy Stores, and at other establishments. The invention appears to be a useful one, and in view of constant outbreaks of fire and the consequent great loss of property, it is to be hoped that it will be extensively adopted.

THE FOREIGN CATTLE MARKET, DEPTFORD.—At the meeting last week of the Court of Common Council, a report of the Cattle Markets Committee was adopted for making extensive additions to the Deptford Market. The estimated cost of the scheme, for which Sir J. Wolfe Barry is retained as engineer, amounts to about 80,000l. The Corporation propose to acquire some house property at Grove-street-gate, in Grove-street, Barnes-terrace, Watergate-street, and Prince-street, and to lay down lines of railway and a tramway, to be worked by either animal, electrical (overhead or otherwise), gas, or cable power.

The railways will communicate with London, Brighton, and South Coast, and to Deptford Wharf, and it is intended that the Admiralty shall be authorised, by statute, to construct junctions therewith for the service of the Victualling Yard. The Corporation seek powers to apply the market revenue, and to borrow money on the security of the market, for carrying out their project. As some of the property to be taken is inhabited by the working-classes, provision will have to be made for reinstating the dispossessed tenants. In two years (1895 to 1897) the cattle traffic has increased from 48,577 to 209,426 cattle, besides large numbers of sheep.

NEW ELECTRICAL APPLIANCES.—We have received a description of the "new foliated rolled metal dynamo brushes," manufactured by the Dynamo Brush Company, Finsbury-pavement, E.C. These brushes are made of strips of metal of the thickness of tissue paper, and, being very soft and pliable, produce very little wear on the commutator. They are not made of pure copper, but of an alloy called anti-friction metal; as they weigh, however, 60 per cent. more than ordinary gauze brushes their conductivity is greater. Another advantage is that their life is three or four times as long as that of ordinary brushes. They are expensive to buy initially, but as they produce very little wear and tear of the commutator, and seldom require replacing, they are more economical than cheaper ones. We have also received from the same Company a sample of "Talcine," which is described as a new lubricant for commutators. Although in general we do not approve of lubricating the commutator at all, yet when it is used it is a great deal better than the old method of putting a little lubricant on it to prevent it from being cut by the brushes. "Talcine" seems very suitable for this purpose. Inexperienced dynamo attendants and amateurs are apt to put too much oil on the commutator or to use unsuitable oils, which carbonise and cause short circuiting with violent sparking and other troubles. If "Talcine" is used, all that it is necessary to do is to rub a stick of it very lightly a few times across the commutator. By doing this, and at the same time cleaning it thoroughly from dirt, grit, and oil, it will soon assume the dark burnished appearance so appreciated by engineers, and which is a sure indication of careful running.

THE CANON HOARE MEMORIAL, TUNBRIDGE WELLS.—The Canon Hoare Memorial has just been opened at Tunbridge Wells by the Archbishop of Maidstone. The memorial, which rests on a granite plinth, consists of a base of dark Pennant stone, from which rises a Gothic structure, built of local sandstone from the Speldhurst Quarry. The lower stages are square, with buttresses at the angles, and on the front is an enriched panel containing a medallion portrait of Canon Hoare sculptured in grey marble. This medallion has been executed by Mr. Bridgeman, of Lichfield. Below this is a marble tablet within a carved border bearing an inscription. This part of the design is finished with a cornice and enriched parapet, below which runs a band of tracery. Above [the parapet] is an octagonal stage with paneled faces surrounded by gables ornamented and crocheted. The four angles are emphasised by pedestals carrying figures of the Evangelists and connected with the octagonal part by flying buttresses. The whole is crowned by a spire. The total height of the memorial is about 40 ft. Mr. Oldrid Scott, F.S.A., was the architect, and the work has been carried out by Messrs. Strange & Sons, the carving being by Mr. Tuttle, of Lincoln.

NEW PARK FOR SCARBOROUGH.—Mr. W. O. E. Meade King, an inspector of the Local Government

Board, held an inquiry at Scarborough on the 30th ult. in connexion with the application of the Scarborough Corporation for sanction to borrow 620l. to defray the cost of certain work at Falsgrave Park, at the west end of the town, and the erection of a shelter in Victoria-road at its junction with West-borough. The Borough Engineer (Mr. H. W. Smith) gave evidence in support of the application.

SALE OF A BIRMINGHAM CHURCH.—A meeting of the trustees under the Birmingham Churches Act was held at Birmingham on the 1st inst. to consider offers for the site and building of Christchurch, which occupied a prominent position at the corner of New-street and Colmore-row. The edifice, which was built under an Act of Parliament, is one which was regarded as no longer required, and the funds derivable from the sale are applicable to the erection of a church or churches elsewhere. The building was sold to the trustees of the Colmore Estate, who own a great deal of adjoining property, for 65,000l.

BOLTON MASTER BUILDERS' ASSOCIATION.—The eighteenth annual meeting of the members of the Bolton Master Builders' Association was held at the offices, 11, Chancery-lane, on the 23rd ult., under the presidency of Mr. J. H. Marsden. The report and balance-sheet were adopted unanimously. The following is a summary of the report read by Mr. F. W. Briscoe:—In submitting their eighteenth annual report your Committee have pleasure in recording the fact that during the past year there have been no serious points of contention between the employers and operatives in any branch of the trade. The trade has been pretty well employed, and labour has been plentiful, but the plasterers have found occasionally a scarcity of good men. The report deals in detail with the various disputes, and goes on to say that the bricklayers signed new rules on 1st May, a prominent feature being that wages went up to 10d. per hour. The plasterers also signed new rules on November 1. Their wages were increased from 8½d. to 9d. per hour, the original demand being a penny per hour. Mill sawyers receiving under 8½d. per hour were granted an increase of 1s. 6d. per week. Corporation trading in competition with tradesmen still continued, and it was now considered a favourable time to urge the Corporation to cease the competition, both as regards gas, electricity, and water fittings, and repairs. The Corporation had not only competed with tradesmen, but they secured the sole agency for certain goods, and forced tradesmen in the district to purchase from them. This was neither just nor equitable. It was a striking fact that the building trade furnished the largest number of labour disputes of any trade in the country. This was attributable to the frequent revising of the rules. In 197 disputes there were 370,022 hours lost by cessation of work, carpenters and joiners heading the list and bricklayers and masons following.—A vote of thanks having been passed to the President, officers, and Committee for their services during the past year, Mr. Marsden was elected to the Presidential chair, and Mr. Councillor Atham was re-appointed Vice-President, and Mr. Maginnis Treasurer. The Committee was then appointed as follows, viz.:—Carpenters and Joiners' Branch: Messrs. A. Atherton, W. Cunliffe, R. W. Kenyon, and W. Townson; Bricklayers' Branch: Messrs. Bradbury, Gornall, Scowcroft, and Talbot; Plumbers' Branch: Messrs. Cuerden, Jones, Lee, and Fause; Slate-layers' Branch: Messrs. Councillor Atham, H. G. Smith, and W. P. Platts; Plasterers' Branch: Messrs. Critchley, Stewart, and Warburton; Masons' Branch: Messrs. Bocock, Dickinson, Glover, and Smith. The question as to the sawn stone rule of the masons was discussed, and referred to that branch. A vote of thanks was accorded to Mr. Marsden for his services as a member of the Executive of the National Association of Master Builders. In thanking the meeting, he desired to be allowed to retire from that Board, and asked that another representative should be nominated in his place. It was resolved that Mr. William Cunliffe, the ex-President of the Association, be nominated to the National Association to represent Bolton on the Executive Committee. It was resolved that the annual dinner be held on December 9 or 10.

CITY ENGINEER, LIVERPOOL.—At the last meeting of the Liverpool City Council, Sir A. B. Forwood, in reference to the appointment of a City Engineer to succeed Mr. Boulnois, said on November 18 the Health Committee resolved that a City Engineer be advertised for, and a special Committee was appointed to deal with the matter. If the general proceedings of the Health Committee had been concerned without question, that resolution would have become binding on the Council, and without knowledge they would have fixed a salary and determined the procedure to be taken as regarded the appointment of a new City Engineer. The special Committee met, and adjourned until after the Council meeting. He thought that very properly the duties of the Engineer had been modified by the Committee by the removal of the duties of watching building plans, thus enabling him to deal with large questions, such as the development of roads in different parts of the borough. Hitherto the City Engineer had been looked upon as accountable to the Health Committee alone, and in the second place to the Council. In his opinion, a City Engineer ought to be clearly an officer of the City Council and not the servant of any committee. Then again, in the immediate future the Engineer would have to

deal with the new electrical tramway system. It was his view that the proper course was to appoint a committee to consider the question, and he begged to move "That so much of the proceedings of the Health Committee as relate to the appointment of the City Engineer be not approved, and that a special committee be appointed, consisting of Messrs. T. Hughes, Garnett, Banner, Bowring, Paul, Oulton, and Sir Arthur Forwood, to consider and report their recommendations as to such appointment and the duties of the office to the Council, and that the maximum salary be 1,500l. per annum." Captain Denton seconded the motion, which was defeated by 18 to 7. Mr. Edward proposed a further amendment—"That the resolution of the Health Committee of November 18, 1897, as to advertising for a new City Engineer, be amended by substituting 1,200l. for 1,000l." Mr. Petrie seconded. The amendment was then put, and defeated by 30 votes to 20.

LIVERPOOL CITY COUNCIL AND CONTRACTORS.—At the last meeting of the Liverpool City Council, Mr. Harmond Banner moved the reinstating of the standing orders numbered 90, 91, and 92, as follows:—"Any committee interested in contracts may from time to time add to the list of Corporation contractors the name of any person or firm applying to be placed on the list of Corporation contractors, and such person or firm shall be required to sign an undertaking in the following form, to be supplied by the Town Clerk:—And () hereby undertake, in carrying out any contract between () and the Corporation, to pay the rate of wages and observe the hours of work recognised and agreed upon by the trades-unions and the employers respectively, in the locality in which the work for carrying out the contract is to be performed, or such rate of wages and hours as are equivalent thereto, and that () will not transfer, assign, or underlet, directly or indirectly, the contract or any part, share, or interest therein, without the sanction of the Town Clerk, and that () agree to a condition being inserted in the contract to carry out this undertaking." In all contracts entered into with any person or firm on the list of Corporation contractors, other than contracts for the supply of unmanufactured or patent articles, structural or natural products, a covenant or condition to the same effect as the foregoing undertaking shall be inserted. In case any contractor shall, in the opinion of the committee having control of his contract, fail to comply with the covenant in his contract with regard to sub-letting, wages, and hours of labour, the committee may direct the name of such contractor to be struck off the list of Corporation contractors, and his name shall not be again added to the list except by order of such committee." Mr. Banner thought that the rejection of this resolution left the Council in a position of having no standing orders which applied to fair wages, and he was confident that the spirit which existed in 1861, and which, if he was right, was really intensified now, required that something should be adopted so as to insist that those who dealt with the Corporation should treat their employees in the most fair and liberal spirit. What he pressed for was the insertion of the words "or such rate of wages and hours as are equivalent thereto." Unless this clause were inserted, they would be placing themselves entirely in the hands of the trades-unions in reference to any work given out by the Corporation. He should be the last to reject the claims of the trades-unions, but he did not consider that he was justified in asking the Council entirely to place themselves in their hands. Did they believe that if this clause were adopted, by striking out the words "or equivalent thereto," the trades-unions would not push on and insist that the same clause should be adopted as regarded all special work for the Council? Fair wages must be considered as of the first necessity in contracts made with the Corporation, but apart from these there were many firms who did not employ exclusively trades-unions, but who at the same time paid fair wages. Alderman Radcliffe seconded the motion. Mr. J. R. Grant moved, as an amendment, the omission of the words "or such rate of wages and hours as are equivalent thereto." The clause referred to had been termed the "fair-wage" clause, but these words were not what was intended, and it was anything but fair in its actual application. Mr. Rutherford seconded the amendment, which was defeated by 54 to 34. Ultimately the original motion was adopted.

REBREDOS, ST. JOHN'S CHURCH, WATERLOO-ROAD, LONDON.—The Bishop of Southwark recently dedicated St. John's, Waterloo, an oak-roofed church, which has been erected by the parishioners as a memorial of the Diamond Jubilee. The rebredos is of carved oak, and the work has been carried out from designs by Mr. G. H. Fellowes-Pryne. It is divided into three portions. The centre one contains three panels, is surmounted by a circular pediment and carved tympanum, supported on two columns. The rear has been raised on three marble steps, and the whole of the sacralium has been tiled with black and white marble. The walls have been panelled with oak, and a sedilia has been erected.

MURAL DECORATION, ROYAL EXCHANGE.—The fourth of the eight works which have been promised by different donors for the mural decoration of the

Royal Exchange has advanced a further stage. The subject for the latest panel is an historical episode—"William the Conqueror granting a charter to the citizens of London"—by Mr. Seymour Lucas, A.R.A. It is the gift of the Mercers' Company, and the canvas was successfully stretched on to its frame on Friday last week in the Exchange, preparatory to being placed solidly in its niche in the north-west corner.

SOCIETY OF ANTIQUARIES OF SCOTLAND.—The annual meeting of this Society was held on the 30th ult., in Edinburgh.—Mr. J. Balfour Paul, Lyon King of Arms, in the chair. The following are the officers:—bearers for the ensuing year.—President, the Marquis of Lothian; vice-presidents, J. Balfour Paul, Lyon King of Arms, Major-General Sir R. Murdoch Smith, and the Hon. John Abercromby; secretaries, David Christison, M.D., and Robert Munro, M.D.; foreign secretaries, Sir Arthur Mitchell, K.C.B., M.D., LL.D., and Thomas Graves Law, M.P.; H. Cunningham curators, Robert Carfrae and Professor Duns, D.D.; curators of coins, Adam B. Richardson; librarians, James Curie; councillors, Sir George Reid, P.R.S.A., and John Ritchie Findlay; representing the board of trustees, Charles J. Guthrie, Thomas Ross, Gilbert Goudie, Reginald McLeod, C.B.; Sir Herbert Currie, M.P.; J. H. Thorne Stevenson, and Alexander J. S. Brodie. From the annual report it appeared that the museum had been visited by 22,310 persons during the year, and that the number of objects of antiquity added to the collection had been 135 by donation, and 370 by purchase; while seventy-seven volumes of books have been added to the library, and 122 by purchase, and the binding of 150 volumes has been prosecuted with. Among the more important donations to the museum is the series of articles discovered during the excavation of the Roman Camp at Ardoch, undertaken by the Society last summer, which have been presented by Colonel Home Drummond, of Blair Drummond, the proprietor.

THE ARTS AND CRAFTS OF THE RUSSIAN PEASANTRY.—Under the auspices of the Ruskin Society of Glasgow, Madam Pogosky delivered on the 20th ult., in the Lesser Hall, 100, West Regent-street, a lecture on "The Arts and Industries of the Russian Peasantry." Madam Pogosky, in the course of her lecture, said that if she had to speak of the Russian national art, she would confine her remarks mostly to the peasantry, because these arts and industries had been perfectly ignored by the other classes up to the last twenty years. The peasants not only practised those from time immemorial, but also preserved the old traditions in their songs, legends, rights, customs, and handicrafts. The Russian peasantry lived in communities, a good form which had disappeared everywhere in Europe but Russia, and which influenced their life greatly. Their houses were built in one or two streets, and were not scattered. The home industries as they appear now are much more specialised, and things which were made by peasants only for their own use, or at most for the local markets, were now made by the thousand and by the million, and found their way to large towns, although very often under a foreign name. Those villages had naturally developed some special industry. For instance, in one village every man and boy was a silversmith, and they supplied the whole of Russia with silver—silver-gilt came from the village of Nijni Novgorod, where the jewellers, enamelled spoons, holy images, chains, and rings; another large village on the Volga was engaged in making fishing-nets; and a third was netting webs of the finest kind for flour-mills, &c. In a large village in the province of Kazan all the men had taken to making ornaments of a composition metal of themselves, and they were famous for woodwork of every description. This industry had not altogether degraded, although the low prices necessitated quickness in work.

FIREPROOF BUILDINGS.—Mr. Potter, the manager of the "United Kingdom Terra-cotta Fire and Sound-Proof Brick Company," writes:—"In your issue of the 27th ult. I noticed an article under the above heading, in which reference was made to a paper read by Mr. C. T. Purdie before the American Society of Civil Engineers, in which Mr. Purdie calls attention to a 'porous material made of sawdust and clay,' stating that, in his opinion, this material will resist any combination of heat and water. May I be allowed to call your attention to the fact that this material has been sold on the English market by my company, for several years, and I should be very pleased to submit sample, for testing, to any of your readers on receipt of an application."

THE LANGDON-DAVIES ALTERNATING CURRENT MOTOR.—One of the strongest objections urged against the alternating current system of supply is that it cannot be utilised for power purposes as readily as direct current. The motor invented by Mr. Langdon-Davies and now manufactured by the Davies' Motor Company goes a long way to remove this objection. From careful tests made on a 4 horse-power motor an efficiency of over 70 per cent was obtained for all loads between 1½ and 4½ brake horse-power. This compares very favourably

with the efficiency of a direct current motor of the same power. As the motor is an induction motor it has no commutator or brushes, and so there is absolutely no sparking. The only wearing parts are the bearings which support the armature, or rotor as it is more correctly called in this case, and so the cost of repairs will be a minimum. The motors are nearly twice as expensive as direct current motors, but they are very compact and light and run with very little noise. The latest form of Langdon-Davies motor is an improvement on the ones reported on so favourably by Professor Silvanus Thompson two years ago. If the Supply Company charge 3d. per unit for power, then for a 4 horse-power motor the cost per horse power hour will be 3d. The Davies Motor Company are prepared to let out motors by the month at a moderate rental, and as they are all accurately tested for brake horse-power before they leave the works, manufacturers can calculate exactly what power obtained by their means will cost.

THE SANITARY INSPECTORS' ASSOCIATION.—Subsequently to the recent visit of this Association to Belgium, on which occasion the Association were received by the King of the Belgians at his palace, an elegantly bound copy of the "Special Belgian Number" of the *Sanitary Inspectors' Journal* was sent to the King, and the following autograph letter has been received in acknowledgment of the gift:—"Dear Sir Hugh,—You have been good enough to send me the special number of the journal of the Sanitary Inspectors' Association containing a record of their recent visit to Belgium. I thank you, and ask you to convey to the members of the council of that Association my sincere thanks for the attention they have shown in sending me, through your kind interposition, their interesting report.—Believe me, dear Sir Hugh, with my best regards,—LEOPOLD."

CARPENTERS' COMPANY'S EXAMINATIONS.—The annual examination in Building and Sanitary Construction held by the Carpenters' Company took place at their hall on December 2 and 4. Among the examiners present were Professors G. B. Davies, Fletcher and T. Roger Smith, Mr. Henry Robinson, Dr. A. Wynter Blyth, Mr. Hampden W. Pratt (President of the Architectural Association), and Mr. W. Shepherd (President of the Institute of Builders). The number of candidates who entered was larger than in the previous year. The names of the successful candidates, arranged in order of merit, are as follows:—Silver medals: Messrs. S. A. Swin and H. F. Bridel. Bronze medals: Messrs. H. C. Grubb, F. Hartnoll, Jno. Sanderson, and Jno. Farham. Certificates: Messrs. H. S. Higlett, E. J. Simmons, A. Thomas, H. Herbert, and H. T. Hunt. Passed: Messrs. F. Dawkins, Geo. Ellis, J. Landen, E. W. Turner, W. W. Wilson, Jas. Nighy, H. Boddy, H. Ellis, and A. S. Henley. Mr. Alfred Cart obtained marks entitling him to a silver medal, which, as he already holds it, cannot be awarded to him again.

PETRIFFE, LIMITED.—A company has been formed with a capital of 300,000l., divided into 300,000 shares of 1l. each, to acquire the patents for Petrifite Cement; the leasehold magnesite quarries, about 5,000 acres in extent, in the Island of Euboea, Greece; and plant, machinery, &c., at Blackwell; and also to carry on and grant licences for the manufacture and sale of Petrifite and its products, and to sell raw and calcined magnesite in all countries. As most of our readers are aware, Petrifite is a white cement composed chiefly of magnesite, which, when mixed with water, will solidify or bind together almost any kind of waste material, such as slate dust, sea sand, road sweepings, sawdust, common earth, &c. From these and other materials, building blocks, paving slabs, imitation woods, &c., can be formed, and the material will be supplied at from 30s. per ton upwards; 35 bushels going to the ton against 20 bushels of Portland cement. The results of the tests by Messrs. D. Kirkaldy & Son were printed in our issue for November 13, as well as other information about the material. Under the purchase agreement the vendors undertake to transfer to the company the lease of other magnesite quarries at Afrati, in the same locality, over 1,000 acres in extent, held for an unexpired term of upwards of seventeen years, or, if they are unable to do so, 10,000l. in shares will be deducted from the purchase price. It is estimated that the average annual sale of Petrifite will average 100,000 tons, and an average gross profit of 20s. per ton is expected. A yearly sale of 30,000 tons of magnesite is anticipated, yielding a net profit of 15,000l. per annum. The purchase price has been fixed by the vendors, who are the promoters of the company, at the sum of 200,000l., payable as to 80,000l. in fully paid-up shares, as to 35,000l. in cash, and as to the balance of 85,000l. either in cash or fully paid shares, or partly in both, at the option of the directors.

CAPITAL AND LABOUR.

ABERDEEN JOINERS.—A dispute has occurred in the joiners' trade in Aberdeen. The local union (Associated Carpenters and Joiners) last month demanded from and after February next, an eight hours day, an increase of standard rate of wages from 8d. to 9d. per hour, and a rise in the allowances for demolishing houses and for country work. The employers declined to confer unless the request as to hours and wages be first withdrawn. The men

have refused to agree to this, holding that the by-laws mutually agreed on provide that a conference must take up all points advanced timeously. It is feared the dispute will result either in a strike or a lock-out.

LEGAL.

LIGHT AND AIR CASES.

IN the Chancery Division on the 3rd inst., Mr. Justice Romer heard the case of *Cartier v. Spenser, Turner, and Boldero*.

Mr. Alexander, Q.C., said this was a motion for an injunction to restrain the defendants, who are large drapers in the City, from building so as to infringe the plaintiff's ancient lights. He was, however, glad to say that the parties had come to an arrangement, and the solicitors had signed terms. He proposed, therefore, to take an order staying all further proceedings upon those terms, with liberty to apply to enforce those terms if necessary.

Mr. Justice Romer: I suppose the terms are such that I can make an order?

Mr. Alexander: Oh, yes, my lord. The defendants pay the plaintiff 100*l.* damages and costs as between solicitor and client.

Order accordingly.

IN the same Court the case of *Crane v. The Nottingham and County Constitutional Club, Limited*, came on for hearing, it being a motion by the plaintiff for an injunction to restrain the defendants from interfering with the plaintiff's light and air.

Mr. Neville, Q.C., for the plaintiff, said his client was *non compos mentis*, and was suing by his next friend. The learned counsel then handed up a model to his Lordship and pointed out how the plaintiff's windows had been affected by what the defendants had done, and how the light and air originally were enjoyed by the plaintiff, and the height to which the defendants had built.

Mr. Micklem, for the defendants, said that before this action was begun he gave an undertaking in the terms of the notice of motion.

Mr. Neville: I am now asking for a mandatory injunction.

His Lordship: Can you try the case on affidavit evidence? The sole question is whether there shall be simply damages or a mandatory injunction.

Mr. Micklem: That is so, my lord. But something turns upon conversations some time before the issue of the writ, and upon the affidavits as they stand there is a difference between us.

Mr. Justice Romer: I do not intend to try this case twice, and I will try it speedily. What do you say to this: affidavit evidence and cross-examination of any witnesses if desired—and I will try it on Tuesday week?

Both the counsel agreed that would be the most convenient course, and accordingly the motion stood for trial on Tuesday week, each party to give notice which witnesses they wanted to cross-examine and those witnesses to attend in Court, the whole question of costs to be dealt with at the trial.

JUBILEE STANDS.

A CASE under the London Building Act, in connexion with the inspection of stands to view the Jubilee Procession, was decided by Mr. Fenwick at Southwark Police-court on the 30th ult. Messrs. Patrick & Son, builders, of Westminster Bridge-road, were summoned by Mr. Bernard Dicksee, District Surveyor, for the non-payment of 23*l.* 12*s.* 6*d.*, his fees for inspecting a number of stands erected by the defendants within the premises of Messrs. Day & Martin, Limited, Borough-road.

At previous hearings evidence was given that the stands in question were inspected on the complainant's behalf by a young man named Brown, who was not a qualified surveyor, and it was contended that Mr. Dicksee ought to have personally inspected them.

Mr. Washington appeared for the complainant; and for the defendants Mr. George Elliott and Mr. Gordon Davies were instructed by Messrs. Edwin & Son.

The magistrate in giving judgment, said the work of surveying and inspecting was obviously work of a personal character, involving the exercise of professional skill, judgment, and experience, and in his opinion, such work could only be performed by the District Surveyor himself, an assistant surveyor, or by his deputy duly appointed under Section 142. To hold the contrary would have the result that in no case need the surveyor personally visit the premises. He could sit in his office, and sanction or disapprove, upon reports brought to him by his clerk, or series of clerks, and he (the magistrate) was confident that that was not the intention of the statute. Therefore, he non-suited the complainant, but would grant a case if desired. The whole matter arose out of the fact that the district allotted to the complainant was too large for him, and that more assistants were required.—*Morning Advertiser*.

THE LONDON BUILDING ACT.

AT the North London Police-court, on the 30th ult., Mr. d'Eyncourt had before him the case of the

London County Council *v.* Foulkes, which related to proceedings under the London Building Act, 1894. The defendant has been engaged since 1893 in developing an estate of about eight acres, known as The Willows, Clissold Park, Stoke Newington. The estate has a crescent-shaped frontage to Park-lane, a quarter of a mile long, and has been built over with a serpentine road, the ends of which are at the western and eastern ends of the crescent. Thus three closely-packed lines of houses have been placed on the property, and in the serpentine thoroughfare—Carysfort-road—spaces had been left for the formation of a small inner crescent. All this was done before the Act of 1894 came into operation. In November, 1895, the defendant started to build on the smaller crescent, but the County Council refused to give its assent. The case ultimately came before this Court, when the defendant contended that as he had commenced to lay out the land before the passing of the Act he did not need the consent of the Council to proceed with the work as required by the Act of 1894.

Mr. d'Eyncourt found in favour of the defendant, but the County Council took the case to the High Court, and the judges (Justices Wright and Kennedy) then reversed the decision. The matter now came up for Mr. d'Eyncourt to impose penalties, but Mr. Salter, who appeared for the defendant, wished to reopen the case on the ground that the judges had only decided one of the three points which the magistrate submitted for their decision.

Mr. Chivers, for the County Council, said that the whole matter was argued in the High Court, and the judges dealt with all the points in their judgment, although in their order it was only mentioned that they found that the work was wrongfully commenced or recommenced after the Act of 1894 came into operation.

Mr. d'Eyncourt said his view of the order of the High Court was that he was wrong, and that he was directed to reverse the decision altogether. He should therefore impose a penalty of 3*l.*, with 2*s.* 6*d.* costs.

THE COMBINED DRAINAGE QUESTION.

AT the North London Police-court, on the 1st inst., the owners of Nos. 116 to 138, Culford-road, Kingsland, were summoned, before Mr. d'Eyncourt, at the instance of the Hackney Vestry, to show cause why they should not make good the defective drainage of the houses. Mr. Tiddeman prosecuted for the Vestry; Mr. Walter Windsor defended. Mr. Tiddeman said in this case the drainage of twelve houses was affected. The question would be raised, he believed, that this was a combined system of drainage. He should prove, however, that the drainage was laid with the consent of the Vestry, or the Hackney Board of Works, as it then was, and if the magistrate was satisfied that such consent had been given, then the drainage was repairable by the owners, and not by the Local Authorities. The Vestry now asked for orders for the abatement of the nuisance. Mr. James Lovegrove, Surveyor to the Vestry, produced the plan submitted for the drainage of these houses in June, 1857. In cross-examination the witness admitted that he refused to give his sanction to the plan as originally submitted by the builder. The builder proposed that the out-fall should be between No. 116 and a brick wall. The witness required that the outfall should be between No. 130 and 132. The witness now found that the plan had been carried out as originally proposed by the builder and not as approved by the Board of Works. Mr. Windsor, on the other hand, submitted that the consent of the Local Authority had not been given to the system that was laid down; therefore the drain became a public sewer, and as such was repairable by the Vestry. Mr. d'Eyncourt said that the Surveyor's evidence appeared to put the Vestry out of court. Mr. Tiddeman, however, contended that it was the system of drainage which was approved by the Board of Works, and the fact that the builder had not carried out that which the Vestry stipulated should be done could not relieve the present owners from responsibility. Mr. Windsor said it was the duty of the Board of Works to see that the plans as they approved them should be carried out. Mr. d'Eyncourt said that he was inclined to support Mr. Windsor's contention, but he should adjourn the case in order that he might look into the cases on the point. Mr. Windsor: My contention is supported by two cases:—*Crawshaw v. Taylor* and *Harland v. Lazarus*. The latter is quite a recent case.—The summonses were adjourned.

In another case in the same road the same point was raised, it being contended that as the original plan showed the water-closet and sink at the side of the house, whereas in point of fact it was placed at the back, the whole system became a sewer repairable by the Vestry. Mr. d'Eyncourt held, however, that the sanitary arrangements of a single house could not affect the common drain. He therefore made the order asked for by the Vestry, with 2*s.* 6*d.* costs.—*Morning Advertiser*.

ACTION AGAINST THE SHEFFIELD ICE COMPANY.

AT Sheffield County Court, on the 2nd inst., before His Honour Judge Waddy, Q.C., the claim by Patrick

Molloy, contractor, Hawley Croft, against the Sheffield Pure Ice and Cold Storage Company, Limited, to recover the sum of 24*l.* 15*s.*, alleged to be due to him for work done, was further considered. Mr. T. E. Ellison appeared for the plaintiff, and Mr. W. E. Clegg represented the defendant company. The case for the plaintiff was that he entered into a contract to pull down certain old buildings and sink a well on the company's premises in Fond-street. He completed the pulling down of the old buildings, for which the contract specified a price, but he alleged that the sinking of the well was stopped before the work was completed upon the instructions of the company's architect. The defendant company had paid him the sum of 50*l.* on account of work done, but plaintiff subsequently sent in an account for 74*l.* 12*s.*, giving credit for the 50*l.* paid on account, and asking for payment of the balance of 24*l.* 15*s.*, now set forth in his claim. The defendants repudiated this claim on the ground that plaintiff had not completed his contract, and that no such instructions to cease work as plaintiff alleged were given to him by their architect. The defendants further contended that, considering the amount of work done, plaintiff had already been overpaid by the sum of 50*l.* given on account. They would not have paid him this amount had they not expected that he was going to finish the contract. On behalf of plaintiff he himself gave evidence, along with Mr. Edward Holmes, architect, and Mr. John Morton, contractor and well sinker. For the defendant company evidence was given by Mr. H. W. Lockwood, architect; Mr. W. H. Lancashire, architect; and Mr. Henry Bookless, the manager. In the end, His Honour held that the contract had not been completed, and that plaintiff had already been amply paid for the amount of work he had done. Judgment for the defendant company.

FAILURE OF A LIGHT AND AIR ACTION:

IMPORTANT JUDGMENT.

IN the Queen's Bench Division on the 8th inst., Mr. Justice Barnes heard the case of *Colchester v. Brooks*, which was an action by the plaintiff for an injunction to restrain the defendants, Messrs. Brooks, pianoforte manufacturers, from erecting a wall at the back of the plaintiff's premises in Lime-street, Camden Town, thereby causing an alleged obstruction to the access of light and air formerly enjoyed by the plaintiff.

Mr. Crump, Q.C., and Mr. Lewis Thomas appeared for the plaintiff, and Mr. Ruegg, Q.C., and Mr. T. D. Munns for the defendants. Mr. Crump said there was no business carried on at the plaintiff's house. The plaintiff had a lease of the house, which had enjoyed light and air for a great many more years than was necessary under the Act. The house was tenanted by a veterinary surgeon. In the beginning of the year the defendants, whose factory was a little lower down this locality, conceived the notion of extending a wall and they did extend it, despite remonstrances from the plaintiff, the wall being 22 ft. in high, which threw a shadow over plaintiff's windows and obstructed his light and air.

After hearing evidence for the plaintiff, his Lordship intimated that there was no case established; and after hearing Mr. Leonard Vincent Hunt, the defendants' architect, the only witness called for the defence, his Lordship expressed himself perfectly satisfied that plaintiff had no case. His Lordship added that unfortunately we lived in conditions when buildings were erected all around us, and although one could not help sympathising with anybody whose view was blocked by a wall, yet unless the light was materially affected there was no real foundation for an action. In this case it was clear on the plaintiff's own evidence that, although there might be some slight diminution of light, there was nothing which would give foundation for an action. Although he sympathised with the plaintiff, he must give judgment in accordance with the law on the matter. There was case after case on the subject, and all of them were practically in favour of the defendants upon such evidence—namely, that there was no material effect upon the plaintiff's light. Judgment would be for the defendants, with costs.

MEETINGS.

SATURDAY, DECEMBER 11.

South-West Polytechnic Institute (Manresa-road, Chelsea).—Miss Florence M. Gardiner on "The History of British Furniture, from Anglo-Saxon Times to the end of the Eighteenth Century." VI. 3 p.m.

British Institute of Certified Carpenters.—Annual Meeting, Carpenters' Hall. 6 p.m.

SUNDAY, DECEMBER 12.

Sunday Lecture Society.—Mr. C. W. Kimmins, M.A., D.Sc., on "Colour." 4 p.m.

MONDAY, DECEMBER 13.

Royal Institute of British Architects.—(1) Special General Meeting to confirm the Resolution of the Special General Meeting respecting the change to be made in By-law 20. (2) Fourth General Meeting (Ordinary) to read the following paper, namely:—"The Report on the Third Series of Experiments on Brickwork conducted by the Science Standing Committee," by Messrs. William C. Streke and Max Clarke. 8 p.m.

London Institution.—Mr. Charles Harding on "The Weather Office and its Work." Illustrated. 5 p.m.

Leds and Yorkshire Architectural Society.—Mr. S. D. Kitson, M.A., on "Some Byzantine Churches in Greece." 7 p.m.

Bristol Society of Architects.—Mr. G. A. Outley on "A Visit to a Cistercian Monastery." Illustrated. 8 p.m.

Carpenters' Hall, London, W.C.—Distribution of Prizes to Students of the Trades' Training School, &c., by Sir J. Wolfe Barry, K.C.B. 8.30 p.m.

Institution of Civil Engineers.—Mr. B. Stanton, M.A., on "The Great Land Slides on the Canadian Pacific Railway in British Columbia." 8 p.m.

Sheffield Society of Architects and Surveyors.—Mr. F. R. Farrow on "The Warming of Public Buildings." 8 p.m.

WEDNESDAY, DECEMBER 15.

Architectural Association, Discussion Section.—Mr. A. W. Cleaver on "An American Hospital: its Heating and Ventilation."

Liverpool Engineering Society.—Adjourned discussion on (1) "Portland Cement," by Mr. Prosser A. H. Shaw; (2) "Experiments in the Acceleration of the Setting of Portland Cement," by Mr. Frank E. Priest. 8 p.m.

City of London School of Art.—Distribution of Prizes to Students of the Trades' Training School, &c., by Sir J. Wolfe Barry, K.C.B. 8.30 p.m.

Society of Arts.—Dr. Samuel Rideal on "The Purification of Sewage by the Action of the Sun." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Edinburgh Architectural Association.—8 p.m.

St. Paul's Ecclesiastical Society.—Objects of Ecclesiastical interest will be exhibited and described. 7.30 p.m.

THURSDAY, DECEMBER 16.

Society of Antiquaries.—8.30 p.m.

FRIDAY, DECEMBER 17.

Architectural Association.—Mr. L. A. Shuffrey on "House Painting." 7.30 p.m.

Institution of Electrical Engineers.—(Held, by permission of the Chemical Society, at Burlington House, Piccadilly.) Continuation of Mr. L. Epstein's paper on "An Accumulator Traction on Rails and Ordinary Roads." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—By Mr. Archer D. Keigwin on "The Elastic Properties of Steel Wire." (3) Mr. M. L. Brown on "The Elasticity of Portland Cement." 8 p.m.

SATURDAY, DECEMBER 18.

Perth Architectural Association.—Visit to Sandeman Free Library.

London and Provincial Builders' Foremen's Association (Memorial Hall, Farringdon-road, E.C.).—7.30 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

23,888.—**VENTILATING BUILDINGS.** &c.; G. C. Stephen.—This invention essentially consists in the insertion into the sash frame below the window sash of a suitable frame, having wire gauze stretched across its aperture.

24,047.—**SLIDING BOLTS FOR DOORS.** J. Chaplin.—The invention consists in a square (or round) shaft attached to plate by two square staples, back staple having a peg in centre (underneath), which peg fits into a hole in the door, the hole being kept in position by steel spring underneath, and is rendered secure by a loose wing nut, and fits into end as in ordinary bolts.

27,538.—**CHIMNEY COWLS.** W. Allen.—Inventor claims an interiorly situated inverted cone-shaped cap, adapted to be actuated up or down by a screw-threaded rod passing through a suspending bracket, and fitted with a nut for gradually adjusting more and more air until finally the syphon ceases to act.

28,089.—**WATER WASTE PREVENTER.** O. Elphick.—Inventor claims means for admitting air slowly to the syphon a short time before the syphon action finishes, and for gradually admitting more and more air until finally the syphon ceases to act.

28,888.—**CONSTRUCTION OF WALLS.** &c.; E. Homan.—Inventor claims a wall, partition, &c., comprising suitable supports and means of metal fastened to the extending legs of these and formed with projecting tangs, and a filling-in of plaster or cement.

29,429.—**BRICK KILN.** B. J. Mills.—Invention covers, in a continuous brick kiln, the arrangement of the main draught and hot-air flues to produce up and down draught, the branch flue for conveying the hot air from the cooling sections to the drying sections, and the dampers for controlling all the said flues.

33,506.—**APPARATUS FOR MEASURING AND MIXING SAND.** &c.; H. Alexander.—In apparatus, whereby sand, cement, and other substances may be measured and mixed prior to their being fed to a press for forming bricks, tiles, &c., inventor claims compound hopper, having separate divisions in same in combination with a compound drum, having separate sets of compartments of adjustable size.

NEW APPLICATIONS FOR LETTERS PATENT.

NOVEMBER 26.—29,359, J. Clegg and C. Swarbrick, Brickmaking Machinery.—29,320, G. Mazzolini, Door Catch and Controller.—29,359, J. Bates, Window Sash Fastener. &c.—29,397, J. Johnson and others, Gully and Stench Pipes.

NOVEMBER 23.—27,423, D. Davidson and W. Cumming, Fireclay Brick Fireplaces.—27,430, J. Goulson, Water Taps.—27,448, C. Lyon, Door Knobs.—27,513, R. Lowe, Taps for Drain Pipes.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 27.—27,664, R. Bell, Sash Fasteners.—27,665, M. Crawshaw, jun., Sash Fasteners.—27,667, S. Symes, Gates.—27,670, R. McDonald and S. Eriery, Aerial Self-acting Brakes.—27,671, J. Davidson, Window Sashes.—27,694, H. Gill, Gully Trap.—27,692, I. Brightman, Fastener for Sashes.—27,616, H. White, Sash Frame Holder.—27,636, C. Danford, Protractor Levels.—27,660, B. A. Lucas, Sash Fasteners.

NOVEMBER 26.—27,776, T. Pfister, Cloisné and Mosaic Work.—27,782, T. Fagg, Glazing Knife.—27,788, J. Griffiths, Baking Gases and Mortar Gases.—27,793, J. Lea, Kilns and Ovens for Firing Tiles and other Potteryware.—27,799, R. McDonald, Two-piece Closets.—27,817, A. Roberts and others, Ceramic and other Tiles.—27,809, R. McDonald, Cocks, Valves, Unions, &c.—27,825, J. Sellars, Manufacture of Cement.—27,842, J. Webb, For and Draught-excluding Overflow Valve for Waste Pipes for Cisterns, &c.—27,856, H. Richardson, Door Hinges.—27,868, H. Stigge, Sewer and like Manholes.—27,884, R. Glendinning, Roofing.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

NOVEMBER 27.—27,907, J. Sharpe, Slow Combustion Fire Grates.—27,911, T. Kinder, Door Cupboard Fasteners.—27,947, W. Garner, Fireproof Shutter.—27,949, J. McLean, Door Locks and Fastenings.

Teignmouth, Devon.—Enclosure of land, 14 a. 2 r. 9 p. f. By J. DAVY & CO. 4,575

Chelsea.—Denyer-st., i.g.r. 94, u.t. 3 yrs., g.r. nil, with reversion for 8 yrs. By ANSTREY & SONS. 170

Walthamstow.—58 and 60, St. James-st., f., r. 100f. By J. BOTT & SON. 1,805

Sydenham.—Forthwaite-ld., i.g.r. 15f., reversion in 92 yrs. By DVER, SON, & HILTON. 424

Bermondsey.—59, Malby-st., area 1,704 ft., f., r. 40f. By G. B. HILLIARD & SON. 700

Southminster, Essex.—"Doctor's Farm," 41 a. 1 r. 12 p. f., c. 68f. By J. DAVY & CO. 2,000

"Great Cook's Farm," 27 a. 3 r. 0 p. f., f., r. 94f. Two enclosures, 30 a. 2 r. 22 p. f., c. 100f. 650

Latchingdon, Ck., Essex.—"Green Lane Farm," 120 a. 0 r. 24 p. f., f. 65f. 900

By HUMPHREYS, SKITT, & HUMPHREYS. Clapton.—26, Forburg-ld., u.t. 90 yrs., g.r. 6f. 10s. 420

By NEWBORN, EDWARDS, & SHEPHERD. Lincoln.—27, Locksey-st., u.t. 64 yrs., g.r. 44 r. 25f. 295

By NEWBORN, EDWARDS, & SHEPHERD. Canonbury.—St. Paul's-ld., i.g.r. 105f., u.t. 48f. 1,210

By NEWBORN, EDWARDS, & SHEPHERD. Islington.—Essex-ld., i.g.r. 58f. 15s., u.t. 38 yrs. 1,810

By NEWBORN, EDWARDS, & SHEPHERD. Clapton.—High-ld., "Kinnoull House" and "Holly Lodge," f. 4,450

Hamstead-ld., 51, Granby-st., f., r. 52f. Tottenham.—59 and 71, Somerset-st., f., r. 55f. 950

Barnsbury.—87, Westbourne-ld., u.t. 62 yrs., g.r. 6f. 1r. 42f. 415

Highbury.—51, 53, and 65, Edward-st., u.t. 79 yrs., g.r. 18f. 18s. 94f. 875

	Bungalow.	Gardener's Cottage.
H. Stevens & Co.	£1,884	£457
T. Rashley & Son	1,686	383
Exors. of the late William Franklin..	1,652	495
G. H. & A. Blackman (accepted) ..	1,425	369

J. Garrett & Son	£1,731	Lathey Bros.	£1,519
R. A. Marshall	1,699	J. & C. Bowyer	1,515
Stimpson & Co.	1,660	W. V. Goad	1,460
F. C. Minter	1,620	Star & Son	1,448
W. Hammond	1,537	W. Akers & Co.*	1,395
E. Triggs	1,535		

MONNOW ROAD.—Cleaning interior:—		
C. G. Jones	£554 0 0	Johnson & Co. £307 0 0
G. Summers	304 5 0	W. & H. Castle 294 7 5
E. Proctor	384 0 0	Holliday & Green
B. E. Nightingale	309 0 0	wood*
H. J. Williams	307 10 0	235 0 0

NECKINGER ROAD.—Cleaning interior and painting exterior:—

Johnson & Co.....	£ 107 10	H. J. Williams	£ 336 0
Star & Son	392 0	E. Triggs	339 0
E. P. Bulled & Co.	370 0	Holliday & Greenwood..	315 0
E. Proctor	342 0	H. Somerford & Son* ..	298 0

OLD CASTLE-STREET.—Removing fence and providing iron
railing, &c.:—
J. Edmunds £73 0 0 | R. H. & J. Pearson,
Bayliss, Jones & Bayliss 27 5 0 | Ltd.* £26 10 6

ROYAL NORMAL COLLEGE.—Providing and laying floor to "Armitage" Skating Rink.

	foundation, paving,			
	£	s. d.	£	s. d.
Victoria Stone Co.—9-in. thickness of granite and cement paving; laid in situ, 18 yrs guarantee.....	175	7	131	0
French Asphalt Co.—1-in. thickness of asphalt, 5 yrs guarantee.....	124	0	121	15
1 in. thick, 10 pcy grade asphalt.....	124	0	121	15
Memor Asphalt & Cement Co.—10-in. thickness of granite and cement; 5 yrs guarantee.....	102	0	101	5
5 yrs guarantee.....	102	0	101	5
Val de Travers Co.—1-in. asphalt; not laid in situ, 10 yrs guarantee.....	138	11	122	5
Messrs. Hobman & Co.—1 in. of Limer asphalt; 5 years guarantee.....	93	0	70	0
Imperial Stone Co.—1-in. thickness of petroleum; 5 yrs guarantee.....	110	10	84	0

UPPER HORNSEY-ROAD.—Taking down the two iron buildings and offices on this site, and stacking and covering the iron buildings on the Brentwood Industrial School site, and denositing the offices in the basement of the "Hugh Myddelton" School:—

T. Hawkins	275	0	Humphries, Limited	236	0
Croggon & Co.....	175	0	T. Cruwys*	125	0
W. Harbrow	157	10			

Repairs on schedule on running contracts :—

BERGER-ROAD SITE.—Repairs, &c., at Nos. 1 and 2, Shep-
 pard's place:—
 W. Suk & Son.....£65 10 | A. J. Hutchins£43 16
 E. Pearce.....48 15 | F. Head*40 0

BROOMSLEIGH-STREET, Fleet-road, Netherwood-street, and
Netley-street.—Pruning trees and shrubs, &c.:—
B. S. Williams & Son*£7 7 6

FINSBURY.—Groups 1 and 2.—			
	Per cent.		Per cent.
McCormick & Sons.....	+25	F. W. Harris	+15
E. Lawrance & Sons	+22½	W. Hornett	+25
Marchant & Hirst	+20	Johnson & Co.*.....	+20

T. Nicholson +29 | [On schedule prices.]

 FORTRESS-ROAD. — Adapting premises for a temporary
 school :—
 R. A. Verbury & Sons ..£82 0 | Marchant & Hirst£123 0

Chase & Son.....	198	16	H. Eady.....	118	0
T. Cruwys.....	145	0	G. Ball.....	175	0

TOWER HAMLETS.—Groups 4, 5, 6, and 7:—

	Group 4.	Group 5.	Group 6.	Group 7.
--	----------	----------	----------	----------

	per cent.	per cent.	per cent.	per cent.
T. H. Jackson	—	+25	+25	+25
S. H. Cornish	+20	+25	—	—
J. Kiddie & Son	+20	+20	+20	+20
J. Kybett	+20	+17½	+17½	+17½
A. W. Darby	+17½	+17½	+17½	+17½

D. Gibb & Co.	+17	....	+15	....	+15	....	+15
Johnson & Co.*	+10	....	+10	....	+10	....	+10

[On schedule prices.]

WOOD-STREET.—Providing and fixing teak treads to sixty-six

terra-cotta steps:—		
C. Foreman	£73 75	W. Holding & Son £42 10
J. H. Hodgkin	59 10	E. Proctor 32 0
A. J. Fenn	45 0	

The interior work at the following schools will be carried out between December 18, 1897, and January 8, 1898, and the exterior work between April 9 and May 7, 1898:—

BARRETT-STREET.—Cleaning interior:—

G. Neal	£187 0	G. Forster	£135 8
		C. Bailey	208 0

E. T. Folley	175	0	F. Chisley	103	0
H. Eady	140	0	Marchant & Hirst	99	0
W. Hailes & Son.....	138	0	F. T. Chischn*	97	15

BLACKSTOCK-ROAD.—Cleaning interior and painting ex-

W. H. Stephens	£514 8	W. McCormick & Sons..	£449 0
Stevens Bros.	468 10	J. Grover & Son*	417 0

"BEECKNOCK"—Cleaning interior:—

C. S. Jones	£322	0	W. McCormick & Sons.....	£372	0
E. Jackson & Son	323	0	Stevens Bros.*.....	268	10
Cowley & Drake.....	282	2			

BROMLEY HALL ROAD.—Cleaning interior.—			
Marsh, Tucker, & Co.	£328 0	J. T. Robey	£205 0
A. E. Symes	269 0	S. H. Cornfield	188 0
J. F. Holliday	222 11	J. Kybett	188 0
W. G. Beaumont & Son	229 0	A. W. Derby	183 0

CATOR-STREET.—Cleaning interior:—							
W. Akers & Co.	£322	0	0	Rice & Son	£278	0	0
J. & A. Oldman	320	0	0	D. Charteris	273	0	0
W. V. Good	257	0	0	H. Line*	238	1	0
W. & H. Castle	305	16	8	J. F. Ford	236	0	0

CHARING CROSS ROAD.—Painting interior:—
A. M. Sparka.....£247 0 | B. E. Nightingale £199 0
G. Foxley.....234 18 | Lilly & Lilly, Lim..... 197 8

T. Cawwys	219 0	F. Childley	145 0
W. Chappell	215 0	W. Brown ^a	137 10
W. Whiteley	199 15		

CRAMPTON-STREET.—Cleaning interior (including Laundry Centre, iron building) :—	
W. & H. Castle	£295 13 0
W. V. Goad	38 0 0
T. Gregory & Co.	24 0 0
J. Garrett & Son	268 0 0
Star & Son	258 0 0

CREDON-ROAD.—Cleaning interior :—	
W. & H. Castle	£330 14 0
H. Line	209 0 0
W. Banks	297 17 0
Johnson & Co.	278 0 0
Nice & Son	277 0 0

DEMPSEY-STREET.—Cleaning interior :—	
A. E. Symes	£280 0 0
L. F. Holliday	242 0 0
D. Gibb & Co.	236 0 0
J. T. Robey	235 0 0

FARRANCE-STREET.—Cleaning interior :—	
Marsh, Tucker, & Co.	£213 0 0
D. Gibb & Co.	239 0 0
A. W. Derby	223 0 0
J. F. Holliday	221 18 0

GOODSON-ROAD (old portion).—Cleaning interior :—	
Johnson & Co.	£395 0 0
H. Line	239 0 0
B. E. Nightingale	264 0 0
W. & H. Castle	253 12 0

HART-STREET.—Painting exterior :—	
W. Hornett	£122 0 0
C. Girding	113 0 0
R. E. Williams & Sons ..	227 0 0
A. M. Sparks	98 0 0

JAMES-STREET.—Cleaning interior :—	
W. Hales & Son	£165 0 0
Lilly & Lilly, Ltd.	154 0 0
E. F. Nightingale	149 0 0
E. F. Bulled & Co.	139 0 0

KING AND QUEEN-STREET.—Cleaning interior :—	
H. & G. Mallett	£320 0 0
Maxwell Bros. Ltd.	226 0 0
Holloway Bros.	205 0 0
W. V. Goad	200 0 0
Heleman & Brown	273 0 0

LOWER CHAPMAN-STREET.—Cleaning interior :—	
L. F. Holliday	£270 10 0
E. Jackson & Son	228 10 0
D. Gibb & Co.	238 0 0
J. T. Robey	245 0 0

MOWLEM-STREET.—Cleaning interior :—	
C. Willmott	£290 0 0
T. Nicholson	236 35 0
C. Summers	205 0 0

NETHERWOOD-STREET.—Cleaning interior :—	
Cowley & Drake	£223 3 0
G. Neal	220 0 0
H. Eady	228 0 0
E. T. Folley	217 0 0
Marchant & Hirst	399 0 0

PROSPECT TERRACE.—Cleaning interior :—	
F. Britton	£224 10 0
J. Willmott & Sons	261 0 0
G. Foreman	241 0 0
T. Nicholson	210 0 0
Marchant & Hirst	199 0 0
J. Morrison	180 10 0

RATHFRN-ROAD.—Cleaning interior and painting exterior :—	
W. J. Mitchell	£229 0 0
C. G. Jones	205 0 0
W. Banks	202 16 0
C. Summers	276 16 0

REGENT-STREET.—Cleaning interior and painting exterior :—	
C. Foreman	£230 0 0
G. S. Jones	201 12 0
C. Summers	353 9 0
W. Banks	313 14 0

ST. PAULS-ROAD.—Cleaning interior :—	
Marsh, Tucker, & Co.	£243 0 0
W. G. Beaumont & Son ..	193 0 0
L. T. Robey	191 0 0
J. F. Holliday	172 10 0

STANHOPE-STREET.—Cleaning interior :—	
J. Willmott & Sons	£230 0 0
G. Foreman	270 10 0
C. Foreman	260 0 0
Marchant & Hirst	227 0 0
T. Cruwys	217 0 0

STANLEY-STREET.—Cleaning interior :—	
J. & A. Oldman	£271 0 0
E. Proctor	290 0 0
G. Summers	288 5 0

"SPRINGFIELD".—Cleaning interior :—	
R. E. Williams & Sons	£209 0 0
Holloway Bros.	238 0 0
H. & G. Mallett	225 0 0
W. Hammond	228 0 0
Lathbury Bros.	226 0 0

TOTTENHAM-ROAD.—Cleaning interior of old school :—	
D. Britton	£271 14 0
W. McCormick & Sons	192 0 0
T. Nicholson	180 0 0
F. M. Harris	160 0 0
J. Grover & Son	168 0 0

UPPER NORTH-STREET.—Cleaning interior :—	
W. Banks	£219 10 0
W. G. Beaumont & Son ..	213 0 0
D. Gibb & Co.	116 0 0
Marsh, Tucker, & Co.	215 0 0

VICARAGE-ROAD.—Cleaning interior :—	
G. Summers	£260 10 0
C. Foreman	225 0 0
W. Banks	198 17 6

W. & H. Castle	
C. S. Jones	306 0 0
G. Summers	296 0 0
E. Proctor	296 0 0
E. Triggs	296 5 0

J. & A. W. Dyer	
J. Kybett	270 0 0
Holliday & Green	270 0 0
S. H. Cornfield	247 0 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

ROLLS-ROAD.—Cleaning interior and painting exterior (old portion) :—	
Johnson & Co.	+15 per cent. on schedule
G. Summers	£461 12 8
E. Proctor	396 0 0
E. Triggs	396 5 0

ST. PAULS-ROAD.—Cleaning interior :—	
Marsh, Tucker, & Co.	£243 0 0
W. G. Beaumont & Son ..	193 0 0
L. T. Robey	191 0 0
J. F. Holliday	172 10 0

STANHOPE-STREET.—Cleaning interior :—	
J. Willmott & Sons	£230 0 0
G. Foreman	270 10 0
C. Foreman	260 0 0
Marchant & Hirst	227 0 0
T. Cruwys	217 0 0

STANLEY-STREET.—Cleaning interior :—	
J. & A. Oldman	£271 0 0
E. Proctor	290 0 0
G. Summers	288 5 0

"SPRINGFIELD".—Cleaning interior :—	
R. E. Williams & Sons	£209 0 0
Holloway Bros.	238 0 0
H. & G. Mallett	225 0 0
W. Hammond	228 0 0
Lathbury Bros.	226 0 0

TOTTENHAM-ROAD.—Cleaning interior of old school :—	
D. Britton	£271 14 0
W. McCormick & Sons	192 0 0
T. Nicholson	180 0 0
F. M. Harris	160 0 0
J. Grover & Son	168 0 0

UPPER NORTH-STREET.—Cleaning interior :—	
W. Banks	£219 10 0
W. G. Beaumont & Son ..	213 0 0
D. Gibb & Co.	116 0 0
Marsh, Tucker, & Co.	215 0 0

VICARAGE-ROAD.—Cleaning interior :—	
G. Summers	£260 10 0
C. Foreman	225 0 0
W. Banks	198 17 6

W. & H. Castle	
C. S. Jones	306 0 0
G. Summers	296 0 0
E. Proctor	296 0 0
E. Triggs	296 5 0

J. & A. W. Dyer	
J. Kybett	270 0 0
Holliday & Green	270 0 0
S. H. Cornfield	247 0 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

W. Banks	
W. Brown	280 0 0
Jones & Groves	237 10 0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied direct from the Office to residents in any part of the United Kingdom, at the rate of 12s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 15s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 4, Catherine-street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS (by prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE.

DOULTING STONE.

The Ham Hill and Doulting Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Son
The Doulting Stone Co.)

Chief Office :—Norton, Stoke-under-Ham,
Somerset.

London Agent :—Mr. E. A. Williams,
16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

Asphalte.—The Seyssel and Metallic Lava

Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for

damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,

granaries, tun-rooms, and terraces. Asph

The Builder.

VOL. LXXIII. No. 265

DEC. 15, 1899.

ILLUSTRATIONS.

San Cataldo, Palermo.—From a drawing by Mr. A. E. Henderson.....	Double-Page Ink-Photo.
Selected Design for Baths, &c., Bethnal Green.—Mr. R. Stephen Ayling, A.R.I.B.A., Architect.....	Double-Page Ink-Photo.
Hotel de Paris, Cromer.—Messrs. G. J. & F. W. Skipper, Architects.....	Single-Page Photo-Litho.
Hotel, Wind-street, Swansea.—Messrs. Perry & Reed, Architects.....	Single-Page Photo-Litho.
Design for Wrought-Iron Gates for Dacre Court, Buckingham Gate.—Mr. C. J. C. Pawley, Architect.....	Double-Page Ink-Photo.

Blocks in Text.

Chandler's Safety Ladder Grip.....

Page 597

CONTENTS.

The Cardiff Competition.....	513	New Hotel, Swansea.....	520	Sanitary and Engineering News.....	526
The Late Mr. J. L. Pearson, F.R.A., and his Work.....	514	Students' Column: Quantities and Quantity Taking.—XVIII.....	520	Electric Lighting News.....	526
Notes.....	514	Gates, St. James's Court, Westminster.....	520	Stained Glass and Decoration.....	526
Student's Drawings at the Royal Academy.....	516	Architectural Societies.....	523	Foreign.....	526
The Royal Institute of British Architects.....	516	Competitions.....	523	Miscellaneous.....	527
Royal Academy Schools.....	516	Engineering Societies.....	523	Capital and Labour.....	528
The London County Council.....	519	Fireproof Buildings.....	524	Legal.....	528
Applications under the 1894 London Building Act.....	521	Rebuilding after the St. Mary-Axe Fire.....	524	Meetings.....	529
The Post Office London Directory.....	521	A Correction.....	524	Recent Patents.....	529
San Cataldo, Palermo.....	524	Appointments.....	524	Some Recent Sales of Property.....	530
New Baths and Washhouses, Bethnal Green.....	524	Obituary.....	524	Prices Current.....	531
Hotel de Paris, Cromer.....	524	General Building News.....	524	Tenders.....	531

The Cardiff Competition.



IN spite of the immense number of demands which are known to have been made for copies of the Instructions, not more than fifty-six sets of drawings were sent in for the Cardiff

Competition, a less number than might have been expected for a competition where such large premiums were offered, and where the site offered such exceptional advantages for a great architectural effect. The drawings are on view during the present week at the Town Hall in Cardiff.

The Corporation required plans for two separate buildings, a Town Hall, and a block containing civil courts, magistrates' courts, and a police department, on two sites rather more than two hundred feet apart, with a frontage facing nearly south, and divided by an avenue of trees running up in a direction a little west of north, between them. The Town Hall was to be on the easterly site, and the Law Courts on the westerly one, the Police Department in the latter building being to the north of the courts. The south front (it is convenient to distinguish the points thus, though it actually faces nearly south-east) was defined by a limiting line on the plan of the site, but in the opposite direction the site was practically unlimited, the competing architects having no restraint but that arising out of the limit of cost, viz.: 125,000*l.* for the Town Hall, and 75,000*l.* for the Law Courts and Police block. The requirements for the Town Hall include the offices usually required for the municipal work of a large town, together with a council chamber, and an assembly room of the size of 100 ft. by 50 ft., not intended for public entertainments but only for receptions and banquets; and it was suggested that it would be desirable that the assembly room, ante-room, and council room should be arranged *en suite*, or so as to be capable of being so used. This arrangement has been not unfrequently made or demanded in Town Hall plans, and is desirable as increasing the accommodation

for a reception on a great scale; but it should be remembered that its practical value depends on the manner of arranging and seating the council room for ordinary business, and that the best kind of arrangement for this business, which is probably a theatre-shaped room with a slightly rising floor and fixed seats, would render the council room of little value as an addition to the reception suite (unless indeed the Mayor wished to entertain his guests with a private concert or amateur theatricals); a point which seems to have been overlooked in the Instructions. It was required (and wisely) that the buildings should be in a general sense rectangular on plan—a requirement evidently intended to keep out eccentric experiments in planning for which the slightly oblique line of the avenue might have afforded excuse; and it was stated that designs for erection in terra cotta work would be *ipso facto* excluded; an amusing provision, when we consider that the assessor was to be the eminent architect who has given the greatest impetus to the employment of terra cotta for architectural frontages.

Having regard to the fact that the south limiting line for the two buildings is given on the site plan as nearly in one line, it would at once become a question, with any architect who can estimate the capabilities of a site, whether the two buildings should be treated so that their south elevations should form two portions of one grand design, carrying on the same architectural lines from one to the other, or whether each, considering the different uses of the two blocks of buildings, should not rather have its own characteristic treatment. There is something to be said on both sides: Law Courts seem to demand a totally different architectural expression from a Town Hall which is for festival uses as well as for business, while on the other hand the opportunity for a very dignified architectural effect by the treatment of the two frontages as one design is of course very tempting. Several of the competitors have obviously had this point in their minds, and have indicated one way or another of endeavouring to combine the architectural advantages of both treatments, by symmetry in general design for the two buildings, accompanied by a certain difference in detail. The competitors who have received the first premium, Messrs. Lanchester, Steward, and Rickards (design No. 22), have leaned

mainly to the symmetrical treatment, arranging their block plan so that the south fronts form a continuous line in the same plane, and the architectural treatment of the two façades is similar in its main lines, only somewhat simplified in the Law Courts. In the Town Hall plan the key question of planning, in such a case, is where to place the assembly room; whether in the centre, where a lofty room can be most easily placed without difficulties about lighting, or whether, by placing it in front, to make it an excuse for a piece of effective external architectural treatment. In the first premiated design the central position is adopted, the room being parallel with the entrance front, and the council room occupying the centre of the front with committee rooms on each side and the mayor's room at the south-east angle, balanced by the large committee room at the opposite angle. Whether this is a good position for the council and committee rooms depends on whether the outside street, marked "New Road" on the site plan, is likely ever to be a noisy one in respect to traffic. The Mayor's room is a little too isolated from the *suite*, and moreover it is a mistake, which several competitors have made even more emphatically, to have the Town Clerk's private office (west side) so far from the Mayor's private room. The two should always be near each other, for convenience of private and informal conference between the two most important public officials. The access to the assembly rooms is a little circuitous; visitors entering by the south entrance approach a staircase the lower flights of which start at a right angle, right and left (not the most effective method), leading round to reverse flights which land in a reception hall—a large landing with the council-room door behind it; then the visitors have to face right round again and "reach the grand entrance to the Assembly Room by a central corridor, the entrance being in the centre of one side of the Assembly Room, again not the most effective method of planning. The position of the Council waiting room and members' private room, on each side of the main corridor, and the two side corridors outside the staircase area, which lead back to them and to lavatories placed at those points, is a good bit of planning; but the general arrangement of the access to the Assembly Room, as a matter of

effect, might be very much improved by a re-arrangement of this portion. The ladies' and gentlemen's cloak-rooms are on the ground floor on each side of the staircase, not very well placed nor quite large enough; but as far as we observed there is only one set of plans, Messrs. Leeming's, in which these accessories are thoroughly well placed and planned. In the first premiated design the general scheme of plan is excellent, with uninterrupted corridor communication all round, and corridors almost entirely lighted from central areas.

In the Law Courts the main entry to the Assize Courts is from the east or avenue side, and the courts are on the upper floor, which we do not think desirable (though nothing is said against it in the instructions); generally speaking the building is well planned, though the corridors must be a little deficient in light in some places.

The architectural treatment is very simple, a rather free Classic with masses of rusticated piers at salient points, a range of large circular-headed windows on the ground floor with square-headed mullion and transom windows above, and what the French call "attributs" in relief on the wall between them. The tower, which is set back a little from the western entrance, has no particular function on the plan and no particular merit of design, and in fact seems to have been put in in a hurry; the architects could probably improve it very much; but in judging of all the designs it must be remembered that the time given was too short for the proper study of such a large scheme, and the corporation would have had a better result from their competition had they allowed a month longer for maturing the plans and designs. The whole thing has been "rushed" rather, and the same remark applies to the award; competitors have been astonished that such a number of designs should have been considered and the award made in three or four days. We had the same feeling; but after a consideration of the collected designs we are inclined to think that a longer consideration would have led to the same result,* and that as far as the drawings are concerned the choice is the right one, having regard to the limitations of cost. There are some more impressive designs, no doubt, which could not have been carried out for a stipulated sum, but we think there is only one better plan in the room, and that belongs to one of these over-costly designs; and without saying that the first premiated design is very beautiful or original in architectural treatment, it has the very great merit of unity and dignity of expression; there are no tricks in it; and it combines more good qualities than any other which could be executed within the cost. The detail elevations are beautifully drawn and coloured and the sculpture accessories very well put in; we may trust Mr. Lanchester for that. Whether the Corporation are feeling entirely satisfied at finding that they have chosen architects not one of whom, we believe, has ever carried out a building of any size, is another matter; but the same

thing has happened before; it is supposed to be one of the excuses for competitions that they elicit new talent; and we should think the three architects who have produced so good a plan as this should have sufficient practical power among them to carry out their design properly.

In the second premiated design, by Messrs. Gibson & Russell (No. 25), the assembly-room and council-room occupy each side of the principal front, with the ante-room between them, but as the council room is necessarily shorter than the assembly-room, the exterior symmetry of the façade is fulfilled by treating the small ante-room and cloak-room behind the council-chamber with the same order of windows &c., and an octagon projection at one end is a bay window of the assembly-room, at the other end a water-closet window. Several of the competitors have fallen into this kind of false symmetry in the same endeavour to group the council room and assembly room symmetrically in front. In doing this architectural character is sacrificed to symmetry; if the rooms are placed so, at all events the assembly room windows should have a distinct and more important treatment. The plan shows two internal court-yards, one of them with a fountain in it (not accessible, but for the joy of those looking through the corridor windows); the Rates office is to the right of the main entrance, and interrupts the continuity of the corridor communication, and we should it would be rather difficult to keep it from being made a passage of. Otherwise, the arrangement of the corridors, and the small octagon spaces at their angles, is good. The Town Clerk's offices are on the ground floor with an inquiry office close to the south-west public entrance, while the Town Clerk's private office, reached by a special stair, is close to the Mayor's private room on the upper floor; an arrangement which meets the joint requirements of the Mayor and the public better than any other. The principal staircase is better planned for effect than in the first design, the lower flights starting in the line facing the entrance instead of at right angles to it; the apsidal termination to the staircase hall is capable of being treated with fine effect; but the ladies' and gentlemen's cloak-rooms are badly placed, reached by a common passage down the centre between the lower flights of stairs, to a lobby with two contiguous doors opening out of it. That passage and lobby would be a regular jostling ground. There is far too much borrowed light in the south ground floor corridors, and the steps to them from the centre entrance hall are an awkward feature.

In the Law Courts plans there has evidently been a careful study of the plan of the Birmingham Law Courts, of the main scheme of which Messrs. Gibson & Russell's plan is to a great extent a repetition. The rooms seem rather small, the large hall in front having run away with a good deal of the space which the authors have allowed themselves; but in the main the Courts block is admirably planned.

The style of the buildings is a free classic such as the authors have employed elsewhere; the elevations show a plainly treated ground story, an order of columns on pedestals above, with circular-headed windows with a moulded transom at the springing, between them. Above these are small square windows with the rest of the

space between the order filled up by decorative sculptured figures and foliage. These details are well shown in a beautifully-drawn and tinted detail elevation. There is a tower at each end of the main elevation of the Town Hall, slightly set back from the front line and marking the angle entrances; these towers look as if they had been sketched in rapidly to make features in the design, and are rather too busy and top-heavy in treatment. The best part of the general design is the south elevation of the Law Courts, which is treated to harmonise with (not to range with) the other elevation, but in a more simple and restrained manner, and the angle pavilions are graceful in treatment. The authors make a suggestion for laying out the ground in front of the Town Hall, in a semicircular parterre with a fountain and specially placed statues.

In the third premiated design (No. 6) by Mr. A. W. Cooksey and Mr. A. Cox, the Town Hall is treated in one great quadrangle with a columned entrance hall in the centre of the south front, and a triple arcaded entrance into the quadrangle on each side of this, with a columned loggia above; this looks very well, but of course breaks communication. The entrance hall might be made effective with sculpture, but the access to the ladies' and gentlemen's cloak-rooms, by two little doors in the same semicircular recess, is absurd. The stairs land in a reception hall, giving access to the ante-room in the centre of the main front, with the council room and assembly room balancing, as in the last-named plan, behind a screen of symmetrical windows. The apartments in connexion with the Mayor's room and council room are well planned, but the Town Clerk's room is almost at the extreme point of the plan from the Mayor's room. The main business entrances are in the re-entering angles of the quadrangle, which is entered through the triple arcades before-mentioned. The Law Courts block is very well planned; the extra wide corridor across the south end forms a *salle des pas perdus* without occupying too much room; the interior connexion between the whole block, in connexion with the cross central corridor, is well maintained; the separate magistrates' and judges' corridor is a good point, and the entrances and accessory rooms to the police courts, each of which has its own entrance on the west side, are very well planned, only that we doubt if witnesses waiting should be on the other side of the hall from the courts. We observe, by the way, that the instructions seem to contemplate a retiring room for women directly out of the witnesses' room, although this room is for witnesses of both sexes; a rather barbarous arrangement; there ought to be separate rooms for male and female witnesses.

The design for the Town Hall is a dignified but rather heavy classic. The ground floor is entirely of rusticated treatment, the upper floor is partially occupied by an order. The treatment of the upper floor in the main façade has not the slightest relation to the interior; on each side there are two pavilions with a slightly recessed curtain between, on the east side these correspond to the interior divisions of the assembly room, on the west side the domical roof and columns and soffit in the council room are

* Young competitors who think Mr. Waterhouse cannot have done the drawings justice should remember that an architect who has been accustomed through a long professional career to carrying out very large buildings will naturally have acquired a special power of grasping the main problem presented by a large plan, and the treatment of it, by a kind of instinct developed from long practice. At all events, we do not think the assessor has made any mistake in this case.

inserted without the slightest reference to the external pavilions. We do not call that architectural design at all; but hurry may have had something to do with it. As in many of the designs, the Law Courts block has more architectural character than the Town Hall block, and expresses the interior arrangement much better. The authors of this design also include in their block plan a scheme for laying out some of the land in front of the Town Hall.

We must now turn to a few of the more prominent among the non-premiated designs. If Messrs. Leeming (No. 29) had the same genius in regard to the artistic detail and treatment of architecture as they have for planning, they would be among the first architects of the day. Their plan is a masterly one in simplicity and completeness. They arrange the rooms round two courts, with a dignified central staircase and a cross corridor on each side of it; these give a short cut from the council room in front to the committee corridor in the rear, where the committee rooms are grouped; the Mayor's room is well placed in regard to the council room and the Town Clerk's office; the Town Clerk's public offices are on the first floor (west), and the enquiry office faces the end of the corridor where every one can see it. The authors adopt the same scheme as in the second and third premiated designs, of making the council room and its adjuncts balance the assembly room on the principal front, and with an identical architectural treatment, only that the mayor's parlour is brought to the front instead of a cloak-room, as in a previously mentioned design. But whatever way we take it, you cannot make a satisfactory design by treating as identical two rooms so different in character and purpose as a council room and an assembly room. The Law Courts block is equally well planned; the assize courts in this case are placed back to back with their length parallel to the front, and a rather dignified judges' corridor, expanding into a small octagon hall, between the courts, gives access to the judge's rooms. The Law Courts is treated as a low building of the height of the order employed, as in the Bank of England; and this is the best part of the architectural design. The Town Hall is devoid of interest and the central feature very heavy. The building would probably be quite beyond the arranged limit of cost.

Mr. Mountford's plan (No. 27) is hardly equal to his usual perception in planning. No doubt his main entrance with the great flight of steps up to it would have a very fine effect, but then we are reduced to having a carriage entrance at the back for the assembly guests in bad weather, for whom a very mean and inadequate staircase is provided. In other respects the plan does not fulfil the requirements of a Town Hall; the committee rooms, on the south or entrance side, are too much separated from the council room and the Town Clerk, and the Town Clerk is at the furthest part of the building possible from the Mayor. Then the ante-room between council and assembly rooms (at the back or north side) is not central with the central hall, so that we approach the suite by a pompous hall or vestibule which gives us access into one corner of the ante-room; which is not a dignified way of planning. The plan generally seems to want centrality and concentration. The principal elevation is a rather cold but

dignified classic study, with columned porticos at the centre and at each end, and a cupola with a plain semi-circular stone dome as a central feature. The Civil Courts and Police Courts are treated as two separate blocks, but with an isthmus of communication. Both the civil and the police courts are on the upper floor, which we do not think is desirable. The architectural treatment of the courts' block is admirable, in a bold powerful rusticated style which gives the very expression of the severity of the law, and renders this part of the design one of the best things in the room.

Messrs. Brewell and Bailey have spread out their Town Hall, building it round an immense quadrangle, interrupted at the centre of the north side by an arcaded opening on the ground floor, but otherwise continuous. They have a fine staircase with a circular reception hall at the top of it, with ladies' and gentlemen's cloak-rooms opening in a vague manner from the corridor on each side, without the least attempt at special planning. The reception hall gives access to the assembly hall on the right of the front and council room on the left, as in several other plans. The Mayor's room, committee rooms, and Town Clerk's room are well grouped together. The Law Courts are very well planned, but with a great expenditure of space in entrance halls and corridors. The fine point of the whole scheme consists in the treatment of the two blocks of building as part of a whole and connecting them by a columned bridge of communication with a clock tower in the centre of it (the instructions suggested that a tower, if desired, might be treated as a separate structure apart from the main buildings). This looks very fine on elevation, but the whole thing is too costly, and the architectural treatment is rather wanting in character. The detail elevation is a good and effective pencil drawing.

Mr. Henman (No. 46) has sent a remarkable design in which he has treated the whole centre of the Town Hall block as a great circular room with a loggia round it at the lower portion and an iron and glass dome over it, and this he calls the "Town Hall," while he gives in the front or south block all the accommodation asked for in the way of council room, assembly room and ante-rooms *en suite*, and very effectively arranged. The exterior is treated with an Eastern magnificence and profusion of turrets and other architectural features making a striking group. But the author does not seem to see that by introducing this great circular hall, a feature which was not asked for, he has really put himself out of court, and would have had no right to be selected, independently of the obvious costliness of his design. Other competitors might say that they could have produced an equally striking effect if they had chosen to insert a great hall of any kind they liked, which was not asked for in the instructions.

Mr. Seward, the leading Cardiff architect, sends a picturesque and effective Elizabethan design, in which the council room is placed centrally in the main front and the assembly room as a centre block in the rear and at right angles to the main front. This is a good enough arrangement so far, but he has made the mistake of planning

a complete quadrangle as the ultimate plan of the building, but leaving the return side at the back as the portion for future extension; so that his plan now is a front block with three arms sticking out from it to the rear, each of which is at present a *cul-de-sac*. That would never do. A "future extension" should be so arranged for that the present convenient working of the plan is provided for until the extension is made; which is not the case here. Another Cardiff firm, Messrs. James & Morgan, have made the same mistake in putting out this type of three-pronged plan, and in this case apparently as the permanent form of their plan.

Messrs. Malcolm Stark & Rowntree (No. 32) show a rather interesting plan differing from all the rest, with the assembly room forming a projecting wing running north and south, on the east side, and projecting out from the main face of the building. The remainder forms a rather small quadrangle with a carriage entrance from the west or avenue side. The plan attracts attention from its individuality, but it rather wants central purpose, though there are good points about it.

Messrs. Simpson & Allen's design shows a fine and striking front, with its central cupola and the deep shadow formed by the recessed arch in front of the ante-room. They adopt the same method as so many other competitors, of placing council chamber and assembly hall along the front, and treating them with a symmetrical architectural screen. Their plan of the Law Courts presents a special treatment, civil courts, magistrates' courts, and police department forming three separate blocks, strung together by communication corridors running north and south.

We have only space to mention the names of a few others of the more prominent designs. Mr. Prentice sends an interesting design with a great deal of character, but not such as would be likely to be accepted in a competition for an English Town Hall; it is too exotic; there are some good points in the plan, but also a good many ill-lighted corridors. The Law Courts elevations are much more "possible" (for this country) than the Town Hall. Mr. Baggallay's plan wants centrality of motive, but he has made a special point in his idea of making the elevations of the two buildings towards the avenue answer each other architecturally, as it were; placing his two domes opposite each other, with similar general treatment but differing in detail. Mr. Beresford Pite sends a design marked, as might be expected, by fine and original architectural character. Messrs. W. A. Pite & Balfour (No. 30) show some very good points in their plan; Messrs. Spalding & Cross (No. 8) a most extraordinary plan, with the assembly room on the ground floor and almost, one might say, out on the street; and Mr. Cheers (No. 24) has sent in a splendidly got up set of drawings, in which a special effect is gained by cutting out the tinted elevations and pasting them on another sheet of paper to throw them up more; this, however, like the contrivance of the author of No. 34, who has shaded up his plans so as to give them the effect of relief (of walls standing up 3 or 4 ft. from the ground), is one of the kind of tricks of effect which may take an amateur committee, but which it is no use trying on a competent assessor; and that is one of the things assessors are for.

THE LATE MR. J. L. PEARSON, R.A.,
AND HIS WORK.

By the sad death of John Loughborough Pearson, which, as most of our readers are aware, took place on the 9th instant after only a short illness, we lose not only one of our most eminent architects but the most conservative, most learned, and probably the last of the great restorers of our old English cathedrals. Although he was the architect of practically the only great modern cathedral in the country, and of many other beautiful and highly original churches, it was probably as a restorer that he was best known to the general public and even to the present generation of architects; for memories are short, and while his original work was accorded by his countrymen little more than the apathetic indifference manifested towards all modern architecture alike, his restorations were recently the subject of an acrimonious public controversy, by which attention was called to them. It is, however, to be noted that in that discussion Mr. Pearson himself took no part; adhering to the dignified habit of a long life, he quietly went on with his work and left others to talk and criticise, never once deigning to reply to his noisy accusers. His career, indeed, was a remarkable witness to what, even in these days, may be accomplished by ability and consistent hard work; he never condescended to the self-advertising expedients of the crowd, but always shrank from every form of publicity, and was content to rest his reputation and claims to employment on the merits of his executed works alone.

His restorations did not satisfy either the unreasonable sentimentalists who, apparently, would prefer to see our old buildings perish of decay rather than that a stone of them should be touched, or the surviving dangers-on of the great Gothic school who still cling to the absurd idea that it is possible and desirable to "restore" features of which all trace has long since been lost in the form in which they were originally built; nor is that fact to be much regretted. Mr. Pearson's system was, as a rule, to confine himself to removing decayed material and replacing it with new; isolated stones were renewed one by one; disintegrated masses were taken down and replaced stone for stone; mouldings and ornaments were copied from the old ones; unless there was nothing left to copy, in which case the designs were frankly new; with the same motive and in the same style as the old, but such as no one, certainly no architect, could mistake for the old ones themselves. In some notable cases, as at Westminster Abbey, Mr. Pearson was called on to replace whole features or parts of buildings that had perished. On such occasions he followed the same course of making the designs obviously, even emphatically, new, though in sympathy with what adjoins them—a most difficult course, and one which in less able hands would be dangerous, and possibly disastrous, but which his unrivalled combination of architectural skill with archæological learning enabled him to pursue with at least a very large measure of success.* One cannot doubt that in such cases it is the right course; but

* In the unfortunate business of Westminster Hall we have always felt that Mr. Pearson was very much influenced by the then First Commissioner of Works in the course he took.

who is now left who could follow it successfully? The men of genius of to-day are travelling in other paths, and, though there are many with a knowledge of Gothic architecture that would have put the leaders of the revival themselves to shame, one can but wonder whence a true successor to the great man who has passed away will come, who can be trusted to carry out great restoration works, involving anything more than reinstatement, with similar care, judgment, and success.

Even those who least sympathise with the Gothic revival, as well as those who prefer a freer and less conservative use of Gothic details than Pearson ever allowed himself, acknowledge the great charm of his original works; but their most remarkable qualities, under the circumstances, are their striking freshness and interest. Without ever condescending to an eccentricity, or appearing to turn aside in the slightest degree to seek originality for its own sake, without ever even venturing perceptibly beyond the limit of precedent in the style he adopted, he succeeded in producing a series of monuments as interesting as they are beautiful. Holy Trinity Church, near Vauxhall Bridge, the first work which brought him into notice, is no doubt an exception, but in those days knowledge of detail and grace of proportion were sufficiently remarkable, and gained for the architect further opportunities of exercising his skill. St. Peter's, Vauxhall, a small brick building in the heavy, Early French style then fashionable, was built early in the sixties, and although Mr. Pearson never again adopted that style, it is not difficult to trace in the building some of the characteristics which especially marked his later and more important works, nor can we be far wrong in crediting to a careful study of French Gothic made at that time certain peculiarities of style which remained with him to the end. His love of lofty proportions and of increasing their effect by every legitimate means, his unusual skill and thoughtfulness in making the most of the site and surroundings, and the insight and learning that he brought to bear upon the study of details, are as apparent in St. Peter's, at any rate to a critical observer, as the brick vaulting with its stone ribs, which is the prototype of so many subsequent vaults of a similar kind. Even his tendency to unusual minuteness in details may be observed by comparing this church with others erected at the same period; in fact, it is not beyond the bounds of probability that his efforts to avoid the coarse and heavy mouldings and ornaments usually met with in the works of the period may have led indirectly to this tendency, when he afterwards abandoned the style for the English one, the natural tendency of which is to a smallness of parts.

The key to many of the peculiarities of Mr. Pearson's subsequent works, and especially to the success with which he strove to follow or revive the genuine Gothic tradition, is to be found in the fact that he alone adhered in a practical manner to the theory, enunciated by Viollet-le-Duc, that the Gothic system was essentially a system of groined vaults. He seems to have been the first modern architect to discover that such vaults are neither excessively difficult nor necessarily excessively costly to construct, and he almost always covered his churches with them, thus creating for himself the same interesting problems which the

constructors of our cathedrals had to face, and the solutions of which, when once arrived at by the aid of his skill and judgment, seem as natural and as little forced as they are picturesque. It would be impossible to mention a tithe of the beautiful and unusual features in Mr. Pearson's works which owe their origin directly to the necessity for dealing with the thrusts of the vaults—to say nothing of secondary effects—but the internal buttresses of St. Augustine's, Kilburn, which dominate the whole design of the interior, and the coupled pillars on the south sides of Truro Cathedral and the church in Red Lion-square, occur to one as notable examples. It is, no doubt, the vaulting and such features as triforium galleries and flying buttresses to which it leads, that have led to some of Mr. Pearson's churches—such as St. Stephen's, Bournemouth, for instance—being called with some justice, miniature cathedrals, rather than simple churches; but it is no doubt also the same features that to many persons constitute their charm, and place them above ordinary structures with wooden ceilings or open roofs. More competent observers are, however, attracted rather by the carefully considered and learned detail, the skilfully adjusted proportions, and especially by the marked harmonious character of the whole.

Mr. Pearson's favourite style appears to have been that of the Early Lancet period, and his most successful works were executed with the detail of that phase of Gothic. His chief mannerisms were the minuteness of parts already referred to, and a certain exaggeration of vertical character. He liked to overtop his gables with lofty, flanking turrets, and to stunt his spires in order to run up the angles of the towers as high as possible, and in every way he strove to emphasise all vertical lines. In his spires, whether on towers or turrets, he had a tendency towards early French work, especially in the excessive entasis he usually gave them. Such mannerisms may or may not subtract something from the more solid merits of his work as a whole; but it cannot be much, and as regards the exaggeration of the vertical lines, we think that it certainly pleases by the marked character that it gives to the buildings.

Mr. Pearson may be said almost to have died in harness, and those who were acquainted with his sturdy figure and appearance would never have guessed that he was over eighty years of age. It is not often that we hear of an architect keeping up the active exercise of his art, and apparently the full interest in it, through so long a life.

NOTES.

The "National Photographic Record Association," the object of which is to collect and preserve photographs of buildings or remains of historic interest in Great Britain, have invited Mr. Geo. Scamell, F.R.I.B.A., to act as Honorary Curator, *pro tem.*, and Mr. Scamell would be glad to receive photographs for the collection now being formed of objects of architectural, archæological, historic, or ethnological interest, previous to their being deposited in the British Museum. Only unmounted photographs "printed in carbon, platinum, or other permanent process," will be received, whole plate size being preferred. Contri-

butions can be forwarded to Mr. Scamell either at the address of the Royal Photographic Society, 12, Hanover-square, or at his private address, 21, Avenue-road, Highgate, London.

M. REDON, the new architect to the Louvre, has completed his scheme for the alterations and restoration in connexion with the Pavillon Marsan at the Tuileries, in view of the installation there of the collections of the Union Centrale des Arts Decoratifs. According to his plan there will be a large central hall for temporary exhibitions, surrounded by small rooms, both on the ground and first floor, for the permanent collection formerly at the Palais de l'Industrie. All this arrangement will occupy the large gallery and its annexes extending from the l'Echelle Gate to the Pavillon Marsan properly so called, which latter will probably be devoted to the fine collection of furniture belonging to the State, and now at the Quai d'Orsay.

Rowton Houses. An interesting point was decided last week by the Queen's Bench Division as to the application of the London Building Act, 1894. It was whether the building at Newington Butts so well known as Rowton Houses was "a dwelling house to be inhabited or adapted to be inhabited by persons of the working class"—words which are contained in the thirteenth section of the Act. It was contended by the London County Council that the block of buildings came under this definition, and that being so, that they were entitled to order it to be set back by a notice under Sections 14 and 200 of the Act. The Rowton Houses had been erected on the site of other and older buildings, and it was contended that the particular section of the Building Act which has been already mentioned did not refer to such a building, which, it was said, was a kind of poor man's hotel, not a building primarily intended for the accommodation of the working classes, or structurally fit for that purpose, since it was used only for the accommodation of single men. The Court decided against the County Council. The result of the decision appears to be that the thirteenth section of the Act of 1894 must be very strictly construed, and that its application must be confined to what are called working men's dwellings, the meaning of which is well understood in a general way. Each case must be decided according to its particular facts, but, although that is so, the result of the recent decision is to give a good deal of definiteness to this portion of the Building Act.

Wakefield Cathedral. At a meeting held last week of the "How" Memorial Committee, a report by the late Mr. Pearson, R.A., was adopted for enlarging the fabric at an estimated cost of 20,700*l.* The scheme in question provides for pulling down the east end, adding to the chancel another bay with transepts and easternmost chapel, and the erection of a chapter-house; it is also proposed to make new seats for the choir in the eastern bay, and assign the old stalls to the Canons. The Cathedral, originally the Parish Church of All Saints, as almost entirely rebuilt circa 1460, occupies the site of the church built by Archbishop William de Melton in 1329. In 1857-75 the fabric was extensively

restored by Sir G. G. Scott, who re-cased the tower with stone and rebuilt the spire, which rises to about 240 ft., the buttresses, and the east window. The nave, aisles, and chancel ceilings were decorated, and the Pilkington Chapel restored at the cost of Sir L. M. S. Pilkington, Bart. A doorway was substituted for the porch on the chancel north aisle, and stained glass was placed in the east and west windows, and in nine others in the chancel and south aisle.

MR. OCTAVIUS HANSARD, whose sudden death we recorded last week, was born on April 2, 1826. He was a pupil of the late Thomas Bellamy, and he subsequently travelled in Italy, where he met with the accident that caused his lameness. He was elected an Associate of the Royal Institute of British Architects in 1843, and a Fellow in 1860. The deceased gentleman published his Academy measured drawings of the Banqueting House, Whitehall, in 1849. Some of his works as an architect are:—boathouse, Hampton Wick; house at Leigh, Essex, for Mr. F. C. Barker; house at Garbridge, Appleby; house at Shoebury; "Bricklayers Arms," Old Kent-road; premises, 12 and 13, Holles-street, W., for Messrs. Underwood; premises, 308, Oxford-street, for Messrs. Hoar & Co.; house at Leatherhead, for Mr. Roger Cunliffe; No. 11, Dover-street, for Major Griffiths. Messrs. Marshall & Snelgrove's premises, commenced by his friend, the late Sir Horace Jones, were extended and completed by him. Mr. Hansard was frequently engaged in arbitrations, valuations and estate management, and he had a very sound knowledge of all matters relating to professional practice. The funeral of the deceased took place on Thursday last week, and the following were among those who attended: Prof. Aitchison, A.R.A., President of the Institute; Mr. Alexander Graham, Vice-President; Mr. William Emerson, Hon. Sec.; Mr. W. J. Locke, Secretary; and Messrs. Charles Fowler, Henry Christian, C. F. Hayward, John Norton, Thomas Henry Watson, R. Phéne Spiers, A. W. Pocock, besides clients personal friends, and relatives.

The Patton Electric Locomotive. FOR long distances, heavy loads, and high speeds, there is no doubt that the modern steam locomotive has at present no real rival. The Heilmann locomotive, which consists practically of a high speed steam engine using an electric system to transmit the power to the wheels, although it has been extensively experimented on for the last two or three years in France, has made very little headway. As long as the best recognised way of transforming thermal into mechanical energy is by means of a reciprocating steam engine, there will not be any great saving on the Heilmann system. If, however, gas engines or steam turbines or gas turbines ever become admittedly superior to the reciprocating steam engines, then, as the difficulties in the way of mechanical gearing in these cases would be almost insuperable, it will be advantageous to use an electric system. The Patton motor car has much to recommend it. The prime mover which drives the dynamo is an internal combustion gasoline engine and the current generated is transmitted to the wheel motors. The great advantage that this locomotive

has over the Heilmann locomotives is that a battery of storage cells is used to take up momentary overloads and so smooth the load curve and prevent sudden shocks to the dynamo and engine. It is stated that a Patton motor car can economically replace a steam locomotive for shunting and similar purposes as one man is sufficient to work it, and gasoline is cheap. The result of working one on the Suburban railway in Chicago, according to the New York *Electrical World*, show a saving in working expenses of three-fourths the cost of the steam locomotive it replaced, only fifteen gallons of gasoline being used daily.

IN Dr. St. George Mivart's The Water Supply Report to the Local Government Board on the sanitary circumstances of the Hayle Urban Districts, the following description is given of the conditions of the water supply: "The water is derived from springs on land belonging to Trethingey and Kayle farms, in the Urban District of Phillack, about two miles from the town of Hayle, to which it flows by gravitation. . . . Not only are these springs and watercourses freely open to pollution, and evidently polluted by cattle, but here and there in their course they widen into small ponds, or in dry weather become muddy places to which cattle have free access. The reservoirs are surrounded by wooden palisading, partly broken down, so that access to the reservoirs could be obtained by any one desiring it. From these reservoirs 5-in. iron pipes convey the water, without any previous filtration, to the centre of the district, and thence by branch pipes to the various houses. The statements as to the quality of the water were conflicting. Some ratepayers complained that it was so dirty that to render it fit for drinking it had to be allowed to stand for some time in order that the sediment might settle, while others declared that it frequently contained worms and moving organisms of large size. Others, on the contrary, maintained that the quality was good. The samples drawn for me at various points were pale yellow in colour, and turbid."

THE Governors of the Children's Hospital resolved, in special court on the 8th instant, to purchase for 30,000*l.* the adjoining Hospital of St. John of Jerusalem and St. Elizabeth (No. 50), with the Convent of Mercy (No. 48). In the latter could be found accommodation for about forty nurses, whose quarters in the present Children's Hospital are, it is stated, quite unsuitable. The block to be taken is depicted in our reproduction, February 1, 1890, of Mr. Charles Barry's design, with plans, for the buildings which it is now proposed to extend. The church, standing to the right, between SS. John and Elizabeth Hospital and the convent doorway is that of St. John of Jerusalem, which was built in 1863 by Sir George Bowyer, Knight of the Order—as an inscription above its door testifies—after the designs of the late George Goldie.

HOLLAND has been celebrated for its pottery from a very early period: examples of the well-known Delft wares were imported into England as far back as the beginning of the fifteenth century. Dutch influence has been extensive at the old-established potteries of

Bristol, Lambeth, and Fulham. It is doubtful whether the work of the modern Dutch potter is much known in this country, it is better known on the Continent; the beauty of it will be a revelation to those who see it for the first time, as exhibited at the Goupil Gallery. The Rozenburgh pottery was started some fourteen or fifteen years ago at the Hague, it is a modern visitation, expressing modern ideas, and yet showing the careful study of the great Dutch traditions in the art. The exhibits include vases, panels, plaques, and bowls, the forms of which are simple and pleasing, some even elegant; noticeable are vases of pitcher-like shape (unnumbered), and a pair of Holbier vases, Nos. 222, 223. All the examples are painted under glaze, and, almost without exception, in rich, subdued, and mellow tones. The designs are mostly derived from floral forms, and show a breadth of treatment and feeling after line so delightful to the modern craftsman. The most interesting of the exhibited examples, and those which invite the most criticism, are reproductions—on tiles and panels—of pictures by the famous artists of the Netherlands. The difficulty with which potters have to contend is the liability of the painted colours to change while undergoing the process of firing; in no case would the result be more evident than in the case of reproducing of other men's work of another art than that of pottery. On the whole the artists of the Rozenburgh Pottery have got the tones of the various pictures copied with singular success, the main characteristics of each picture are skilfully suggested. Among the works thus reproduced are a Terlurg; a "Village Inn," by Dusart; a "Study of an Old Banqueting Hall," by Bosboom; some views of Delft and the Hague, by Klinkenburg; and paintings by Teniers and Metryn.

A proposed Vernet Exhibition. A COMMITTEE has been formed at Paris to organise an exhibition at the Ecole des Beaux-Arts, in the spring, of the works of the remarkable family of painters Joseph, Carle, and Horace Vernet. The latter was a great name in French painting a generation back, though he is rather forgotten now; his great battle pictures, though full of energy and dramatic vigour, would now be thought somewhat theatrical and unreal in style, though he was a painter of remarkable powers in his way, and with a remarkable faculty of observation and memory. The proceeds of the exhibition are to be devoted to the erection, at Paris, of a monument to the three artists.

South Kensington Awards, 1897. THE Department of Science and Art have taken what to the best of our recollection is a new step in publishing, along with the Report of the Examiners on the works sent in by art students in the different classes, a number of illustrations of the works to which prizes were awarded. Some of the decorative designs are very good; we may mention especially that by Mr. Cartledge (Hanley) for an earthenware plate, that by Miss Appleyard (Scarborough) for a damask serviette, and that by Miss Naismith (Glasgow) for a silk hanging. A design for a gesso panel for the front of a piano, by Mr. Ellwood (Camden School of Art) is also very meritorious. In architecture we see that designs which have already obtained prizes elsewhere come in again at South Ken-

sington; we recognise both the "Provincial Meat Market" and the "Memorial Chapel" as old acquaintances. The examiners in architecture (Messrs. Aitchison, T. G. Jackson, and J. J. Stevenson) express themselves little satisfied with the general level of the architectural work sent in, and suggest that the students should be encouraged to pay more attention to the elementary principles of architectural composition and less to fanciful and illegible lettering on their drawings. They also urge, and very rightly, that in the case of measured drawings only good examples of architecture, old or new, should be chosen; "the study of bad examples is necessarily injurious to the student."

STUDENTS' DRAWINGS AT THE ROYAL ACADEMY.

THE annual exhibition of students' drawings at the Royal Academy, in connexion with the prizes and studentships, was open to the public on Saturday and Monday last. In the architectural section the Gold Medal and Travelling Studentship was awarded to Mr. A. H. Christie, for his design for a nobleman's country house. Nine sets were submitted for this prize, and although the general design of the exterior seems to us to be lacking in interest, and somewhat too severe in treatment, the plan is undoubtedly the best of those submitted. The prize for the plan of a building (an Art Gallery) was won by Mr. H. C. Hide, for a very good plan, with central hall and staircase, flanked by two areas or courts surrounded by galleries on the upper floor. The subject set for measured drawings of old work was Bishop Juxon's Hall at Lambeth Palace, now the Library. Of the two sets submitted, that by Mr. A. M. Watson has been awarded the first silver medal. The second medal was not awarded. The 25^l. prize is taken by Mr. G. J. J. Lacy, and the 10^l. prize by Mr. J. S. Lee for a set of an architectural design. The lych-gate is curious, but somewhat lacking in the sense of proportion in many of its details. The general work in designing done in the schools does not call for special remark; and, considering the subject set, and the gold medal offered, the student-work does not attain a very high standard. The sculpture is of higher merit, and the group "Charity," by Mr. Alfred Turner, well merits the Travelling Studentship and Gold Medal which has been awarded it. The group of Fighting Gladiators, by Mr. E. M. Bayes, awarded the 30^l. prize for a model, is very spirited. The same artist wins the first prize for a set of three models from the life, the second prizeman being Mr. A. B. Pegram.

The decorative work is not good in composition, although much of the draughtsmanship and modelling is excellent. Miss Mary Brickdale wins the prize for the decoration of a portion of a public building. The subject set was "Spring," the upper part of a doorway encroaching on one side of a lunette, and thereby adding to the difficulties of the decorative treatment.

In painting, the Gold Medal and Studentship has not been awarded. The Creswick Prize, for the painting of "A Lock," is won by C. M. Q. Orchardson for an excellent piece of work, good in composition and solidly painted. The Turner Gold Medal (subject, "An Afterglow") is awarded to Mr. A. Priest; eighteen competed. Miss Towgood wins the 25^l. and medal for the cartoon of a draped figure of Hermione as a statue. The work done by the students in painting and sculpture elected in 1895 is also exhibited. "A sketch for Dante at Ravenna" and a "Temptation," both in bronze, and a bust of a Bretonne Fishwife, in beech and teak and lead, are the most striking of the works done by Mr. E. Derwent Wood.

THE CHRISTMAS HOLIDAYS.—Next week the *Builder* will be published on Thursday, the 23rd inst., and to ensure attention all communications for the Editor must reach our office by Wednesday morning next.

STATUE OF THE QUEEN AT BRIGHTON.—A statue of the Queen, which has been erected in Brighton, was unveiled on the 8th inst. The statue, which is of Carrara marble, is the work of Professor Nicoli, of Ferrara, and is 9 ft. in height. It is mounted on a pedestal of Ravennese marble, and bears the inscription, "Victoria, R.L., 1897."

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

BRICKWORK TESTS.

A SPECIAL General Meeting of this Institute was held on Monday at No. 9, Conduit-street, Regent-street, (Professor Aitchison, A.R.A., President, in the chair) to confirm the resolution of the Special General Meeting respecting the change to be made in By-law 30.

The Chairman moved that "the resolution agreed to at the Special General Meeting of November 29 be confirmed, viz.: that in order that the Council of the Royal Institute may remain in office until the close of the last General Meeting in June of the year following that in which they were elected, the following alteration be made in by-law 30, viz.: that in the last line but one of the final clause the word 'last' be substituted for 'first.'"

This having been agreed to, the Special Meeting concluded, and an Ordinary General Meeting was then held.

The Chairman said he had to announce the death of their friend, Octavius Hansard, who was one of the earliest members of the Institute, having been elected an Associate in 1849 and a Fellow in 1860. He (the Chairman) and several members of Council and others attended the funeral at Brompton Cemetery.

The Chairman said he regretted to have to announce, unfortunately, the death of their distinguished Gold Medallist, Mr. Pearson. All of those who knew him could not but have felt that he was one of the very first specimens of the English gentleman. Every one must have known his kindness of heart and vigour of mind and uprightness. He was one of the most distinguished of our ecclesiastical architects, if not the greatest Gothic architect that we had. His works are spread all over the country, and we know very many of his works that brought him into fame. When he (the speaker) first had the pleasure of knowing him, in 1855, he had just built the church at Vauxhall which contained, he believed, the first brick vaulting on stone ribs that had been done in modern days. He was always ready to give his advice to anybody who wanted it—to any of his professional brethren or any younger members who desired to have the advantage of his large experience, and they all admired the great works that he had done. Almost all of them had seen his restorations at Lincoln, his restoration of the Abbey, and some of them had seen his cathedral at Truro. Everybody who knew Mr. Pearson must have loved him; and all those who did not know him, but who had seen his works, must have admired his genius and also the great quantity of work which he produced. The Chairman then concluded by moving "a vote of condolence to the family for this loss to us, to his family, and to the world."

Mr. Wm. Emerson, Hon. Sec., announced the death of William S. Cross, Fellow, Joseph Batley, Associate, and A. J. Forge, Associate.

The report on the third series of experiments conducted by the Science Standing Committee to ascertain the average strength of various descriptions of brickwork was presented, and read by Mr. Wm. C. Street. The report stated that the experiments were completed last spring by the crushing at the West India Docks of twenty short lengths of brick walls, each about 6 ft. high by 27 in. long and 18 in. thick. The committee did not propose at present to give any fixed rules based upon the results or information gained by these experiments, as it was hoped that the Council of the Institute would sanction the preparation of a careful analysis of the facts contained in the three reports, and issue it in a suitable shape. If this were done, it might be possible to generalise, and formulate rules to govern the use of different kinds of brickwork as the supporting features of the structures erected under their superintendence. Meanwhile a few impressions could be given. The resistance of brickwork in lime mortar to crushing seems to vary from one-sixth to one-eighth of the resistance offered by the brick itself, while in cement mortar it varied from one-half to one-fifth of that strength. So while cement mortar materially aided the weaker bricks in their combined strength, it could not materially affect the ultimate power of resistance in brickwork made of a harder variety. The different specimens in lime mortar and those in cement mortar showed comparatively little difference in the respective rates at which the beds were crushed. The only question was how long the

bricks would be able to resist the pressure if the load was increased at these rates. The average thickness of the bricks was $2\frac{1}{2}$ in., and the total thickness of the mortar beds 6 in., while the compression of the lime mortar beds averaged 1 in. and that of the cement mortar beds about $\frac{3}{4}$ in. This proved that the mortar generally was well crushed and disintegrated long before the final collapse of the several examples of brickwork. In dealing with the working load that might be calculated upon, care must be taken not to impose such a load as would materially damage the structure of the brickwork. At one-fifth of the crushing load, the compression in lime mortar averaged $\frac{1}{4}$ in. in 6 ft. of brickwork, and in cement mortar it averaged $\frac{1}{8}$ in. The great difference between dead and live loads must not be lost sight of. Taking a safe load as one-fifth of the crushing load, it might be assumed from the results obtained that in lime mortar stock brickwork is equal to about 33 tons, Gault 6 tons, Fletton 6 tons, Leicester red 9 tons, and Staffordshire blue 23 tons, per square foot. In Portland cement mortar, 1 to 4, stocks would be equal to about 8 tons, Gault 10 tons, Fletton 11 tons, Leicester red 17 tons, and Staffordshire blue 24 tons, per square foot. Under the ordinary or average conditions of practice, the form of brickwork did not greatly affect the strength, the 18 in. square piers having given approximately similar results per square foot to those obtained from specimens 27 in. by 18 in. With regard to the effect of age upon the different varieties of brickwork, results showed that, except in the case of blue bricks in cement, those built three months gave very similar results to those built five months. The difference in the case of the blue bricks was partly due to the fact that the bricks of which the specimens 27 in. by 18 in. were built were from a stronger lot than those of which the 18 in. square were built, the samples from each delivery failing respectively at 779 and 701 tons per square foot.

The tables of results, showing dimensions, age, and materials composing the piers, the pressure on gauge in pounds per square inch, the total real pressure in tons, the pressure per square foot of wall in tons, compression in inches, with observations on the varying conditions of the brickwork under increasing strains, are set out in the Institute Journal, with reproductions of instantaneous photographs of the piers while being operated on. Supplementary tables and formulae by Professor Unwin, F.R.S., are appended thereto. We are able to give two of these tables—A being a table prepared by the Committee, and B by Professor Unwin.

A.—Third series.—Crushing loads in tons per square foot.

	Stocks.		Gault.		Fletton.		Leicester Red.		Stafford Blue.						
	No.	Average	No.	Average	No.	Average	No.	Average	No.	Average					
Bricks crushed at		84'27		189'20		230'85		362'70		779'60					
Brickwork in Lime at	34	17'44	36	31'34	42	30'81	38	45'94	40	118'10					
	35	19'83	18'63	37	30'94	31'14	41	30'51	3'68	39	44'78	45'36	41	110'56	114'34
Brickwork in Cement at ..	44	39'24	46	51'50	52	54'88	48	80'91	50	139'55					
	45	39'34	39'29	47	51'19	51'34	53	57'63	56'95	49	85'78	83'36	51	131'35	135'43

B.—Crushing Strength per square foot.

Mortar.	Age in Weeks.	Stocks.		Gault.		Fletton.		Leicester Red.		Staffordshire Blue.	
		No.	Average	No.	Average	No.	Average	No.	Average	No.	Average
Single Brick Sand Pier ..	—	84	—	189	—	231	—	362	—	780	—
		—	—	—	—	—	—	15	—	—	—
First Series.											
Lime ..	3½	10.4	21.9	—	—	30.7	74.3	—	—	—	—
	10	12.5	21.6	—	—	34.1	73.7	—	—	—	—
Cement ..	3½	14.9	17.8	—	—	35.5	72.8	—	—	—	—
	10	19.7	30.0	—	—	50.4	82.5	—	—	—	—
Second Series.											
Lime ..	3½	18.3	—	—	—	—	—	—	—	—	—
	10	—	49.6	—	—	86.4	103.1	—	—	—	—
Cement ..	3½	—	—	—	—	—	—	—	—	—	—
	10	—	—	—	—	—	—	—	—	—	—
Third Series.											
Lime ..	5	18.6	31.1	30.7	45.4	114.3	—	—	—	—	—
	10	29.3	51.3	98.3	83.0	135.4	—	—	—	—	—
Cement ..	5	—	—	—	—	—	—	—	—	—	—
	10	—	—	—	—	—	—	—	—	—	—

A general description of the crushing of each pier was given to the meeting by Mr. Max Clarke, with the aid of the photographs referred to, thrown on the screen by means of the lantern.

In the discussion which followed, Mr. H. H. Statham said he should like to take the earliest opportunity of correcting a misapprehension which might arise from the last paragraph of Mr. Max Clarke's paper. He referred to what Mr. Clarke called a statement in the *Builder* about the extraordinary crushing load of the Fletton brick. It should not be forgotten that that was not a statement made by the *Builder*, but it was a report of the statement made by the makers of the brick, which was a very different matter.

Mr. Gordon Smith, Chairman of the Science Committee, said that in the last series of tests lengths of actual wall had been used, as distinguished from ordinary brick piers. He thought the results answered all their expectations. He wished they had had a little more money to go a little further. He would ask them to put on record once more their renewed thanks to Sir William Arrol for the great help he had afforded to them, and to Mr. Donaldson, the Engineer of the Dock Company, and to those gentlemen who had given up so much time in looking after the experiments.

Professor Unwin said they had come together to record the completion of work which must have taken something like three years between the conception and carrying out, and which had involved a good deal of co-operation between a good many people, and which would prove to be practically of very considerable use. In only one single respect there was a little difference from what had hitherto, from his experience, been the ordinary procedure—there was really no report which was the report of the Committee. The general report on the tests was a report which had been made by two members of the Committee. As this was the last of three reports, he thought it was rather a pity that some matters to which attention had been called had not been at all noticed. To take a very small matter first: after the second series of tests a series of analyses were made of the lime mortar and cement mortar used in the piers. He pointed out a year ago that in the heading of the table containing those results there were some errors, and he thought it would have been well if some reference had been made to the fact that those headings were as they stand nearly unintelligible. There was a much more important point: a year ago he objected altogether to the tabulation of the results of the first and second series of tests, and he thought it might have been well, perhaps, if in this final report some attention had been given to that point. He thought the way in which the results were put forward a year ago completely confused the teaching of the results. Quite at the beginning, before anything was built or

than in the building of the first series. Mr. Max Clarke had written to him afterwards, saying that he thought he (the speaker) was mistaken; but even Mr. Max Clarke did not seem himself to be quite certain of the matter. But there was no question that the mortar in the second series of piers was very much better mortar than the mortar in the first series of piers. The mortar in the first series, after three months, crumbled in the hand—both the cement and the lime mortar—and he was quite certain that in the second series of piers they had a very much better mortar than they had in the first series. When, finally, there came to be built a third series of piers in the shape of walls, a quite new quality of sand was obtained for making the mortar—a very much better quality of sand. There was no doubt about that, whatever there was about the second series. A very small sample was sent to him—a tiny little box out of which he could just make two cubes for testing, but not enough to get any good average result, and he had handed in the results of those tests. The tests of these two cubes of this new sand gave a better result than cubes made even with the lime and cement with the ordinary sand used in testing, so that there was no question whatever that the third series of piers was built with better sand, and, from what he saw one day, the mortar also was very much better than the mortar in the first series of piers. To his great surprise, in this third report there was absolutely no reference to the fact that a quite new and different sand was used in the mortar employed in building the piers. Now, he attached very great importance indeed to the quality of the mortar used in building the piers, and he believed that a very large part of the difference of the result in the tests was due almost exclusively to the difference in the quality of the mortar used in building the piers. He read in the report: "The Committee do not propose at present to give any fixed rules based on the results or information gained by these experiments, as it is hoped that the Council of the Royal Institute will sanction the preparation of careful analyses of the facts contained in the three papers, and issue the same in a suitable shape." Now he thought, if the report had come before him, he should have said that the Committee were abdicating their proper functions in refusing to discuss their own results. Those who had carried out the experiments and had seen them, and who had got in mind all the data, were the best persons, initially, at any rate, to draw conclusions from the results. Happily the writers of the report had not been quite consistent, because they had proceeded to draw some conclusions. He did not know that he had very much to dissent from in the general way in which they had summed up their results. There was one conclusion which really depended entirely on tests of his own, but which he should certainly not have drawn himself. Two Staffordshire brick piers gave way with somewhat different loads, and that was explained by saying that the bricks of which specimens 27 and 18 were built were very much stronger work than those from which the 18-in. square piers were made, those failing respectively at 779 and 701 tons per square foot. Now the 779 and 701 were figures obtained by him in the laboratory at Kensington. The 701 was the average of five or six tests of five or six bricks from one lot, and the 779 was a single test of a single brick taken from a second lot. He should not have drawn the conclusion, from the test of a single brick, that the second lot of bricks was stronger than the first. It was not a big point; in fact, it was only a very small one, but it was just one of those points which experience in testing made one rather resent. The Committee, while disclaiming the desire to set down any fixed rules, had drawn up what really amounted to fixed rules about the strength of brickwork, and they had laid it down that piers built with lime-mortar would carry so many tons per square foot and so on, and they said that they had got those figures by taking one-fifth of the crushing load which they had observed. They ought to have said two things. They ought to have said first that that would not in any case apply to piers less than three months old, which was a very important point, because, in a great many cases, it was not the strength at three months, but the strength at one month which one had to look to in deciding whether brick-

work would stand the work it had to do or not. They ought to have said one thing more, namely, that those figures were deduced entirely from the second and third series of tests, and they had to discard the first series before they could get figures like those they had given. If they would simply take the results which they as a Committee had got and would only tabulate them in the most simple and straightforward way, it would be seen that they were much less anomalous than at first sight they looked to be. He spoke a year ago as to the anomalies of the experiments, and he was partly misled by the way in which the Committee had tabulated the results. He had had a table prepared to show that the discrepancies and anomalies were really not so great as at first sight they appeared to be—not nearly so great as they appeared to be in the table of results of the 18-in. piers which the Committee published a year ago. He had kept together all the piers of the first series which were all made at one time; he had kept all the second series made at another time, and all the third series which were made at a third time. If they took the first series alone just as it was, there were really no serious anomalies in the results, except perhaps the cement piers at three months; they were bad results on the whole, but there were no particular anomalies about them. At three and a half months the Stocks in lime carried 10 tons per square foot, and at ten months 12½ tons. In cement at three and a half months they carried nearly 15 tons, and at ten months nearly 20. Those were perfectly consistent results. The Gauls in lime carried 21 tons per square foot, both at three and ten months; the difference being probably that the second pier was not quite so well built. There was no great anomaly about the other figures in the table, the results were not absolutely regular and had some anomalies, but there were not discrepancies of any serious kind. There were not anomalies more than they might expect to get in testing materials like bricks of varying hardness, and not very carefully or very well built into the pier. After the three and a half months' series was completed it was decided to build some piers like some of those previously tested, to see if better results could be got. The Stock bricks in the first series broke at 10 tons per square foot, and in the second series they carried 18; that was, they had a better built pier, a pier with a better mortar in it. There was no question about the mortar being better. The Gault bricks, built in cement, at three and a half months carried in the first series 17 and 18 tons, and in the second 49. The Leicester reds carried in the first series 58 tons, and in the second 86. In the first series the Staffordshire blues carried nearly 73, and in the second series 103. It was obvious on the face of that that the whole of the piers in the second series carried nearly double the load of those in the first series. That he attributed entirely to the care taken in the preparation of the mortar, and, at any rate, whether that was a true explanation or a false explanation, it was quite clear that they must not mix up the results in the first series with those obtained from the second series. The mischief in the report on the second series of tests which was published was that they had got a table in which those two series of quite distinct results were mingled up together. With the third series there was no question about the mortar being very good; it was made with better sand, and no doubt was very good mortar. The third series agreed almost exactly with the second wherever there was a possibility of comparison. The Stocks in lime carried 18.3 in the second series and 18.6 in the third, with a little difference of age. The Gault bricks carried 49.6 in the second series in cement, and 51 in the third series. The Leicester reds carried 86 in the second series and 83 in the third—a difference of no moment in an experiment of that kind. The Staffordshire bricks in cement carried in the second series 103 and in the third series 135, a little difference, but not a very serious one. The third series agreed entirely with the second series and within the limits of ordinary errors in such experiments they might say that the second and third series gave identically the same results.

Mr. William White said there was not nearly enough allowance made in ordinary work as to its stability, both as to the quality of the mortar, the quantity of the mortar, and the mode in which it was made; and in such tests as these it was absolutely necessary that all

the circumstances should be as equal as possible throughout. It was only by testing those special things, the tests made at one time, the tests made at another time, and the tests made at a third time, all separately, that any proper and reliable average could be obtained.

Mr. William Woodward said that if they could only secure, as Mr. White had suggested, precisely the same conditions as regards quantity and quality of the sand, the amount of mortar and the thickness of the joint, the character of the grouting and the quality of the brick;—if they had the results both as regards the size of the pier and as regards the weight placed upon it and the time occupied before the test was made, he felt sure that the efforts of the Committee would be certainly some of the very best efforts which the Institute had sent forth. He was sorry that the funds were not sufficient to have resulted in a complete test, but he thought that if the matter was properly put to the members sufficient funds would be forthcoming so that a fourth test could be made. The experiments were of great value to the practising members of the Institute, and further experiments might be confined simply to granite, Portland stone, Red Corsehill, and Bath.

Mr. Douglass Mathews asked why one-fifth of the crushing load was taken? He was under the impression that a fourth was always taken, and he could see no reason for taking a fifth.

Mr. Bruce J. Capell said that Professor Unwin had said that he did not understand exactly on what principle, in the second series, particular piers were taken for testing. He (the speaker) had only his recollection of the papers read on previous occasions, but he thought it was accurate, and he believed, with regard to the pier of Stock brickwork in lime in the second series, it was explained to them that on the first occasion when the pier in lime was tried, the water was admitted somewhat with a rush, and the pier crushed with the rush, and in such a manner as gave no opportunity for exact measurement, or exactly making the test. The second pier that was tried was one of Gault bricks in cement, and he thought it must be pretty obvious why they tried that. It seemed to him rather a considerable anomaly that a pier built in cement crushed at 17.8 as against a similar one in mortar which crushed at 21.9, that was to say the one pier crushing with 20 per cent. less pressure. With regard to the others there seemed to be somewhat similar anomalies. They perhaps did not go out of the margin which might be allowed for the purpose, but they were rather striking. The pier built of Leicester reds, built in cement, crushed at 86.4 in the second experiment, whereas the previous one, one at ten months old, failed at 9 tons lower than the one at three and a half months old; not a thing that most of them would have expected. In the case of the Staffordshire blue, they found that both the Staffordshire blue bricks, the one at all events in cement, failed at a lower pressure than the one in lime. He did not speak for the Committee at all, but he thought it reasonable that they should make the further experiments of the second series, as they seemed anomalies to an ordinary professional man—one not accustomed to scientific experiments. The second series, Professor Unwin said, showed no anomalies compared with the third—showed very little difference, in fact. The second series compared favourably with the third in many respects, and the second, he (the speaker) thought, were built with the same sand as the first experiments, the third being built with a highly superior article. If that were so, then the second experiments with the inferior mortar seemed to be pretty well on all fours within a reasonable margin with the experiments where they had the best possible mortar.

The Chairman said it seemed most extraordinary that when experiments were made on brickwork in mortar, the mortar was such that no architect who had any acquaintance with building would ever think of using it. No one would ever think of using mortar for any work that had two of sand and one of lime; they knew it was about of equal value to mortar with one fifth of sand, and that mortar with three of sand to one of lime was about twice as strong as when it had two of sand to one of lime, and there was very little difference between mortar composed of four of sand and one of lime. However, the varieties in experiment must always be very great. They could not get a thing perfectly homogeneous; bricks

are moulded under different circumstances, and so, if they wanted to get a proper average they must take a very large number of these bricks into the experiment. He was not quite so sure as Professor Unwin seemed to be, that the Committee were wrong in having the piers in the first instance built no better than they would be in ordinary work, and, at any rate, it gave some criteria as to what percentage must be allowed for ordinary work, and that which was built for experimental purposes. It was very easy if they got hold of a good bricklayer and told him, if they wanted this pier built for experiments in strength, to get him to fill all the course joints, and take the greatest possible care, but if they told him he must get this pier done in a certain time, he never thought of filling any of the course joints. Although there was some little use in grouting, he thought the principal use might be considered to be that there was some damp left in the brickwork so that the mortar might crystallise instead of going to powder. Vitruvius told them to be very careful, in building rubble walls, that there was plenty of mortar put in, because, he said, "if you do not attend to that the rubble absorbs all the water out of it and in a very few years you find it consists of stones and dust; but if there is plenty of water then the mortar will get hard, and you will have it harder than the stone." That, of course, they all knew who had ever seen any houses of the last century pulled down; there was no adhesion whatever in the mortar, and directly the weight of the roof was taken off they could pick out the bricks with their finger. The results of the experiments, especially in the harder sort of brick, were being used now by all persons engaged in large building operations, and, at any rate, however unfortunate might be these results, as far as comparison goes, still, they had something to go on; whereas, before the experiments, there was a great deal of guess work. The tendency of the present time was that all their figures should be based upon careful experiments. They did now what Machiavelli did for moral action; he did not trouble himself about what ought to be, but what was. Now, if architects wanted to know what a thing would bear, they tried it; they picked out a considerable number of specimens and struck an average—it might be pieces of wood or stonework, or whatever they liked—and saw what they would really bear, and by that method they get an approximation much nearer to what they wanted than they could get by any other means.

The Chairman then proposed a vote of thanks to the Committee for all the trouble they had taken. This was agreed to.

Mr. Max Clarke said it was an absolute fact that the first and second series were built with absolutely the same materials out of the same heaps. For the third series, Messrs. Cliffe sent a particularly good sample of sand which, on the morning of November 6, 1896, was exhausted, and he went to the dock foreman and asked him if he had any sand with which they could finish the piers, and he said he had. He found it so very inferior to what they had been using that he sent Mr. Street a telegram to the effect that the new sand was very inferior. Messrs. Cliffe sent another consignment of sand which was not quite so good, but very nearly. That was the explanation as to the sand.

Mr. Street said that with regard to Mr. Mathew's question, the figure of a fifth was stated in the report because it was suggested that that compression of the mortar sufficiently indicated that the brickwork was then undergoing a strain quite as large as it ought to bear. They knew very well that instead of a fourth very much less was taken very often in brickwork, and very much heavier weights than a fifth were placed. With regard to the results generally, the Committee only made a report that evening upon the third series. They hoped that they would have Professor Unwin's assistance in preparing the concrete arrangement of the whole three, and they were very much indebted to him for his remarks.

The Chairman said he was going to remark that the usual way in which they judged of the strength of brickwork (although he was sorry Professor Unwin did not quite agree with him) was that they took the weight when the brickwork or stone work, or whatever it was, showed the first sign of cracking. They considered then that it was loaded beyond its proper load and from that they considered that one-fourth of that load was a sufficiently safe load. The result spoken of in the report

seemed to have been taken on the squeezing of the mortar.

The meeting then terminated.

ROYAL ACADEMY SCHOOLS:

LIST OF PRIZE WINNERS.

The annual distribution of prizes to students of the Royal Academy took place at Burlington House on Friday last week, Sir E. Poynter, P.R.A., presiding.

The Secretary read the following list of prize winners:—Historical painting, "Cleopatra clandestinely introduced into the presence of Caesar," Gold Medal and travelling studentship (200*l.*), not awarded; landscape painting, "An Afterglow," Turner gold medal and scholarship (50*l.*), Alfred Priest; landscape painting, "A Lock," Creswick prize (30*l.*), C. M. Q. Orchardson; painting of a figure from the life (open to male students only), silver medal, 1st, Allan Douglas Davidson; ditto, 2nd, Arthur Thomas Holloway; painting of a head from the life, silver medal, 1st, Alfred Guy Smith; ditto, 2nd, Edmund L. Van Someren; painting of a draped figure (open to female students only), silver medal, 1st, Hilda Koe; ditto, 2nd, not awarded; cartoon of a draped figure, "Hermione as a Statue"—The Winter's Tale, silver medal and prize (25*l.*), Mary Towgood; design in monochrome for a figure picture, "Jephthah meeting his Daughter,"—Judges, chap. iii. v. 34, 35, Armitage prizes, 1st (30*l.*) and bronze medal, not awarded; ditto, 2nd (10*l.*), Ernest George Ellis; design for the decoration of a portion of a public building, "Spring," prize (40*l.*), Mary E. F. Brickdale; set of six drawings of a figure from the life (open to male students only), 1st prize (50*l.*) and silver medal, Owen Baxter Morgan; ditto (25*l.*), Ernest George Ellis; 3rd ditto (15*l.*), George Murray; 4th ditto (10*l.*), Morris Bernstein*; drawing of a head from the life, silver medal, 1st, Francis Edw. Colhurst; ditto, 2nd, Geoffrey Alan Mott; drawing of a statue or group, silver medal, 1st, Mabel Catherine Robinson; ditto, 2nd, not awarded; perspective drawing in outline (open to painters and sculptors only), "An Interior View of the Entrance Portico of the Royal Academy, looking East," silver medal, no competition; composition in sculpture, "Charity," Gold Medal and travelling studentship (200*l.*), Alfred Turner; model of a design, "Gladiators Fighting," 1st prize (30*l.*), Gilbert William Bayes; 2nd prize (10*l.*), not awarded; set of three models of a figure from the life (open to male students only), 1st prize (50*l.*) and silver medal, Alfred Turner; 2nd ditto (20*l.*), Alfred Bertie Pegram; design for a medal, "A Design for a Cast Medal, Obverse and Reverse, in Commemoration of H.M. the Queen's Reign of Sixty Years," silver medal, not awarded; model of a bust from the life (open to female students only), silver medal, 1st, ditto, 2nd, no competition; model of a statue or group, silver medal, 1st, not awarded; ditto, 2nd, Mortimer John Brown; design in architecture, "A Nobleman's Country House," Gold Medal and travelling studentship (200*l.*), Archibald H. Christie; set of architectural drawings, "The Library at Lambeth Palace," silver medal, 1st, Arthur Maryon Watson; ditto, 2nd, not awarded; set of architectural designs (Upper School), prize (25*l.*), George John J. Lacy; set of drawings of an architectural design (Lower School), prize (10*l.*), John Stevens Lee; plan of a building, "An Art Gallery for a Large Town," prize (10*l.*), Horace Charles Hide; original composition in ornament, silver medal, no competition; perspective drawing in outline (open to architects only), "The Chapter House of Westminster Abbey," silver medal, no competition. The Landseer scholarships in painting and sculpture, of 40*l.* a year each, tenable for two years, have been awarded—in painting, to Edward Lawrence Van Someren; in sculpture, to Alfred Turner.

Sir E. Poynter then delivered an address, which was chiefly devoted to a criticism of the students' work, and his advice to them. He expressed his great regret that it had been found advisable to withhold the gold medal for painting this year, for that was the most widely-popular form of art from the point of view of those who produced it and those who enjoyed it. As to the cause of their failure, no doubt the difficulty of the subject had something to do in accounting for the comparatively poor level of the productions sent in. At the

same time he would encourage the students by saying that, having carefully looked at their paintings, he had discovered ample evidence of promise in them, and he was confident that some of those who had competed would achieve success, and probably take a high place in the art of the country. He warned the students against vulgar realism in art, and while he praised technical skill he would remind them that technical skill was not everything, and, however brilliant, was but a means to an end, that no mastery of technique could ever take the place of the imagination which every true artist must possess. The drawings from a draped figure were the best he had ever seen done in the schools, and he was the more gratified on this account because, while it was comparatively easy to paint drapery, the proper arrangement of drapery was one of the most difficult departments of art. The President also greatly praised the work done in sculpture. In regard to architecture, he said that he found it more difficult to express what he had to say, as, not being an architect, the views he held might arise from his not taking into account many matters, many points of necessity and requirements of the times of which he was ignorant. For architecture had so many sides to it, and could not, perhaps, be judged purely on its artistic qualities, but he confessed to a certain regret and disappointment that out of the seven or eight sets of drawings which had been sent in for the Gold Medal, the stately traditions of Classic architecture—he did not mean merely the Vitruvian or Palladian styles, but that spirit of Classicism which required dignified simplicity of forms and symmetrical balance of proportions—should only be represented by two sets of drawings, and that the rest merely display that picturesque irregularity which is the fashion of the day. He would have thought that they would have tried their hands at something less easy than the grouping of gables and chimneys. The address came to an end with the announcement that before long in those rooms, students and others would have an opportunity of surveying the whole life-work of the late President, Sir J. Millais.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Clerkenwell Vestry 3,000*l.* for paving works; the Greenwich District Board, 4,500*l.* for paving works; the Hammersmith Vestry, 10,405*l.* towards the cost of purchasing land for a wharf, and constructing wharf, river wall, and conveniences; the Newington Vestry, 1,500*l.* towards the erection of stables and sheds; the St. Martin's Vestry, 5,120*l.* for wood, granite, and asphalt works; the Shoreditch Vestry, 13,445*l.* for sewer works; the Strand Union Guardians, 4,000*l.* for additions to the Bear-yard Workhouse; and the Hampstead Library Commissioners, 2,000*l.* for the erection of a public library.

The Works Department.—The same Committee also reported as follows:—

"The acting works' accountant has reported to us with reference to the necessity for altering the percentage to be added to the cost of estimated works to cover general and establishment charges. The percentage added to works completed since March 31, 1897, was provisionally fixed at 8 per cent., but this percentage is not nearly sufficient to dispose of the balance of the general charges account for the half year ending September 30, 1897. It is anticipated that the amount of work executed during the half-year ending March 31, 1898, will be considerably in excess of that for the half-year ending September 30, 1897, and this being so, we have fixed the percentage to be added, as from November 1, 1897, to the cost of estimated works to cover general and establishment charges at 10 per cent. We think it desirable that the Council should be reminded that, as appears from the report of the Special Committee on the Works Department, in order to keep this percentage down to a moderate figure, the turnover of the department requires to be from 200,000*l.* to 250,000*l.* per annum. With this volume of work, the manager estimates that the general and establishment charges on estimated works would amount to about 6 per cent. The charges include an instalment (about 1,650*l.*) of the repayment of capital. We may state that, for the current financial year, the expenditure upon estimated works is estimated to amount to about 150,000*l.*"

The Committee also submitted a statement of the cost of the works executed by the Works Department, together with the following information:—

"The following appears to be the history of the schedule:—

(1.) **Architectural Works and Repairs.**—The Council's schedule of 1895 is a document containing 4,361 prices of different kinds of work and materials founded on the schedule of the School Board of 1894. The Board invite tenders every three years from builders, stating the percentage above the schedule at which they would contract with the Board for jobbing work. The accepted tenders are at somewhat varying rates in different parts of London, but the average of them in 1894 was about 11 per cent. above the schedule. The Council, however, considering that the Works Department were under the disadvantage of doing all jobs from one centre, resolved (Council Minutes, February 26, 1895, page 192), to allow an additional $\frac{1}{2}$ per cent., making altogether 12 $\frac{1}{2}$ per cent. above the schedule. This constituted the Council's standard for April 1, 1895. Owing to the rise in wages following the builders' strike in 1896, this standard was increased by 2 per cent., as from June 1 of that year (Council Minutes, November 17, 1896). The 'schedule value' of these works is therefore based upon an addition of 12 $\frac{1}{2}$ per cent. to the standard schedule for the period from April 1, 1895, to May 31, 1896, and of 14 $\frac{1}{2}$ per cent. from June 1, 1896 to March 31, 1897.

(2.) **Engineering Works and Repairs.**—These were valued upon the standard schedule of the late Metropolitan Board of Works with certain additions. With the exception of a few alterations, the schedule contains the same standard prices as those upon which tenders used to be invited from contractors. The contract prices for these works in December, 1890, were 3 per cent. above the schedule for the northern division, and 4 per cent. above the schedule for the southern division. Two years afterwards, the contracts were renewed for six months, and a further addition of 4 per cent. in both cases, i.e., 7 per cent. on the north side of the river, and 8 per cent. on the south side of the river, or an average of 7 $\frac{1}{2}$ per cent. The General Purposes Committee recommended the Council, on July 9, 1895, to allow an addition to the schedule of 10 per cent., and stated in their report that the reasons assigned by the late Works Committee for the increase of an average of 2 $\frac{1}{2}$ per cent. on the charges of the last contractors were (1) that since the last contract was entered into on January 1, 1893, the Council had laid down a schedule of hours of labour and rates of wages which contractors had had to adopt, and which were, of course, observed by the Works Department; and (2) that these works, which extend all over London, are carried out by the Works Department from one centre, whereas, when done by contractors, London was, for the purpose of these works, divided into two districts. With regard to the addition of 10 per cent. the chief engineer stated, in his evidence before the Special Committee, that he recommended the acceptance of this 10 per cent., because he felt sure that at that time, under the regulations applying to rates of wages and hours of labour, the Council were not likely to obtain a lower quotation from outside firms. Owing to the builders' strike of 1896, a further addition of 2 per cent. was allowed by the Council as from June 1, 1896. The valuation, therefore, represents an added percentage of 10 for the period from April 1, 1895, to May 31, 1896, and of 12 for the period from June 1, 1896, to March 31, 1897.

(3.) **Hoarding and Shoring Works.**—The prices paid to the contractors for this work in June, 1891, were 6 $\frac{1}{2}$ per cent. below the schedule then in force; the prices were raised 6 $\frac{1}{2}$ per cent. under the resolution of the Council of November 15, 1892 (Council Minutes, page 1053); that is to say, to the actual schedule rates without any deduction or addition. This schedule formed the Council's standard of April 1, 1895. For the period from June 1, 1896, to March 31, 1897, these works were valued at an enhanced price of 2 per cent., owing to the builders' strike.

We have obtained from the Architect, the Chief Engineer, and the Valuer as to how far the 'schedule value' corresponds with the probable price at which contracts could have been obtained during the two years to March 31, 1897. The Architect reports on the 29th ult. as follows: "The Committee is fully aware of the history of the schedule under which the Works Department executed the Council's jobbing works at a total of 14 $\frac{1}{2}$ per cent. above the Council's schedule compiled in 1895 from the School Board schedule already in force. This excess included 1 $\frac{1}{2}$ per cent. upon account that the work had to be done from one centre. Upon the best consideration I have been able to give to the matter I think that, putting aside this last-named addition of 1 $\frac{1}{2}$ per cent., the additions making up 13 per cent. above the Board's schedule were reasonable, and are justified by the tenders received by the School Board in 1894, together with the increase in wages which took place in 1896. Upon a consideration of the question whether 1 $\frac{1}{2}$ per cent. should have been provided in the arrangement with the Works Department, because the work had to be carried out from one centre, I do not think that such an addition can be justified. The School Board work was

* Disqualified owing to having received a superior prize in the same competition before.

distributed among twenty-six local contractor. It is not certain that one large contractor would not have taken the whole at the same average rate, but, if there is any difference, the Council might, by dividing the metropolis into about seven districts, have practically availed itself of any advantage the School Board have obtained in respect of price. There are in every district contractors who are in the habit of working within two or three miles of their premises, and who would have been within easy reach of the Council's buildings, and the experience which we have had, shows that they are ready to work at a very low rate. I think, therefore, that the 1½ per cent. should not have been added, and the Committee may remember that a similar opinion was expressed in a joint report, dated the 5th inst., by the engineer, the comptroller, and myself, on the assumption that the Council's work need not necessarily be let to one contractor.

The Chief Engineer states, in his report of the 15th ultimo, that he fully believes that the Council could have let its engineering jobbing works to outside contractors, during the period from April 1, 1895, to March 31, 1897, at a price ranging from a minimum of 10 per cent. to a maximum of 12 per cent. above the schedule rates. As to whether it would be a material circumstance, in letting contracts for jobbing works in the Engineer's Department, that allowance should be made for the fact that under the Works Department the work is executed from one centre, whereas under the old system of jobbing contracts it was done by two contractors, one for the north and one for the south side of the Thames, the Chief Engineer states that, after careful consideration, he does not think that this circumstance is a very material one, certainly it is not to be valued at any percentage worth speaking of, as he considers it to be mainly a matter of organisation, which, if properly carried out, might result in better administration from one than from two centres.

The Valuer reports that the schedule used for boarding and shoring jobs has, in his opinion, represented their fair contract value.

On reviewing the whole subject, we have come to the conclusion that, possibly with the exception of the extra allowance of 1½ per cent. for architectural works, the 'schedule value' up to March 31, 1897, was a fair one. This extra allowance makes a difference of about 230l. If this be deducted from the 3,015l. shown in the statement, the amount of cost below schedule value would be 3,685l. With regard to the 10 per cent. added for the value of engineering works, in respect of which there is no outside test available, like that afforded by the School Board contracts for architectural jobs, it appears that the Council was influenced, to some extent, by the consideration that the Department were under the supposed disadvantage of working from one centre. The Engineer, however, reports to us that he does not look upon this as a material point. This would look as if the 10 per cent. ought to have been 8½. Nevertheless, the engineer still adheres to his original opinion that contracts could not have been placed with contracting firms, under all the circumstances of the case, at a less figure than the 10 per cent. actually allowed to the department. If this be so, the cost below schedule value of engineering jobs (3,190l.) would not need modification. In conclusion, we may add that we have drawn the attention of the General Purposes Committee to the subject, and they are considering whether the schedule now in force is a proper one at the present time. The consideration of this matter, however, does not affect the present statement. The further addition of 2 per cent., which was determined upon by the Council on July 13 last, does not appear in the accounts of the period with which we are dealing in this report.

The Committee also submitted a statement of the cost of the works executed by the department during the half year ending September 30 last, and in doing so they state that they propose, in a further report next week, to make any general observations that occur to them in connexion with the statements now submitted, and, at the same time, they will report as to the excess of cost over estimate in the case of the Central works; but, in the meanwhile, they desired to make two observations with regard to the five works which show large excesses of cost over final estimate. First, that at any rate during some portion of the time during which these works were in course of execution, the Works Department was undergoing investigation, which was followed by considerable changes in the staff; secondly, that the present manager, Mr. Adams, was not responsible for these works, as they were practically completed before his appointment on February 2, 1897.

There are in all seventeen estimated works which have been completed during the half-year and are now reported upon. The final estimate for these works was 171,049l., whilst the actual cost has been 192,410l., showing a balance of cost above estimate of 21,361l. An analysis of the return shows that the losses have been chiefly made on five works. The

work of putting in the foundations at Bexley Heath Asylum was entrusted to the department in March, 1896, on an original estimate of 31,837l. Certain deductions were made, leaving the final estimate at 31,366l. The work has, however, cost 39,230l., showing a difference of 7,924l. between the final estimate and actual cost. The architect reports that 31,366l. is the actual value of the work done. The next most serious loss is shown in the work done for the Main Drainage Committee on the Fulham and Hammersmith sewer. The final estimate for this work was 24,368l., whilst the actual cost has amounted to 31,014l., showing a discrepancy between cost and estimate of 6,646l. The erection of the piers and dolphins for the Vauxhall temporary bridge has resulted in a loss of 2,267l., the final estimate for the work being 11,265l., and the actual cost 13,532l. In the construction for the Fire Brigade Committee of the Whitefriars fire-station the department has exceeded the final estimate of 20,591l. by 1,936l.; the actual cost having been 22,527l. On works carried out at the central depot at Belvedere-road, which were estimated to cost 19,210l., the estimate has been exceeded by 1,920l. There are five other works reported upon where the estimates have been exceeded, and, on the other hand, there is a balance of cost below estimate on seven works.

The schedule value of the jobbing works carried out during the half year was 6,270l., whilst the actual cost was 5,502l., showing a balance of cost below schedule value 768l. The Committee append to their report a statement showing the totals of the actual cost and of the final estimates or the amount of the schedule value of all works executed by the Works Department since its creation. From this it appears that the final estimate for all the estimated works completed up to March 31, 1897, was 459,772l., and the actual cost 462,897l. Adding to that the figures for the half year ended September 30 last, of final estimate 171,049l. and actual cost 192,410l., it will be seen that the final estimate for all the estimated work carried out by the department has been 630,821l., and the actual cost 655,307l., so that the operations of the department since its creation in regard to this class of work have resulted in a loss of 24,485l. As to the total of the jobbing works, figures are only given from April, 1895, since, prior to that date, there was no schedule of prices for comparison. The actual cost of jobbing works executed up to that date was 72,005l. The return shows that since April, 1895, the schedule value of the jobbing works carried out by the department has been 62,446l., and the actual cost 57,763l., showing 4,683l., or about 7½ per cent., as the amount of cost below schedule value. The Committee have also drawn up statements with regard to the works refused by the Works Department, for which tenders were afterwards received from contractors, and also a return of the architect's estimates and lowest tenders received for works suitable for, but not offered to, the department. These have been circulated to members of the Council, but have not yet been made public.

On the motion of Mr. Corbett, seconded by Mr. Boulnois, M.P., the consideration of the subject was adjourned until after the Christmas recess.

At a later period of the sitting the following paragraph, contained in the report of the Housing of the Working Classes Committee, was discussed:—

"On July 27 last we reported that the Manager of works was unable to carry out the erection of Cookham (then called Romney) buildings, Boundary-street area, at the amount of the estimate then submitted to him, and the Council thereupon authorised us to issue an advertisement inviting tenders for the work. Since that date the Architect has found it necessary to revise the estimate which was then passed by the Council, and also to make some slight modifications in the drawings of the buildings. These alterations cause an excess of 228l. over the amount voted by the Council on July 27 last, but they do not affect the amount chargeable against the buildings, so that the balance to the good after complying with the Treasury requirements reported by the Finance Committee on July 20 last will remain unaltered. The revised estimate of the cost of works in connexion with the erection of the buildings, which amounts to 14,180l., is a new one for all practical purposes, and we therefore think that before tenders are invited, the manager should have an opportunity of considering the figures as they now stand. We have forwarded an estimate of 14,864l. to the Finance Committee, and they will submit the same in due course. We recommend—(a) That the estimate of 14,783l. submitted by the Finance Committee be approved in substitution for the estimate of 14,576l.,

approved by the Council on July 20 last (being an increase of 207l.). (b) That the Housing of the Working Classes Committee be authorised to refer the revised estimate of 14,180l. for works in connexion with the erection of Cookham-buildings, Boundary-street area, to the manager of works for examination and report before proceeding upon the resolution of the Council of July 27, 1897, authorising the Committee to invite tenders for the work."

Mr. Westacott moved that the recommendation be referred back, with instructions to the Committee to invite tenders from contractors. The conditions of contract had now been altered, and there was no reason why contractors should not be invited to tender, especially as the report of the Finance Committee on the Works Department had not been discussed.

Sir B. Maple seconded, and on a division a tie resulted, fifty-six voting for and fifty-six against. The original motion was then put, and on a division it was carried by a majority of one, fifty-six voting for and fifty-five against. The result was due to the fact that one of the Moderate members did not hear the division bell, and so did not record his vote.

The Fire Brigade Committee reported as follows:—

"In continuation of our previous reports on the subject of enlarging and altering the Hampstead station, we have to report that the architect informed us that the carrying out of the additional alterations suggested since tenders for the work were invited would involve an expenditure of about 100l. over and above the cost of the work previously contemplated. The architect suggests that this 100l. should be added to the amount provided in the estimate for contingencies. It will be remembered that the estimate of the manager of the works department of the cost of the work of altering and enlarging the station according to the specification, quantities, and drawings originally supplied by the architect was 4,800l., and we accordingly referred to the manager under the standing order the revised drawings, with an estimate of 4,900l., for report whether he was satisfied therewith. The manager having intimated that he concurred in the architect's suggestion with regard to the extra work, we have forwarded to the Finance Committee an estimate of 4,900l. plus 100l. to cover the cost of the preparation of quantities and the lithography of drawings, and we recommend—

(a) That the estimate of 4,900l. submitted by the Finance Committee in respect of the enlargement and alteration of the Hampstead fire-engine station be approved, that the Council do authorise such expenditure, and that the work be carried out without the intervention of a contractor, and be entrusted to the Works Department.

(b) That the estimate of 100l. submitted by the Finance Committee in respect of the cost of preparing quantities and lithographing drawings of the work of enlarging and altering the Hampstead station be approved."

The Earl of Hardwicke moved to refer the matter back, with instructions to the Committee to invite tenders.

Mr. Roberts seconded, and the amendment was agreed to on a division, 47 voting for it, against 45. Several speakers protested against the policy of "starving" or "smashing" the department.

Lincoln's Inn Fields.—The Parks Committee recommended the erection of new conveniences, both, and tool-sheds in Lincoln's Inn Fields at an estimated cost of 970l., the work to be carried out by the Works Department.

Dr. White moved to refer the report back.

Mr. Leon seconded the amendment, on the ground that the space available for children's play ought to be extended.

Mr. Burns, M.P., suggested an underground construction in preference to buildings above ground, in order to economise space.

Mr. Weltenhall observed that Mr. Burns's suggestion upon the present matter could not be accepted. The Council had great difficulty in obtaining possession of Lincoln's Inn-fields, and any infringement of the covenants and restrictions would probably result in an injunction.

The amendment was lost upon a show of hands, and the Committee's recommendation was then agreed to.

Standing Orders and Conditions of Contracts.—The General Purposes Committee reported as follows:—

"In our report to the Council on the 30th ult. we submitted a revised form of standing orders in place of standing orders Nos. 203 and 211, relating to rates of wages and hours of labour. The revised form was intended to give effect to certain recommendations in the report which were adopted by the Council. On the motion to adopt the revised form an amendment was moved with reference to the list of rates of wages and the hours of labour to

be paid and observed in works carried out by the Council without the intervention of a contractor, and our chairman took back the recommendation in order that the effect of the amendment might be duly considered. It will be remembered that one of the resolutions passed by the Council on the 30th ult. was that the twenty-mile radius within which the regulation as to London rates of wages and hours of labour operates should be altered to twelve miles, and the object of the amendment was to place the Council, as regards works carried out beyond the twelve-mile radius without the intervention of a contractor, on the same footing as contractors as to the payment of wages, &c. There would be considerable difficulty in preparing and keeping up to date lists of wages paid and hours of labour observed in districts outside the twelve mile radius where there might be a possibility of the Council carrying out works, and we think the standing order in question, so far as the list is concerned, should be limited to works carried out within the twelve mile radius. As regards works outside the radius of twelve miles, carried out by the Council without the intervention of a contractor, we think that the rates of wages, &c., to be paid in connexion with such works should be settled at the time when the works themselves are about to be carried out. The only alteration, therefore, which we think it necessary to make to the substituted standing order proposed is the addition, so as to make the matter more clear, of the words in italics at the end of the first paragraph. This paragraph is in other respects identical with the existing standing order.

We recommend—That in place of standing orders Nos. 327 and 211, the following be substituted:—*Rate of wages and hours of labour.*—(1) There shall be kept at the County-hall a list of the rates of wages and the hours of labour to be paid and observed by the Council in works which are in the nature of construction or manufacture, and which the Council may resolve to carry out without the intervention of a contractor on a site wholly or partially within twelve miles of Charing Cross. . . .

Mr. R. M. Beachcroft, Chairman of the Committee, moved, and it was agreed, to (1) introduce the words "the radius of," where left out before "twelve miles"; (2) substitute the following words for those where "Associations of Employers" are used, "Associations of Employers and Trades Unions and in practice obtained in London."

Cost of the Blackwall Tunnel.—In answer to questions as to the cost of the Blackwall Tunnel, Mr. Bull, Chairman of the Bridges Committee, said the acquisition of property cost 357,525*l.*, the work of construction 918,000*l.*, salaries 18,000*l.*, electric lighting 15,000*l.*. Then they spent on workmen's dwellings 70,570*l.*, for which they hoped to get recompense. The total approximate cost was 1,383,400*l.*

The New Vauxhall Bridge.—Mr. Bull, replying to Colonel Ford, said that he hoped that the temporary Vauxhall Bridge would be opened for traffic in the middle of January. There had been great delay by the contractors and the Works Department.

The Bridges Committee, in their report, stated that they are considering designs for the new Vauxhall Bridge, and have selected one to be submitted to the Council for adoption. Before doing so they wished to have prepared a perspective and pictorial elevation of the proposed bridge, in order that the Council might be able to judge the design. With that object they had been in communication with Mr. F. M. Harvey, A.R.I.B.A., and he had undertaken to do the work, and to assist with some of the working drawings, for the sum of 75 *gs.* They have given instructions for models of the piers of the bridge to be made so as to submit them for the inspection of the Council. They recommended, and it was agreed, that the Council do sanction an expenditure of 75 *gs.* in the preparation of a perspective and pictorial elevation of the proposed bridge to be erected at Vauxhall, and that the offer of Mr. F. M. Harvey to prepare the elevation, and to assist with some of the working drawings for the sum of 75 *gs.*, be accepted.

The London Building Act, 1894.—The Parliamentary Committee recommended, and it was agreed, that the London Building Act, 1894 (Amendment), Bill, in the form in which it has been circulated, be approved; that the seal of the Council be affixed to a petition for leave to bring in the Bill; and that the Bill and petition be deposited pursuant to the Standing Orders of Parliament, with such necessary alterations (if any) in the Bill as the Parliamentary Committee may consider desirable.

The Greenwich Tunnel.—The Bridges Committee recommended, and it was agreed, that

Mr. Fitzmaurice be employed at a salary of 800*l.* a year in connexion with the construction of this tunnel.

The Council adjourned at half-past seven o'clock.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent was given are granted on certain conditions* :—

Lines of Frontage.

Chelsea.—The erection of a block of residential flats with projecting bay windows and a porch, on the north-east side of Franklin's-row, to flank upon Turk's-row (Mr. P. Hoffmann for Mr. H. Bailey).—Agreed.

Strand.—Iron balcony erected at the first-floor level of No. 37, St. James's-street, Piccadilly (Mr. C. F. Fuller).—Agreed.

Width of Way and Frontage of Building.

Battersea.—Three one-story shops upon part of the forecourt of No. 75, Falcon-road, two of such shops to abut upon Falcon-grove. (Mr. W. H. Tucker, for Mr. J. Chapman).—Refused.

Line of Fronts and Height of Building.

Newington, West.—That consent be given to the frontage and height of a proposed theatre with projecting porch, to be erected on the south-east side of Kennington Park-road, to abut also upon South-place. (Mr. W. G. R. Sprague, for Mr. R. Arthur).—Agreed.

Width of Way and Frontage of Building.

Rotherhithe.—A building on the south-west side of Tooley-street, adjoining Hanover-buildings, to abut at the rear upon Fair-street. (Mr. J. Hartnoll).—Refused.

Open Space about Buildings.

Waltham.—That the Council do, in the exercise of its powers under Section 41 (1) (iv) (a) of the London Building Act, 1894, permit the erection of a two-story addition on a portion of the open space at the rear of the "Bricklayer's Arms" public-house, No. 33, Westmoreland-road, at the corner of Queen's-row (Mr. A. C. Forrester, for Messrs. Matthews & Canning).—Agreed.

Formation of Streets.

Wandsworth.—That an order be sealed and issued to Mr. G. E. Withers, sanctioning the formation or laying out for carriage traffic of new streets, on St. Ann's Vicarage estate, to lead out of The Grove and St. Ann's Hill, and the widening of portions of the two latter streets, on behalf of Messrs. Withers & Sons. That the names Marcus-street and Denton-street be approved for the new streets.—Agreed.

Levensham.—That an order be sealed and issued to Messrs. G. Lansdown & Son, sanctioning the formation or laying out for carriage traffic of two new streets out of the green-lane, and the widening of a part of that lane and of a street known as The Woodlands, on behalf of Mr. W. J. Scudamore. That the names Benin-street and Blashford-street be approved for the new streets.—Agreed.

Wandsworth.—That an order be sealed and issued to Mr. A. Wellings, sanctioning the formation or laying out of new streets for carriage traffic, on the Farnedown Park estate, Mitcham-lane, Streatham. That the names Aylsham-street, Corsehill-street, Credenhill-street, Eastwood-street, Kettering-street, and Fallsbrook-road be approved for the new streets.—Agreed.

Woolwich.—That an order be sealed and issued to Mr. J. O. Cook, sanctioning the formation or laying out of a new street for carriage traffic, to lead out of the east side of Blendon-road, Plumstead Common-road, on behalf of Mr. W. E. Dawson and Mr. Wernham; that the name Wernbrook-street be approved for the new street.—Agreed.

Clapham.—That an order be sealed and issued to Messrs. Lee & Paine, refusing to sanction the formation or laying out for carriage traffic of a new street 40 ft. wide to lead out of the south side of Poynder's-road, Cavendish-road, on behalf of Sir J. Dickson-Poynder, Bart., M.P.—Agreed.

The recommendations marked † are contrary to the views of the Local Authorities.

LONDON LODGING HOUSES.—The London County Council's medical officer reports that in thirty-one districts the number of registered houses ranges from six in Plumstead to 1,500 in Kensington. As regards Bethnal Green, Newington, Poplar, Stoke Newington, Chelsea, and St. Saviour, Southwark, it appears that the sanitary authorities are slow to comply with the obligation to make and enforce the by-laws required by the Public Health (London) Act, 1891.

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

THE POST OFFICE LONDON DIRECTORY.

WE have received from Kelly's Directories, Limited (High Holborn), the 1898 edition of the Post Office Directory. This is the ninety-ninth annual issue, and the sixty-first since it became the property of the family of the present managing directors. Exclusive of advertisements, the Directory now extends to 3,099 pages, containing an enormous amount of information, while a well-mounted and excellently arranged map of London is included in the work. Some very recent corrections have been made in the Directory; many changes of address, for instance, due to the great fire in Cripple-gate, are given at the commencement of the book. When the directory was first published in its present shape, it was considered that its area should be bounded by the limits of the Two-penny Post, and these boundaries have practically remained unchanged ever since. The question as to what improvements should be made to mark the publication of the one hundredth edition of the work has been considered by the publisher. To compile a book covering the whole of Greater London would mean so to increase the bulk of the present directory as to render it impossible to continue to publish the work in a single volume, while to follow the limits of the area now under the jurisdiction of the London County Council would mean the total omission of the houses of business, the manufactories and private residences in the important districts of West Ham, Hornsey, &c. It has, therefore, been considered advisable to increase the area hitherto covered by the Post Office London Directory, with a view to the inclusion within its pages of the principal important districts just outside its present limits, and in the edition for 1899 a considerable extension will be made in the direction of Dalston, Hackney, Highgate, Hampstead, Hornsey, West Kensington, and Waltham Green, and, if possible, some important residential and manufacturing districts in South London will be included. These improvements are likely to be much appreciated, while the usefulness of the work will be still further extended.

Illustrations.

SAN CATALDO, PALERMO.

HIS small stone church, built by the Saracens under Norman rule in 1161, shows what can be done by four detached columns within a parallelogram. Three bays with pointed arches support domes; the aisles are also vaulted.

The drawing shows the peculiar way in which the square to the octagon is arranged, the spandrels between the drum windows are then eased into the circle.

The variety of capital employed is interesting, the near one on the left being Saracen, the further one, the same, but unfinished; the near one on the right is Composite Roman, the further Grecian Corinthian. In fact, anything they could lay their hands upon.

The church is now shown as a national monument; other points of interest are, an old stone altar and the marble mosaic floor, which is in a fairly good state of preservation.

ARTHUR E. HENDERSON.

NEW BATHS AND WASH-HOUSES, BETHNAL GREEN.

The illustration shows a perspective view of the first premiated design in the recent competition for the above, the drawings for which were noticed in our issue of November 27.

Accommodation is provided for twenty men's second-class baths, ten men's first-class baths, eleven women's second-class baths, and five women's first-class. The laundry will contain forty washing compartments, with a like number of drying-horses, with the necessary hydros. Adjoining the laundry is the ironing and mangling room, with a long storage for heavy linen perambulators. The entrance for this portion is placed at the highest part of the site, thus obviating the necessity of steps. The entrances to baths are in Cheshire-street, with a pay-office, common to both, placed centrally. A good board-room, with superintendent's office adjoining, is provided, with separate entrance from Ramsey-street. The upper floor occupying the space over baths' entrances

* We omit the remainder of the report, as the whole of it was given in our issue for the 4th inst., page 465.

and board-room, consists of superintendent's residence and lavatory for the committee. The basement, lighted by windows partly above the pavement, and also from the internal open court, contains boiler-house, engine, and dynamo-room, establishment laundry, workshop, mess-room, and stores.

The materials to be employed are red bricks with Portland stone dressings and plinth. Sea-green slates will be used to cover the main roof. The interior of baths, laundry, and mangling-room will be lined with glazed bricks, as also will the internal court. Electric light will be installed over the whole building, whilst an electric-driven fan will be provided in the skylight over laundry for ventilation.

The estimated cost of the building, including all fittings, machinery, electric light, &c., is £2,700.

Mr. R. Stephen Ayling is the author of the design, and has been appointed architect for the work.

HOTEL DE PARIS, CROMER.

OUR illustration shows the new façade of this hotel, which occupies a magnificent position, immediately facing the jetty, of this fashionable watering-place.

The building which it replaces was a dingy white brick erection of about half the length of the new one, and had internally far more than its fair share of small and awkward staircases for approaches to the different levels of the various floors.

All that is altered now; and in place of it a spacious central hall with good entrances from the street and at the rear, as well as from the sea front (shown under the tower), gives access to the various public and private rooms on the ground floor.

The dining hall occupies entirely one end of the building, having six bay windows, all commanding good sea views.

The principal staircase starts out of the central hall, and a part of the central hall is carried up two floors high, and a gallery formed round the opening, and light enters from the ceiling by coloured lead glazed ceiling lights.

All the windows to the principal rooms have lead glazed windows for the upper parts, and a series of views of places of local interest

have been painted in these to give character to the decoration.

On the upper floors are numerous suites of sitting and bedrooms connected by wide corridors, all of ample dimensions. Each floor has complete services of baths, lavatories, &c.

All the sanitary and other arrangements are carried out on the most approved modern principles. Fire hydrants are provided on each floor.

The building is faced with red brickwork, and all the dressings and all ornamental parts are of red terra-cotta ware, made by Mr. George Gunton, of Costessey, carved by Mr. Minns, of Norwich. The columns supporting the lower are, in their lower parts, of Cornish granite, and the upper parts and entablature over of Doulting stone. The roofs are covered with green slates. The lead glazing was executed by Messrs. J. & J. King, of Norwich. The tower and turret roofs are covered with copper, by Messrs. Braby, of London.

The stoves and kitchen range and tile hearths, &c., were supplied by Messrs. Johnson, Burton, & Theobald, of Norwich. The general contractor was Mr. J. S. Smith, of Norwich, and the architects are Messrs. G. J. & F. W. Skipper, of Norwich and Cromer. Mr. Crocker was clerk of the works.

NEW HOTEL, SWANSEA.

THE Post Office authorities having recently acquired the old Muckworth Hotel for their new buildings at Swansea, it became necessary—the town ever having been very well supplied with hotel accommodation—to erect another one more suited to the requirements of so important a place of business. A company, of which Sir Robert Morris, Bart., is the chairman, was formed and is now engaged in this work, having purchased the site of the George Hotel in Wind-street and some adjacent property with a width of 100 ft. towards the street and a depth of 200 ft.

The site presented some difficulty in dealing with, as an important building, also belonging to the Company, had to be preserved.

The accommodation provided includes one hundred bed and sitting rooms, ball, concert, and billiard rooms, large bars, and coffee rooms, and very special arrangements for commercial

travellers in writing, smoking, and stock rooms.

The whole of these are arranged round a spacious winter garden, to be used as a smoking lounge. The contract for the building exclusive of finishing, fitting, and decorating has been let to Messrs. Thomas Watkins & Co., of Swansea, for 21,337*l.*, and Messrs. Perry & Reed, of London, are the architects.

GATES, ST. JAMES'S-COURT, WEST-MINSTER.

THESE wrought-iron gates are designed for the two main entrances to this block of residential mansions now in course of erection. The gates are constructed by Messrs. Starkie Gardner, & Co., from the design of the architect, Mr. Charles J. Chirney Pawley, of Westminster.

The design is in the earlier Spanish Netherland style of Charles V. (first half of sixteenth century). The historic connexion of the Dacre family with the site is commemorated in the gates. The Dacre knot, the family badge, and the crests, the ragged staff and pilgrim shell, having been introduced as leading features in the design and basis of ornament.

All is forged and hammered iron, produced in the old-fashioned way without any casting, stamping, or mechanical process of any kind. The gates are designed more as a barrier than a screen, and the finer ornament is placed well out of reach of the mischievously inclined.

They are of unusual size, measuring 20 ft. in width and about as much in height.

The drawing was exhibited at the last Royal Academy.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XVIII. (continued).—EXAMPLE OF ABSTRACTING.

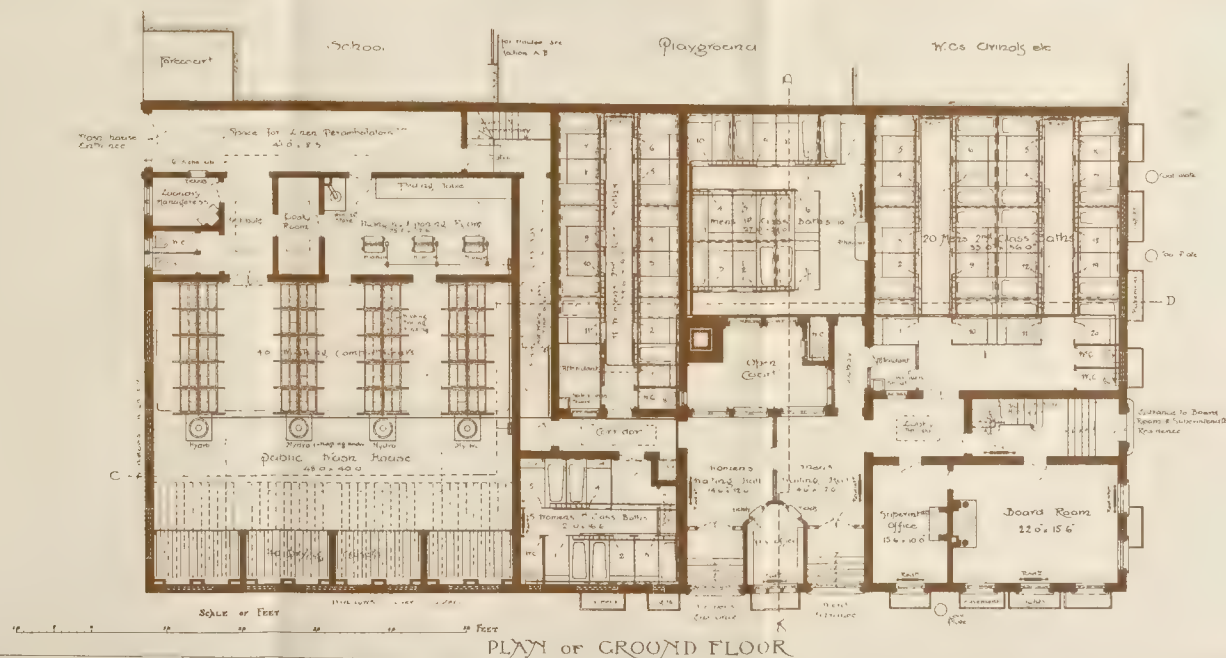
BELOW we give the continuation of an example of "abstracting," the first part of which appeared in our last issue:—

JOINER.

DESCRIPTION OF WORK.

Floors. Sup. in flooring (description).	Skirtings. Run. 9 × 1 moulded skirting and grounds and backings plugged to wall.	Windows. Sup. Sashes and frames. (description).	Window joinings.		Ironmongery. Nos.
			Sup. 1½ in. moulded window board rebated one edge and bearers.	Run. Labour Groove.	
249.9	67.0	81.0 in 3	8.6	52.6	Do. in oak. 12 0
			Notched and returned moulded end.	3½ in. × 1 in. lining, rebated both edges tongued at angles, and including backings.	Sash fasteners (description).
			0	52.6	3
				5 in. × 1 in. wrought framed, splayed, grooved, and staff beaded grounds.	Sash lifts. 0
				56.6	Sash handles.
				2½ in. × 1½ in. bed mould, rebated and tongued in, including groove.	6
		No. Extra to moulded horas to 2 in. sashes		14.0	R.M.E. 6
		6		3 in. × 1½ in. architrave moulding, including mitres.	12 0
					5 0





THE BUILDER, DECEMBER 18, 1897



HOTEL DE PARIS, CROMER. MESSRS G. J. & F. W. SKIPPER, ARCHITECTS

PHOTOGRAPH BY STAGG & SONS, 11, LONDON WALL, LONDON, E.C.

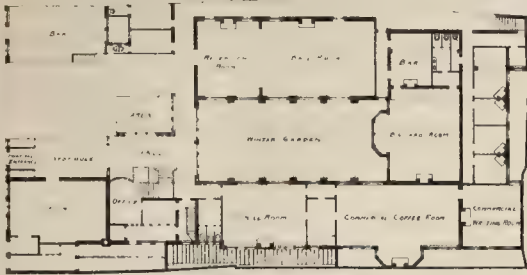
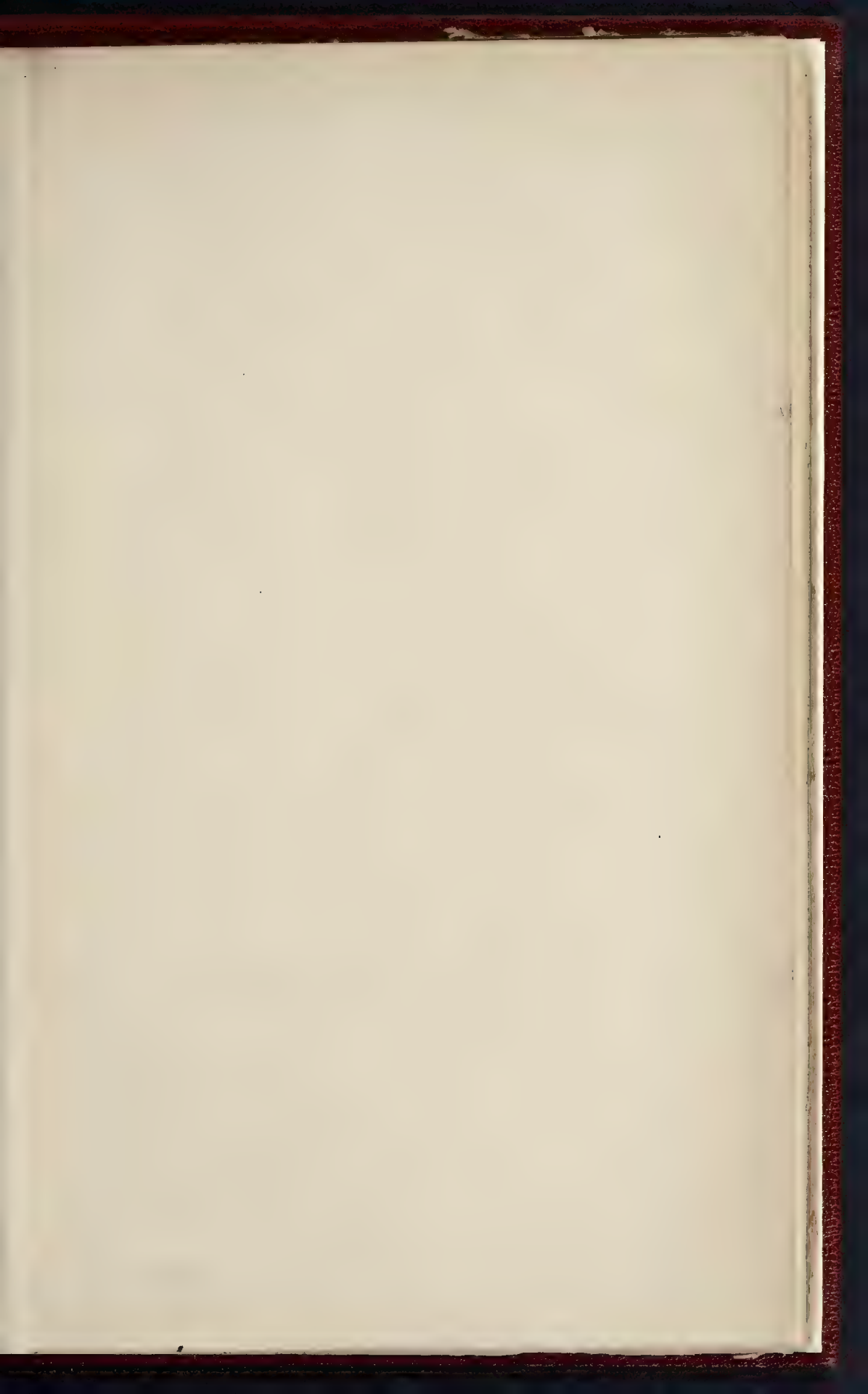


PHOTO LITHO SPRAGUE & CO. 495 EAST HARDING STREET FETTER LANE, E.C.

HOTEL, WIND STREET, SWANSEA. MESSRS. PERRY & REED, ARCHITECTS.





DESCRIPTION OF WORK.

FOUNDER AND SMITH.	PLUMBER.	PLASTERER.	GLAZIER AND PAINTER.
Cast Iron. <i>Run.</i> In diameter R.W. pipe and fixing with to brick facing 24.0 Shoes. 2 Eaves gutter, (size and description). screwed to fascia. 28'0 Extra to stopped ends. 4 Do. to E.A. 1 Do. to I.A. 2 Do. to outlets. 2 No. gauge, zinc soakers, 8 x 6 and facing. 57 Gratings over outlets to eaves gutter (de- scription). 2	Sup. 5 lb. lead in gutters and flashings. 2.3 12.3 6 lb. do. 14.6 48.9 8.5 x 6 72.6 292.6 365.0 lb. cwt. 3.1.1 5 lb. stepped flashings. 13.4 x 5 67 lb. cwt. 0.2.11. Run. Lead wedging. 22.6 17.6 40.0 No. No. gauge, zinc soakers, 8 x 6 and facing. 57 Gratings over outlets to eaves gutter (de- scription). 2	Sup. R. F. and S. walls. 670.0 94.6D Ddt. 94.6 575.6 64 yards. L. P. F. and S. ceiling. 249.9 28 yards. Twice distemper plas- ter ceiling. 249.9 28 yards. Pugging (description), joists measured in. 249.9 18 yards. Run. P.M.C. 9 in. girt. 67.0 I.M. 6 E.M. 2 Keene's cement, angle and arris. 20.0 COMPETITIONS. MUNICIPAL BUILDINGS, CARDIFF.—Fifty-six sets of plans were sent in in this competition, and on Thursday last week the members of the Town Hall Committee, after conferring with Mr. Alfred Waterhouse, R.A., the assessor, for some time, decided upon the plans as follows: (1) Design No. 22, by Messrs. H. V. Lan- chester, J. S. Steward, and E. A. Rickards, 50.	Sup. 21-oz. sheet glass in squares not exceed- ing 2 ft. super. 27.0 Do. n. e. 9 ft. sup. 27.0 Run. on R.W.P. 24.0 4 on shoes to do. 2 Paper p.c., 1/6 per piece, and hanging. 603.0 94.6D 508.6 +54 = 10 pieces. 4 on eaves gutter, 28.0 Knot, prime, stop, and 4 on woodwork and g. 70.1 8.9(1/2) 78.10 9 yards. Run. On skirting. 67.0 on eaves fascia. 28.0 On squares. 36 on sash sheets 3 doz. 6 1/2 doz. On sash frames, one side. 6

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The monthly meeting of this Society was held at the School of Art, Arundel-street, on Tuesday last, the President, Mr. R. W. Fowler, in the chair. Mr. F. R. Farrow, of London, read a paper on "The Warming of Public Buildings." After some introductory remarks defining the class of buildings included under the term "public," he described the various methods adopted in the warming of public buildings, first of all the hot air systems, and the objections to them, then the general principles and methods of heating by low pressure warm water and high pressure hot water, together with their respective advantages and disadvantages, describing in detail the arrangements and materials of the pipes used in each case. The lecturer also dealt with the various methods employed in the use of steam for heating public buildings by means of low-pressure, high-pressure, and exhaust steam, with the merits and defects of each; pointing out the various classes of buildings to which these methods are especially applicable. The lecture concluded with an exhibition and explanation of plans, showing the heating arrangements successfully adopted in some of the most modern public buildings.

LIVERPOOL ARCHITECTURAL SOCIETY.—On the 6th inst., the members of this Society held their third ordinary meeting for the session, in the Law Library, Union-court. During the proceedings, Mr. J. A. Gotch delivered a paper on the "Domestic Architecture of the Renaissance—Elizabeth-James," which he illustrated

with limelight views. These showed the interiors of a large number of old baronial houses and halls of England, &c., with the rich furnishings, carvings, and wainscottings; also the interiors of halls at Oxford and Cambridge. One of his views was that of an old painted ceiling belonging to a place in Scotland.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Mr. Sydney D. Kitson delivered a lecture to members of this Society on the 13th inst. in the Leeds Institute of Science, Art, and Literature, the subject being "Some Byzantine Churches in Greece." Mr. George Corson (President) occupied the chair. Byzantine art, Mr. Kitson said, was connected with the youth of Christianity, and had maintained its traditions to the present day. Many lessons were to be learned from it—lessons of construction and design. He went on to describe some of the mediæval churches of Greece, most of which, being small, had been almost entirely disregarded by travellers. The builders of the old Byzantine churches, he remarked, did not strive after effect; they knew that by expressing themselves truthfully they would obtain a beautiful building.

Bedford-row, London; (2) No. 25, by Messrs. J. S. Gibson and S. B. Russell, Gray's Inn-road, London; and (3) No. 6, by Mr. A. W. Cooksey and Mr. A. Cox, 4, Adam-street, London. A premium of 500l. was offered for the selected designs, 300l. for the second, and 200l. for the third, but the successful competitors will be engaged to carry out the construction of the buildings, and their premium will be merged in their commission.

SCHOOL, DENTON HOLME, CARLISLE.—At the last meeting of the Carlisle School Board it was reported that forty-five sets of plans had been sent in for the erection of a boy's school on the central hall principle in Denton Holme to accommodate 500 scholars; and it was agreed that the School Accommodation Committee should engage an architect to assist them in coming to a decision with regard to the best of them. The committee have now appointed Mr. E. R. Robson, architect to the Education Department, to act as their assessor.

ENGINEERING SOCIETIES.

INSTITUTION OF CIVIL ENGINEERS.—At the Ordinary Meeting of this Institution, on the 14th inst., Sir John Wolfe Barry, K.C.B., F.R.S., the President, in the chair, the paper read was entitled, "The Great Land-Slides on the Canadian Pacific Railway in British Columbia," by Mr. Robert B. Stanton, M.A., M.Inst. C.E.

SOCIETY OF ENGINEERS.—The forty-fourth annual general meeting of the Society of Engineers was held on the 13th inst. at the rooms of the Society, 17, Victoria-street, Westminster, S.W. The chair was occupied by

Mr. George Maxwell Lawford, President. The following gentlemen were duly elected by ballot as the Council and Officers for 1898, viz.:—As President, Mr. Wm. Worby Beaumont; as Vice-Presidents, Messrs. John Corry Fell, Henry O'Connor, and Charles Mason; as Ordinary Members of Council, Messrs. James Patten Barber, Joseph Bernays, George Burt, David Butler Butler, Percy Griffith, Richard St. George Moore, Nicholas James West, and Maurice Wilson; as Hon. Sec. and Treasurer, Mr. Perry Fairfax Nurse; as Hon. Auditors, Messrs. Alfred Lass, F.C.A., and Samuel Wood, F.C.A. The proceedings were terminated by a vote of thanks to the President, Council, and Officers for 1897, which was duly acknowledged by the President.

Correspondence.

To the Editor of THE BUILDER.

FIRE-PROOF BUILDINGS.

SIR,—In all the recent discussions of fire-resisting construction I have seen no reference made to solid timber floors formed by setting wood joists side by side without spaces between, and it would be interesting to hear if any tests of such floors have been made. I know of only one instance where the method has been tried—in one of Mr. Sedding's buildings—but happily in this case there has, I believe, been no fire to form an actual test.

The London Building Act sanctions solid hard wood for fire-resisting doors, and it seems likely that a solid wood floor 10 in. or 12 in. thick would resist fire far longer than any construction in which iron occurred. There would be a danger of the wood swelling if it got very wet and forcing the walls outwards but this could be prevented by pads of slag wool at intervals. If the timber were treated with a chemical solution and plastered underneath, it would be very difficult for fire to attack it.

ARTHUR KEEN.

REBUILDING AFTER THE ST. MARY-AXE FIRE.

SIR,—In a "Note" on the Cripplegate fire appearing in your issue of the 11th inst., you say "after the great St. Mary-axe fire not the slightest improvement was shown in the erection of the buildings which take the place of those destroyed."

Will you allow me to point out that in one instance this statement does not hold good? My clients, Messrs. Wm. Brown & Co., Limited, went to very considerable trouble and expense in adopting fire-resisting construction in the re-erection of their premises at the corner of St. Mary-axe and Bury-court. The surveyor for one of the leading London Insurance offices, who inspected the buildings after their re-erection, expressed to me the opinion that it seemed almost impossible for a serious fire to occur within the premises.

With this exception, however, my own knowledge entirely confirms your statement quoted above.

FRED. LEE.

6, Great College-street, Westminster, S.W.

A CORRECTION.

SIR,—Recently a circular relative to one of our publications has been sent to members of the architectural profession. The illustrator, Mr. R. Stephen Ayling, is described as a Gold Medalist of the Royal Academy, and by his desire we beg to state that this is a clerical error. The position Mr. Ayling holds is that of Silver Medalist.

Will you kindly allow us to trespass upon your space by inserting this letter in your next issue?

E. & F. N. SPON, LIMITED.

OBITUARY.

MR. JOHN HUDSON.—The death is announced at the age of seventy-five years, of Mr. John Hudson, Associate of the Institute of Architects, who died at his residence, Stansted, Essex, on the 20th ult. Mr. Hudson, who had retired from practice for some time, served his articles in the office of the late Mr. William Grellier, and had a very extensive practice in the East End, where he served on many of the public bodies and was widely known and respected. During the forty years of his professional career he was entrusted with the design of many public buildings, among his works being the Baths and Washhouses, Whitechapel; the Sailors' Homes, Dock-street and Gravesend; St. Mark's Schools, Whitechapel; the Albion-road and other schools, Romford; Volunteer Drill Hall, Whitechapel; and many others. He was also architect to Messrs. Ind. Coope & Co., Messrs. Charrington & Co., and Messrs. Furse & Co.; and for over twenty years had the management of the Colvin Estate at Waltham. Mr. Hudson was a Liverman of the Worshipful Company of Carpenters.

MR. ALEXANDER MACALISTER.—The death has just taken place of Mr. A. Macalister, the senior

member of the firm of Messrs. Alexander Macalister & Son, Belfast. Mr. Macalister, who was seventy-six years of age, was a native of Carlow, but at an early age came to Belfast, and studied for the profession of architecture. He was the architect of St. Matthew's Church, Ballymacarrett. In various parts of the North of Ireland are churches, schools, parochial houses, &c., which were built to his designs and under his superintendence. He was also the architect of the large schools in Bank-street, Belfast, and of St. Mary's Hall, which adjoins them.—*Northern Whig.*

APPOINTMENTS.

ARMAGH.—The usual monthly meeting of the Armagh Town Commissioners was held on the 6th inst., in the Tontine Buildings. There were three candidates for the appointment of Town Surveyor, viz., Messrs. C. Boyle, H. C. Parkinson, and J. Chute. The result of the voting by ballot was—Boyle, 13; Parkinson, 5; Chute, nil. Mr. Boyle was accordingly declared elected.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board have sanctioned the appointments of the following sanitary inspectors: Miss Bertha Thurgood in Battersea, Mr. F. W. Meadow in Bethnal Green, Mr. A. A. London in Shoreditch, Mr. S. J. Chapman in Fulham.

GENERAL BUILDING NEWS.

RESTORATION OF BOCKING PARISH CHURCH.—The parish church of St. Mary, Bocking, has just been re-opened, after restoration of the roof and chancel arch and various other repairs. Some months ago the old oak roof of the nave, which dates back to the fourteenth century, was found to be cracked, and in a dangerous condition. A new roof has been built over the old one, the two being bolted together. The chancel arch, which was also found to be unsafe, has likewise been restored and new piers placed under it; and the whole church has been cleaned. Mr. Fred. Chancellor, of Chelmsford, was the architect; and the work has been carried out by Mr. William Parmenter, of Braintree.

CHURCH, OLD BURY.—On the 6th inst. a new Mission Church at Tat Bank was opened by the Bishop of Worcester. The building will seat 250 people, and the total cost is about 1,400l. Mr. H. E. Lavender, of Walsall, was the architect, and Mr. W. Kendrick, of Walsall, the builder.

NEW AISLE, ST. PAUL'S CHURCH, DERBY.—The new aisle, which has been given to St. Paul's Church, Derby, by Sir Alfred Haslam, as a memorial of the Queen's Diamond Jubilee, has just been dedicated. The structure has been erected at a cost of 800l. Additional accommodation is afforded for a hundred worshippers. Like the original portion of the fabric, the new part is of Coxheben stone. The architect is Mr. Percy Currey, of Derby, the contractors being Messrs. Jos. Parker & Son, of Derby.

RESTORATION OF CHANCEL, FAMPSPORD, CAMBRIDGE.—The chancel of this church has recently undergone restoration, being provided with a new oak roof covered with tiles. The floor is paved with mosaics, and the steps are of Polyphant stone. Carved oak stalls and a reredos have been fixed. The windows have been fitted with stained glass, executed by Messrs. Shrigley & Hunt, of Lancaster. The work has been carried out by Mr. John Rickett, builder, of Great Abington, under the directions of Sir Arthur W. Blomfield, London.

WAKEFIELD CATHEDRAL.—It has been decided that Wakefield Cathedral shall be enlarged in memory of the first Bishop of the diocese. A meeting of clergy and laity, held at the Town Hall at Wakefield, on the 7th inst., approved a scheme for making additions to the structure. The committee appointed in October to deal with the matter consulted with the late Mr. Pearson, R.A., and his plans, as submitted to the meeting, provide for the extension of the chancel, the formation of a retro choir, the erection of a new chapel for early services, the throwing out of north and south transepts, the provision of accommodation for chapter-house and vestries, and the placing within the chancel of a canopied tomb with a recumbent effigy of the late Bishop. For these purposes a sum of 20,000l. will be required.

CHURCH, LISGRUFFIN, IRELAND.—The new church at Lisgriffin, in the parish of Buttevant, was dedicated on the 8th inst. The new church, which will accommodate 500 people, is of rectangular shape without gallery or transepts, and built of native limestone similar to that used in the old castle of Lisgriffin adjoining. It is in the Gothic style, and measures 100 ft. in length, 30 ft. in width, and 40 ft. in height to the bell turret. The roof is of pitch pine. A sacristy stands out at the south-western side, and the church is provided with a bell hung in the turret. The architect is Mr. Samuel F. Hynes, Cork, and the builder, Mr. Thomas A. Walsh, Charleville and Kilmallock.

TECHNICAL SCHOOL, PAISLEY.—Princess Louise has just laid the memorial stone of a technical college at Paisley. The buildings are three stories in height, and have a frontage of 120 ft. The main entrance is from George-street, and leads into a vestibule. Off this vestibule are the board rooms, the principal's room, and janitor's office, and it also

leads to the main corridor, which is roofed over by roof. long. In connexion with the corridor are the art master's rooms, designing-rooms, and library. An art lecture hall is in the centre of the building, and will give accommodation for 300 persons. Round the lecture hall are grouped the various art class-rooms for cast drawing, shading, painting, and elementary drawing, being lit from the roof as well as by side windows. There are also on the ground floor cloak rooms for male and female students. Staircases at each end of the main corridor lead to the other floors. Above the ground floor the building is shaped in the form of an L. The lecture hall on the first floor will accommodate 200 students, and off this hall there is a small classroom. On the first floor are the rooms for mechanical drawing, building construction, and naval architecture, with the necessary teachers' rooms, cloak-rooms, &c. The chemistry and physics departments are ranged on the second floor. Mr. T. Graham Abercrombie, Paisley, is the architect. Exclusive of the site, the building will cost fully 17,000l.

HIGHER GRADE SCHOOL, ASTON, NEAR BIRMINGHAM.—A new higher grade school is about to be built at Aston under the auspices of the School Board. A site has been acquired at the corner of Whitehead-road and Ettington-road, opposite the technical school. In addition to providing accommodation for 500 higher grade scholars, accommodation will also be provided for male and female deaf scholars and pupil teachers. The general arrangements consist of a school for 280 senior boys and 280 senior girls in separate departments, with two teachers' rooms to each department. A chemical laboratory for fifty scholars, and a physical laboratory also for fifty scholars are provided. A gymnasium is also to be built. The deaf school provides accommodation for ten children of each sex, with separate teachers' room, and is a department entirely apart. The pupil teachers' centre is for the instruction of 120 female pupil teachers, and is approached by a separate entrance and staircase. The estimated cost, exclusive of site and furnishing, is about 12,000l. The architects are Messrs. Crouch & Butler, of Birmingham.

SCHOOL BUILDINGS, UPPINGHAM.—The Duchess of Albany recently opened the new Victoria School buildings at Uppingham, designed by Messrs. Mr. T. G. Jackson, R.A., at a cost of 9,200l., and unveiled a bust of the Queen by Signor Lucchesi. The new buildings face the High-street, and completely shut in the school-house, which is now approached through the gateway in the tower of the new block. The buildings form but a part of the original scheme; the tower, which is now the western boundary, will when the remainder of the block is completed, be the centre of the building. The present portion contains, on the ground floor, a museum and lecture theatre with raised seats, demonstration-room, &c. The basement contains the heating apparatus, while in the tower the ground floor is utilised as the porter's lodge, the first and second floors forming the porter's-rooms, and the third floor is set apart as a muniment-room. The chemical laboratory and muniment-rooms are both provided with fireproof floors. A statue of Archdeacon Johnson, by Mr. G. Frampton, A.R.A., is placed over the gateway. The bust of the Queen, which is situated in the museum, is of stained marble, on an Irish marble pedestal, with bronze tiara gilt. On the pedestal is a shield, which bears an inscription.

ADDITIONS TO STANISH GRAMMAR SCHOOL, LANCAIRE.—This building has just been rebuilt and enlarged. The cost of the alterations amounted to 1,025l., and the tender for the work was accepted from Mr. Alexander Wigan, of Ince. Mr. H. Lord, of Manchester, was the architect.

NEW SCHOOL AND MISSION CHURCH, HIGH WYCOMBE.—The foundation stone has just been laid in North Town, High Wycombe, of a new school and mission church. The school is to be constructed of red bricks, and it will be approached by a new road running along the west side of the site. There are to be two entrances. One will be at the west end of the building facing south, the doors opening on to a vestibule, from which access will be given to the interior, the area of which will be 55 ft. by 24 ft.; a chancel being provided at the east end. On the ground floor there will be accommodation for about 140 infants, while in the upper story there will be sufficient room for upwards of eighty boys and a similar number of girls. Wood blocks upon a bed of cement will be utilised on the ground floor. In addition to vestry accommodation, provision is made for lavatories, &c., which will be supplied with Doulton fittings. The structure will be covered with a slated roof, and surmounted by a bell turret in brick and stone. The plans for the new building have been designed by Mr. A. Mardon Mowbray, Diocesan Architect, of Oxford. The contract has been secured by Messrs. C. H. Hunt & Son.

SCHOOL, EAST PRESTON-STREET, EDINBURGH.—This, the latest building of the Edinburgh public schools, has just been opened. It occupies the site at the north-east corner of East Preston-street and Dalkeith-road. Designed with Flemish features, the building is of red stone with grey horizontal bands at different levels. It is three stories in height, and will accommodate 900 children—488 juveniles and 412 infants. Internally it is divided into two equal halves by a central corridor. On the street floor

are five infant class-rooms, accommodating from 63 to 75 children each. Four of them face the south. The boys enter from Dalkeith-road, and close by this door is the headmaster's room. Adjoining it is the boys' cloak-room. The girls enter from the Dalkeith-road, and on that side is a room for the infant mistresses, with girls' cloak-room on the same corridor. There are separate stairs for boys and girls, leading to the first and second stories. On the first flat are five class-rooms, similar in size to those down stairs. Four of them are for juveniles and one for infants. On the third floor are more juvenile class-rooms, a sewing room, and a gymnasium, 34 ft. by 18 ft., and a combined cookery class-room and work-room. The superficial area of the workshop and cookery-room and the gymnasium is 820 ft. On this floor there is a small class-room to accommodate forty advanced pupils. There are separate playgrounds and sheds for the boys and girls on the north side of the ground. The school is heated, with hot-water pipes, and is ventilated mechanically by means of a gas-engine and Blackman fan. The total cost is put down at about 12,000l. Mr. R. Wilson was the architect.

SCHOOL BOARD OFFICES, GATESHEAD.—New offices have been erected for the Gateshead School Board, and the building is by Mr. Edwin Bowles, architect, of Newcastle, which was selected in open competition, in May, 1896, out of eleven designs submitted, the cost being limited to 3,500l. The buildings are of red brick and moulded and carved stone dressings. The entrance to the various parts of the building is by a stone portico, with stone columns, and, into corridors and vestibule, from which the various rooms are entered. On the ground floor is placed the general office, 44 ft. by 19 ft., adjoining which are the private office of the clerk of the Board, the book-keepers' room, the telephone-room, the strong-room, and the waiting-room. The attendance officers' rooms are placed on the north side of the building, and have a separate entrance to them, as well as communication with the other offices. The first floor is approached by a wide staircase, and on this floor is the Board-room, 35 ft. by 26 ft., and 15 ft. high, with panelled plaster ceiling and panelled wood dado. Adjoining the Board-room is the members' private room, with cloak and retiring rooms. The waiting-room, committee-room, and other rooms, are all contiguous to the Board-room, all being entered from the hall on the first floor. Lavatories and cloak-rooms are provided on each floor. In the basement are placed store-rooms and the heating chamber. The contract for the buildings was 3,482l., and has been carried out by Messrs. T. & G. Lamb, of Gateshead, under the personal supervision of the architect, with Mr. Wm. Edington as clerk of works for the Board.

EYE INFIRMARY, PLYMOUTH.—The foundation stone of the new Eye Infirmary, Mutley, was laid on the 1st inst. The new building will have a frontage of 10 ft., with all the entrances on the south side of the new road, and will be erected of brick with stone dressings, and tiled roofs. The ground floor provides accommodation in the eastern wing for the out-patient department, consisting of waiting-room, doctor's consulting-room, ophthalmoscopic and minor operations' room, steward's office, dispensary, and separate entrance and exit. The kitchen department is placed in the western wing, and the administrative department centrally. A wide staircase leads to the first floor, where accommodation is provided for fifteen male and fifteen female in-patients, each having two wards for eight and seven patients respectively; a day corridor wards facing south, ward kitchen, nurse and matron bedrooms, and operating theatre. Each department has its own bath, lavatory, and sanitary arrangements. Over the central block an additional story is raised, providing accommodation for nurses' and servants' bedrooms, bathroom, &c., and two isolation wards for infectious cases. The heating and electric machinery chambers will be placed in the basement. The architects are Messrs. King & Carter, Plymouth.

INFIRMARY, KINGSTON-ON-THAMES.—The foundation stone of the new infirmary and nurses' home at the Kingston Workhouse was laid recently by Miss Witten. The new male infirmary will provide accommodation—On the ground floor, five wards to hold respectively sixteen, twelve, eight, six, and two beds; a lift hall, with stone staircase and a place for a nurse's duty room, and three bath-rooms, with necessary lavatories and offices. A verandah will be erected at the south end of the building, and emergency exits at each end. The first and second floors there will be five wards, nurses' duty rooms, bathrooms, and lavatories, making a total accommodation in the infirmary of 132 beds. There will be balconies at the south end and emergency staircases at the north and south ends. A tower forming the central feature of the infirmary will contain a large reservoir and water-supply tank. The floors of the infirmary will be constructed on Messrs. Homan & Rodgers' system. The building will be heated by warm air stoves and hot water coils. The nurses' home will comprise on the ground floor two entrance halls, two staircases, reading-room, sitting-room, dining-room and sisters' room, three bedrooms, and various offices. On the first and second floors there will be fourteen bedrooms, bath-room, and lavatories, &c., making in all a total of thirty-one bedrooms. The gate-keeper's

lodge, to be built near the main entrance, will command a direct view of the gates and entrance drive. Generally the buildings have been designed to harmonise as far as possible with the existing buildings. The contract is in the hands of Mr. J. W. Brooking of Richmond, and the increased accommodation will cost about 18,200l. The architect is Mr. W. H. Hops.

COTTAGE HOSPITAL, WATFORD.—A new wing of the Watford District Cottage Hospital, which has been added in commemoration of the sixtieth year of her Majesty's reign, was opened recently. The additions consist of an extension of the main corridor to the north-east, to the south of which is a new male ward for six beds, 24 ft. by 20 ft. by 13 ft. high, heated by Shorland's Manchester stove. The walls are cemented and painted, all angles being rounded, and the floor is laid with Lowe's pitch-pine blocks. To the north of corridor is an additional nurses' room, with short cross corridor leading to small dispensary. The operating-room measures 16 ft. by 14 ft. by 12 ft. in height. On the east side of the cross corridor, approached through a cross ventilated lobby, are the lavatory, &c. The walls of these apartments are of glazed bricks. The old dispensary and operating-room have been converted into a nurses' sitting-room. A new mortuary has also been erected in the north corner of the grounds. The whole has been carried out by Messrs. T. Turner, Limited, under the superintendence of Mr. C. P. Ayres, J.P., the architect.

TIVOLI THEATRE, MANCHESTER.—The new Tivoli Theatre of Varieties, in Peter-street, Manchester, was opened recently. It is built on the site of the old Tivoli Theatre. The old refectory has now been abolished, but the stage and dress circle have been lowered below its level. Still lower, hewn out of the solid rock which forms the foundation, are the beer and wine cellars. The old oblong lounge is also removed, and in its stead is a crescent-shaped circle. The floor of the entrance hall is in mosaic. Here is the box office, and on either side are staircases and passages leading to the stalls and dress circle. At the extreme back of the pit and circle are the bars, which are entirely cut off from the auditorium. There is no promenade, and the drinking accommodation is kept exclusively by itself. In front of the gallery there is an amphitheatre. Except in the gallery, all the seats are made to tip up. Ranged at either side of the proscenium are five boxes. The dressing-rooms are fitted with hot and cold water. On every floor there are fire-preventing appliances, and a fireproof curtain separates the stage from the auditorium. All the exits are direct to the streets, and special arrangements are made for escape in case of fire. The seating accommodation is estimated at 1,500, and Mr. J. L. Jones has the superintendence of the work. Mr. Harry Percival was the architect.

PALACE THEATRE, HULL.—This building has just been completed and opened. The theatre is in Anlaby-road, and adjoins Hengler's Circus, and it has been designed by Mr. Frank Matcham. The entrance to the principal parts are in the central facade. These are divided by stone columns and pilasters, and over each is a balcony leading to the managers and directors' offices, the whole being surmounted with a large square roof, flanked with groups of statuary representing the Arts, and a central panel with Drama, and the words "Palace Theatre." Over the stage is a glass and iron shelter is erected along the frontage, and the two wide passages at the side, leading to the pit and gallery, are also sheltered by iron and glass roofs. Two wide staircases, divided by the pay office, lead from the vestibule to a winter garden. In the centre of these gardens there is a fountain. Two corridors from the winter garden lead visitors past a smoking saloon into the balcony, and to the right through a hexagon-shaped crush-room the grand circle is approached, and on this level are six private boxes. The whole of the balcony and dress circle is fitted with velvet tip-up seats, and these are comprised in one circle, being the first tier. The stalls are approached through a lounge, and are contained in the first four rows of the ground floor fitted with tip-up seats, and to the right, next the entrance, is a smoking lounge. The pit is a large one, the front rows being divided off into pit stalls and upholstered in velvet. The gallery, situated over the grand circle and balcony, has the front seats divided off, and forms an amphitheatre. The dimensions of the stage are: from wall to wall, 70 ft. and 38 ft. in depth; from corner to corner of the proscenium the width is 30 ft. and the depth 28 ft. A fireproof curtain has been provided. Messrs. George Longden & Sons, Sheffield, have built the place. The carvings and all the ornamental work have been executed by Arrowood & Co. of London; the plumbing by Messrs. Mellows, of Sheffield; gas-fittings by Messrs. Stott & Co., Oldham; mosaic flooring by Messrs. Craven, Dunhill, & Co., Salop; fibrous plaster work by Messrs. De Jong, of London; decoration and artistic paintings by Mr. Binn of Halifax; upholstery by Messrs. Morton & Sons, Liverpool; asbestos curtain by Messrs. Newton Brothers & Holliday, Hull; verandah and iron structural works by Messrs. Foster Brothers, Preston. Mr. W. Livain, clerk of the works, of London, has been entrusted with the supervision of the whole of the works. The brick-laying has been superintended by Mr. James Oxen, and the joinery and other work by Mr. J. A. Chap-

man. The building is lighted by the electric light, the installation being carried out by Messrs. H. S. Tadmam & Co., Hull.

THEATRE ROYAL AND OPERA HOUSE, DUBLIN.—This building was opened on Monday. The new structure has been designed by Mr. Frank Matcham, and the contractors for the works were Messrs. H. & J. Martin, of Dublin and Belfast. The electric light throughout the building has been installed under the personal supervision of Mr. E. Wingfield Bowles. The fibrous plaster decorations have been cast and erected by Messrs. Jonas Binns & Sons, of Halifax, while the general upholstery and seating have been done by Messrs. Cranston & Elliott, of Edinburgh, and Messrs. Jones & Son, of Dublin. The frontage has been altered by the erection of a portico on the site of the verandah of the Leinster Hall. The pediment is supported on light ionic columns, and is surmounted by an Italian balustrade. To the balconies and boxes the entrance will be from Hawkins-street. The vestibule of the Leinster Hall has been largely utilised, and from that point two marble staircases, one on either side, lead up to the dress circle. In the interior, the stage is 64 ft. square, and the height from the floor to the gridiron roof is 60 ft. The auditorium is 80 ft. in depth by 64 ft. in width, and the inside width is 31 ft. Two boxes on either side behind the dress circle, and a balcony, as well as a promenade behind the dress circle. The old foyer in the Leinster Hall is being transformed into a saloon for visitors to the dress circle, while one portion of it, separated from the saloon, will be devoted to the providing of tea and coffee for ladies, and another part, also separated from the saloon will be used as a board-room. There will be a saloon for every portion of the house.—*Weekly Irish Times.*

OPERA HOUSE, &C., TUNBRIDGE WELLS.—At a meeting of the Tunbridge Wells Works Committee, held on the 26th ult., plans of the new opera house, shops, warehouses, &c., which are to be erected in Mount Pleasant-road, Monson-road, and Newton-road, Tunbridge Wells, were submitted and passed, subject to the land required for widening the roads being dedicated to the public. The plans have been prepared by Mr. John P. Briggs, Strand, and provide seating accommodation for 1,500. The theatre will be fire-proof throughout, and will be lighted by electricity. The whole of the auditorium, entrances, crush-room, saloons, dressing-rooms, &c., will be heated by hot water pipes, coils, and radiators.

A NEW ALHAMBRA FOR BLACKPOOL.—The foundation stone has just been laid of this building, which will comprise a ball-room, able to accommodate 3,500 persons; a circus for 2,500 people; and a theatre, whose stalls will seat 300 persons and the pit 500 more. There will be a cafe and restaurant. The architects are Messrs. Wylson & Long, of London.

BUSINESS PREMISES, BIRMINGHAM.—New business premises are in course of erection in Moor-street, Birmingham, for Messrs. Coleman & Oldland, wholesale clothing. This building will have a frontage of about sixty feet, and a depth of fifty feet, the ground floor nearly covering the whole area of the land, but having "set-offs" at back with glazed top-lights. It will be a four-story erection, and mainly constructed with steel girders, cast-iron columns, and brick in cement piers. The principal rooms will have a glass and iron roof, covered with stained and varnished match-boarding. There will be a wide gateway, separate entrances for the proprietors and workpeople, a lift running from the basement to the top floor, and efficient sanitary arrangements. The building will be heated by hot water, and illuminated by electric light. The front and a portion of the back elevations will have iron corridors, each about 9 ft. in width, and of varying heights. Large areas will be provided to the front of the building, covered with Hayward's prismatic lights. Into the front elevation stone and brick enrichments, ornamental wood and ironwork, &c., will be introduced. The architect is Mr. John Statham Davis, and the contractor Mr. William Hopkins, both of Birmingham.

BUSINESS PREMISES, STAFFORD.—The new premises erected for Messrs. Brookfield & Windows in Greengate-street, Stafford, have just been completed. At the Market-square corner of the premises the footpath and the roadway have been equally widened to a total extent of 3 ft. and the line of improvement converges gradually from this point until it intersects with the old existing frontage lower down the street. The new premises comprise a block of four floors, 95 ft. long and 33 ft. wide. The external walls are of Red Bank bricks, while the piers, moulded cornices, window dressings, and pediments are of Hollington stone. The premises have been built by Mr. John Gethin, of Shrewsbury, from designs prepared by Mr. George Wormal, architect and surveyor, of Stafford. Among other contractors connected with the work were Messrs. Sage & Co., of London, who put in the shop fronts and fittings; and Messrs. Thorne & Co., of Stafford, who carried out the electric lighting in conjunction with Messrs. Lea & Sons, of Shrewsbury.

BUILDING IN ABERDEEN.—The Plans Committee of the Town Council have approved of the following:—Warehouse on the south-east side of Shoe-lane, for Mr. Robert Ogilvie, merchant, per Mr. R. G. Wilson, architect; new central fire station on the east side of King-street, for the Town Council

of Aberdeen, per Mr. A. H. L. Mackinnon, architect; school at Great Northern-road, for Aberdeen School Board, per Messrs. Brown & Watt, architects; pavilion in connexion with skating pond at Bridge of Dee, for the Aberdeen Skating, Curling, and Yachting Company, Limited, per Messrs. Walker & Duncan, architects; dwelling-house at the junction of Raeburn-place with Gilcomston Park, for Mr. Charles Maitland, slater, per Messrs. Walker & Duncan, architects; new aisle in connexion with St. James's Episcopal Church, Union-street, per Mr. A. Cyne, architect; drainage arrangements in connexion with dwelling-house on the south side of Union-grove at its junction with Brighton-place, for Mr. James Gammie, builder, per Messrs. Walker & Duncan, architects; dwelling-house on the east side of Walker-road, for Mr. William Duncan, Elm Cottage, Ruthrieston, per Mr. G. F. Milne, architect; cart-shed and stable at rear of dwelling-house on the north side of Albany-place, for Mr. Alexander Marr, shipbroker, per Messrs. D. & J. R. McMillan, architects; mission hall on the west side of West North-street, for the Belmont Congregational Church, per Messrs. Brown & Watt, architects; alterations on property on the west side of Crown-street at its junction with Oldmill-road, for Mr. George Cay, per Messrs. Harper & Sutherland, architects; dwelling-house on the north side of Urquhart-road, for Mr. George Fraser, per Mr. Victor Mitchell, architect; alterations and additions in connexion with Steam Joinery Works on the north side of Great Northern-road, for Mr. George Jamieson, carpenter, per Mr. John Rust, architect; two dwelling-houses on the east side of Gray-street, for Mr. Robert Booth and Mr. Peter Sutherland, per Messrs. Brown & Watt, architects; store on the east side of Raeburn-place, for Mr. John Grant, blacksmith, per Messrs. Walker & Duncan, architects; shed on the west side of Fountainhall-road, for the Aberdeen District Tramways Company, per Mr. A. H. L. Mackinnon, architect. The committee have declined to sanction several erections, because the mode of construction—the external walls being partly of wood—would not meet the requirements of the Act.

EXTENSIONS AT BIRKENHEAD WORKHOUSE.—Two memorial-stones have just been laid in connexion with the extensions of the Birkenhead Workhouse, Higher Tramway. The new buildings, which will cost about 17,000l., have been planned by Mr. E. Kirby, and are being built by Mr. W. H. Forde, of Birkenhead.

NEW BANK PREMISES, HIGH STREET, SOUTHAMPTON.—New banking premises have been built for Grant and Maddison Union Banking Company, High-street, Southampton. The builders were Messrs. Jenkins & Son, of Southampton, and Messrs. Marshall & Vicken, of London, were the architects.

PAROCHIAL HALL, DARLINGTON.—On the 11th inst. the new parochial hall in Victoria-road, which has been erected in connexion with St. Cuthbert's Parish Church, was inaugurated by the Bishop of Durham. The architects of the building were Messrs. Clark & Moscrop, of Darlington.

MANSFIELD HOUSE RESIDENCE, CANNING TOWN.—A new building for the Mansfield House University Settlement has just been opened in Barking-road, by Sir Walter Bessent. The building, which is four stories in height, is of red brick, with some little relief in white stone. The walls of the entrance hall are, to a height of several feet, tiled with green tiles, above which the walls have been coloured in brick red. Beyond the short entrance passage there is a vestibule, to the right being the warden's study. Beyond this room there are offices. At the top of the principal staircase leading up from the vestibule there are situated the two principal rooms of the residence, the dining and drawing-rooms. These can be thrown into one. There is in the residence accommodation for twenty residents, and suites of rooms are contained in the building, which also provides accommodation for the servants. On the roof of the residence has been 8,185l. The architect of the new building is Mr. Troupe.

NEW BUILDINGS IN FORRES, N.B.—The Forres Hydropathic Company, Limited, are proceeding with an additional wing to the hydropathic establishment which includes a large recreation hall and a considerable number of bedrooms.—A new wing, over 60 ft. long, is to be added to the post office. The accommodation to be provided will include new rooms for postmaster, postmen, messengers, and other employees, besides apartments for the telegraph and telephone. Lavatories are provided for each department.—New shops and houses are to be erected at the corner of Bogton place and St. Catherine's-road, and several new villas are being erected on the Sanquhar Estate feuing grounds. All of the above works are from plans prepared by Mr. John Forrest, architect, of Forres.

CONSERVATIVE CLUB, HIGH WYCOMBE.—The foundation-stone of a new Conservative Club, in the High-street of this town, was laid on the 10th inst., by Mr. A. J. Balfour, M.P. The building is to be of late Gothic style, in brick, stone, and tile, having a frontage of about 26 ft. to the main street. On the ground are provided large smoking lounge and bar, with steward's room, lavatories, and offices in the rear; on the first floor, reading-room, lofty billiard saloon for two tables, and committee-room, and on the second floor five rooms, and offices for

steward's residence. The cost of the site and building will be about 1,600l., and the contract for the building has been given to Mr. G. H. Gibson, of High Wycombe, at 125l. The architect is Mr. Arthur Vernon, of London and High Wycombe.

SANITARY AND ENGINEERING NEWS.

BARRY WATER SUPPLY.—Colonel C. H. Luard, R.E., has just conducted a public inquiry on behalf of the Local Government Board at the Gas and Water Offices, Barry Docks, with regard to applications made by the Barry Urban District Council for power to borrow 3,767l. for new works of water supply by the creation of a junction at Dinas Powis of the Cardiff system with the low-level reservoir system at Barry; 5,500l. for the construction of a road round Romilly Park, and 660l. for works of private street improvement. The inquiry was attended by Mr. J. Arthur Hughes, Town Clerk; Mr. J. C. Pardoe, Surveyor; Mr. F. M. Harris, Engineer and Manager of the Gas and Water Department; Mr. E. W. Waite, Water Engineer; and others.

SEWERAGE WORKS, SIDMOUTH.—The new system of sewerage at Sidmouth was opened on the 8th inst. The plan adopted was prepared by Mr. James Mansergh, and under it all the lower parts of the town have been resewered.

CROSS-RIVER COMMUNICATION, GLASGOW.—At a recent meeting of the Glasgow Corporation, the minutes of the Special Committee on Cross-River Communication West of Glasgow Bridge stated that at a meeting on October 13 Mr. Lindsay, C.E., as instructed, submitted drawings of a semi-high level bridge, and also alternative designs of a low-level bridge, and the committee instructed Mr. Lindsay to prepare and submit an estimate of the probable cost of both schemes, along with a report thereon. The minutes further stated that at a meeting on November 24 the engineer again submitted drawings of a semi-high level viaduct and approaches on the line commencing at the Paisley-road, on the south side of the river, at the north end of Shields-road, and terminating at Stobcross-street, in line with M'Intyre-street, on the north side of the river; as also alternative drawings of a low-level bridge (a) in the line of Finnieston-street, 1,660 yards west of Glasgow Bridge, and (b) in the line of West-street and James Watt-street, 343 yards west of Glasgow Bridge; as also estimates of each of the said viaduct and bridges; as also a report thereon. As also instructed at the last meeting, when the plans received by Councillor Bilsland in 1894 from Sir William Arrol, showing a high-level passenger bridge across the river at Clyde-street, were also remitted to him to prepare and submit an estimate of the probable cost thereof, the engineer submitted such estimates prepared by him showing the cost of (a) a cantilever footbridge, and (b) a hogback girder footbridge. After discussion, and without pronouncing on the plans, estimates, and report, the committee agreed to recommend that the Corporation remit to them to confer with the Special Committee on Free Ferries and with the adjoining burgh authorities interested, and to report.—On the motion of Bailie Thomson, the minutes were approved.

DRAINAGE SCHEME, ROTTINGDEAN.—A meeting of the Rottingdean Parish Council was held recently to consider the proposed new drainage scheme for Rottingdean.—The Report of Mr. T. W. Franks, Assoc. M. Inst. C.E., on the present system of drainage, and his recommendations, were discussed, and, with a few alterations and omissions, were accepted by the Council.—The estimate of the whole scheme embodied in the Engineer's suggestions, exclusive of legal expenses, is 1,350l.

ELECTRIC LIGHTING NEWS.

BOOTLE.—Lieutenant-Colonel Albert C. Smith, R.E., representing the Local Government Board, sat at the Town Hall, Bootle, on the 10th inst., for the purpose of conducting an inquiry as to the application of the Bootle Corporation for powers to borrow 35,000l. with the view of carrying out a scheme of electric lighting within the borough. Mr. J. H. Farmer (Town Clerk) appeared in support of the application, and there were also present Messrs. Miller (Electrical Engineer), Crowther (Borough Surveyor), and others.

STAINED GLASS AND DECORATION.

JUBILEE WINDOW, STILTON.—A new window has been placed in Stilton Parish Church, in commemoration of the Queen's Jubilee. The subject of the window is "Christ carrying the cross." The window is by Messrs. Simpson & Son, of London.

WINDOWS, ST. MICHAEL'S, LOUTH.—In commemoration of the sixtieth year of her Majesty's reign, two new stained-glass windows have been placed in St. Michael's Church. The windows, designed and executed by Messrs. Ward & Hughes, Soho, are each of two lights, one bearing a representation of Hagar and Ishmael and the sacrifice of Isaac, and the other is illustrative of our Lord's temptation in the wilderness.

JUBILEE WINDOW, WATERHEAD PARISH CHURCH, LANCASHIRE.—The Queen's Diamond Jubilee

memorial window has just been unveiled in this church by the Mayoress (Mrs. Waddington). The window has been inserted by Messrs. Edmondson & Son, of Manchester. It is a representation from the life of Queen Elizabeth.

WINDOW, ROYAL INFIRMARY, SHEFFIELD.—The large window, on the staircase leading to the new Eye Ward, at the Royal Infirmary, Sheffield, has just been filled with stained glass. The subjects represent: Our Lord Healing a Blind Man, and Tobit and the Angel; these are surmounted by four large panels containing ornamental glass, with suitable texts running through. The work is from the studio of Messrs. Powell Brothers, of Leeds.

NEW WINDOWS, ELLERKER CHURCH.—The chancel windows of Ellerker Church, Brough, East Yorkshire, have been filled with stained glass to the memory of the Marshall and Levitt family. The subject is "The Ascension of our Lord," which occupies the three lower lights, with angels in the tracery above. The window was designed and executed at the studio of Mr. T. W. Camm, of Smethwick, Birmingham.

MEMORIAL WINDOW, COSELEY CHURCH, STAFFORDSHIRE.—The memorial window to the late Mr. John Creswell, which has been placed in St. Chad's Church, West Cosley, was unveiled on the 5th inst. The subject is the three patriarchs, Abraham, Isaac, and Jacob; and the work has been carried out by Messrs. Heaton, Butler, & Bayne, of London.

WINDOW, ALL SAINTS' CHURCH, SCARBOROUGH.—A window, which has been erected to the memory of the late Chancellor Raine, of York, in the south aisle of All Saints' Church, Pavement, was unveiled recently by the Dean of York. The work has been carried out by Mr. C. E. Kemp, London. There are three principal lights, and these have been filled by figures of St. Paulinus, in the centre, St. Aidan, and St. Cuthbert, the three smaller lights above having angels bearing scrolls inscribed.

WINDOW, AIRMIN CHURCH, GOOLE.—One of the large windows in the south aisle of this church has just been filled with stained glass by Mrs. Arthur Speer. The Bishop of Hull unveiled the window at a special dedicatory service. It contains almost a size figure of Ruth and Naomi, surrounded by canopy work, and is from the studio of Messrs. Powell Brothers, of Leeds.

FOREIGN.

FRANCE.—The Parliamentary Commission has rejected the scheme of M. Bouquet de la Grye for the establishment of a maritime canal between Paris and Rouen.—Mr. Fernoux has been elected President of the Société Nationale des Architectes de France for 1898; M. Bouthon vice-president, and M. Christie general secretary.—A monument to Litoff, the composer, is to be erected at Paris as soon as the design is completed. It is in the hands of M. Lucien Pallez, sculptor, and M. Albert Julien, architect; and will consist of a granite pyramid surmounted by a bust of Litoff. In front of the pyramid is to be a female figure in an attitude of mourning.—At the Cercle de l'Œuvre Artistique, in the Rue Boissay d'Angas, there is in view a decorative composition by M. Cornon, the well-known painter, for the decoration of a gallery in the Museum of Natural History, comprising ten panels and a large ceiling painting.—The church at Lourdes has been at last completed, having remained for several years unfinished.—A decorative painting by M. Frouvé, which was exhibited at the last Champ de Mars Salon, has been placed in position on the main staircase of the new Mairie of Isey-le-Moulineux, of which M. Bonnier was architect.—The jury in a competition for a monument to be erected at Saint Quentin in memory of M. Parigault, a former benefactor of the town, has awarded the first place to the design by Malgras, architect, and designer of the Palais de Fervaux at Saint Quentin. The second premium was awarded to MM. Barbaud and Banhain, of Paris.—The Académie de Beaux Arts has announced, as the subject of the next Achille-Lectère competition, "La Salle Centrale d'établissement Thermal."—The death is announced, at the age of thirty-nine, of M. Fernand Haulard, architect, of Beaumont-sur-Oise. M. Haulard was a pupil of Bouchot, under whom he had been an Inspecteur des Travaux under the War Department, and also at the Théâtre de l'Odéon and the Ecole Normale Supérieure. He also worked with the same architect on the Terminus Hotel at Versailles and on various private buildings. He was a member of the Société Centrale des Architectes.

KIMBERLEY.—The new Sanatorium at Kimberley stands in its own grounds, these being nearly nine acres in extent, the front facing towards Beaconsfield. Externally the building is built of burnt brick. A carriage-drive from Egers-road runs right round the building. The main entrance opens on to a vestibule 14 ft. by 12 ft.; on the right of which is a porter's lobby, while to the left is the Board-room. The hall is 45 ft. by 30 ft., while it extends to the height of the two floors. The grand staircase, starting at the centre of the hall, is 8 ft. in width. To the right of the hall is the drawing-room, 35 ft. by 25 ft. The dining-room is on the opposite side of the hall, a room of the same size and shape as the drawing-room. To the back of the hall are two 8 ft. corri-

dors, leading to the bedroom blocks. On the ground floor are half a dozen bedrooms, and the private rooms of the managers, a servants' staircase, two bath-rooms, and lavatory accommodation. There is also in this block a ladies' boudoir, 17 ft. by 15 ft. At the rear of the dining-room, and approached by a similar corridor, is a block of buildings, containing, on the ground floor, five servants' bedrooms for the use of servants of visitors, a box-room, larder, and boot-room. The kitchen block is a detached building, access being gained to the dining-room by a covered way, with windows on either side. Going through the covered way, the first room is the scullery, with an opening into the kitchen, and a door to the butler's pantry. Near the latter are two rooms for the use of the butler, and a room for the footman. The kitchen is 20 ft. by 20 ft. Adjoining the kitchen is the scullery, 20 ft. by 12 ft. The servants' hall is 22 ft. by 16 ft., next to which is the stillroom. Close by is the tradesmen's entrance, and in this block is also a servants' staircase. To the left of the kitchen block is a block of buildings comprising a billiard-room, 28 ft. by 22 ft., a smoking-room, 23 ft. by 18 ft., lavatory accommodation for gentlemen, and wine store. On the first floor are nineteen bedrooms, also four bathrooms and the necessary lavatory accommodation. Over the kitchen block are the servants' bedrooms, and a children's nursery, 22 ft. by 16 ft. Nearly every bedroom is fitted with a fireplace, and hot water is laid on throughout. The whole of the building, with the exception of the kitchen block, is provided on the ground floor with a verandah, 12 ft. wide, while on two sides, those facing Beaconsfield and the Free State, is a balcony of similar width. The whole of the building has been fitted with the electric light and electric bells, the work being entrusted to Messrs. Findlay & Co., of Cape Town. The necessary cables have been laid by the De Beers Company's employees from the generating station, under the supervision of Mr. G. Labram, the Company's Chief Engineer. Messrs. Church & McLauchlin are the contractors, the work having been carried out from plans by Mr. D. W. Greatbatch.

MISCELLANEOUS.

STREET LIGHTING, LIVERPOOL.—The Lighting Committee of the Liverpool Corporation held their first official inspection of the street lighting of the city on the 8th inst., and immediately prior to visiting various parts of the town the members and officials of the department met at dinner at the Adelphi Hotel, on the invitation of the Chairman, Councillor Charles Petrie. After the repast, Alderman Smith gave "Success to the Lighting Committee." Mr. Petrie, in responding, said the purchase of the electric lighting system had revolutionised the lighting of the city. The total number of street lamps of every class was 14,254, lighting 40½ miles of streets, 561 passages, and 1,350 courts. Of these 133 were electric lamps, lighting 3½ miles of road; 1,593 incandescent gas lamps, lighting 32½ miles of road. The work of the year had included the fixing of ninety-seven arc electric lamps, lighting 2½ miles of road; 1,194 double incandescent lamps, lighting 19½ miles of road; 108 single incandescent lamps, lighting 1½ miles of road; 181 ordinary lamps, lighting 7 miles of road and 248 passages, lighting 6,244 back doors. It was proposed in 1898 to light an additional 27 miles of main arteries, the city being made of 1,077 incandescent gas lamps, in lieu of ordinary ones, and to fix lamps in 400 passages hitherto unlighted, in addition to lighting of new streets. The lighting of passages was a great boon to the poorer classes, and it was an almost appalling thing that a few years ago there were 1,800 or 1,900 such dark places without any light at all. While they intended to largely extend the incandescent lighting of the main thoroughfares, they did not contemplate increasing the electric lighting very much at present, as they preferred to await the development of the new tramway system.

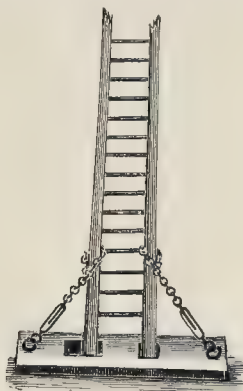
SMITHFIELD MARKETS.—A company is formed for taking over, as a going concern, the generating station and plant in Charterhouse-street for the supply of electric light to the Corporation markets. The lease, seventy-five years unexpired, at 500l. per annum, from the Corporation, and the property, plant, and machinery, are valued by Messrs. Fuller, Horsey, Sons, & Cassell at 86,566l. The station has a retaining frontage in the rear to the Metropolitan Railway, and occupies a ground area of about 6,900 square feet. The buildings are laid out to the railway level, and are 35 ft. high, so that the present concrete roof is level with the street. Railway coal-trucks can be run direct into the works through an opening in the boilerhouse wall. A cold-air return, four stories high, is being built over the station (having the concrete roof for its ground-floor) by a separate company.

ALTAR, PRO-CATHEDRAL, DUBLIN.—On the 8th inst., the new altar of Mary Immaculate, recently erected in the Pro-Cathedral, Dublin, was unveiled. The altar is Classical in style. The tabernacle and altar table are in white marble, and are enriched with columns and pilasters in the Doric style. There is a baldachino rising above the altar in the Corinthian style, and the architrave and pediment are supported on fluted columns. The acacia leaves on the capitals are gilt, and the architrave is orna-

mented with open work. There is a projecting carved cornice. At the back of the altar is a recess in which is placed a statue of the Immaculate Conception. The altar was designed by Mr. Ashlin, of Dublin, and Mr. C. Sharpe was the sculptor.

MARBLE BUST, MANCHESTER.—A marble bust of the late Sir Charles Hallé was presented to the city of Manchester on the 9th inst., by Sir William Houldsworth, M.P., on behalf of the subscribers. The bust is the work of Mr. Onslow Ford.

CHANDLER'S SAFETY LADDER GRIP.—This appears to be a most useful device for securing the ends of a ladder placed on the pavement from slipping; a danger which is so obvious that one frequently sees men told off to stand at the foot of a ladder all the time that painters are working on it, and who represent, of course, so much wasted wages. Mr. Chandler's patent consists of a slab of wood



with two strips of corrugated lead fixed to the underside which make it safe from slipping, and with two cavities into which the base of the ladder is inserted, and chains which are passed round the standards of the ladder and screwed up tight, as shown in the sketch. The fittings are of galvanised iron. The bases are made two sizes, 4 ft. and 6 ft. long. The patentees and manufacturers are Messrs. Chandler & Carley, Clapham Junction.

EDINBURGH AND LEITH MASTER BUILDERS' ASSOCIATION DINNER.—The annual dinner of the Edinburgh and Leith Master Builders' Association was held on the 9th inst. in the Royal British Hotel, Princes-street.—Mr. John Lowrie, President, in the chair. The Chairman, in opening the proceedings after dinner, said the question of labour had been dogging their footsteps for years, and as an Association they had had a share in the fight that was at present disturbing the country. What he wished to lay before them was the question as to whether there was no remedy for the present state of matters in connexion with labour? Were there no means whereby the employers could win over the better disposed of their workmen, and at once free the mind of themselves from the tyranny of the mischief makers? He was afraid that before peace and freedom of action with workmen were again established, the present lamentable battle would have to be fought out. He believed, however, that when the battle was over, it would be the opportunity and the duty of all employers to seek the good, and win the confidence, of their workers by a system of insurance, to which both should contribute. He was persuaded that, if that could be carried out, the present unhappy relations that existed would largely disappear. He was sure that they had no wish that their employees should work under adverse conditions. What they desired, and what they must have, was that freedom of action in the conduct of their business which ought to exist in a great and free country like theirs. "The Magistrates and Town Councils of Edinburgh and Leith" was proposed by the Chairman, and Councillor Menzies responded, and Councillor Graham Youll replied for the Leith Corporation. At a later stage of the proceedings, Councillor Graham Youll proposed "The Edinburgh and Leith Master Builders' Association," and in doing so, spoke of its usefulness to its members. Its membership, he said, now numbered 110. As showing how the trade was extending and the consumption increasing, he would refer to the branch in which he was most interested. When he first remembered it, twenty years ago, the consumption of cement in Edinburgh and Leith was a few hundred tons per annum. Ten years ago it mounted up to the large quantity of something like 10,000 tons, and they would be surprised when he told them that from January 1, 1896, to October 13 last, 83,470 tons of cement were imported into the port of Leith. In former years all the cement used came from their own country, but, out of the 83,000 referred to, no less than 4,733 tons were imported from Belgium, which showed that a trade, which

was formerly their own, was now, to some extent, going into the hands of the foreigner. It was a serious matter. The wages in Belgium were very much less than in this country, and British manufacturers, at the present time at all events, were unable to compete with the Belgians. With the machinery they possessed, and cheap labour, they would undoubtedly be very serious competitors to their trade.—Mr. Peter Whyte, in responding, said that, to the masons, the year had been a specially marked one, and he went on to remark that they had had to yield to the men's demands, because if they had not done so they would have been left without a mason.—Other toasts followed, among them being "Architects and Surveyors," proposed by Councillor Purves.

DEPARTMENTAL MEASURES.—Statutory notice is given for the introduction of two Bills during next session authorising Her Majesty's Office of Works to acquire lands and property in Southampton (near the Platform) and Cadroxton-juxta-Barry, Glamorganshire (in Station-street), for the erection of Customs, mercantile-marine, and other public offices. By another similar measure the Secretary of State for India seeks for powers to take property in Lambeth for purposes of the India Office Stores Department. The property scheduled lies within an area bounded by Belvedere-road, the London County Council's premises, the Thames, and College-street, and Suifrance Wharf. A Bill is also prepared to enable the trustees of the London Parochial Charities to sell, and the Postmaster-General to purchase, the public recreation ground in Little Britain known as the "Postmen's Park."

FOUNTAIN, ALBERT-SQUARE, MANCHESTER.—The fountain which is being constructed on the site of the temporary Thirlmere fountain, in Albert-square, Manchester, is to cost 1,000l. or 1,200l. It is by Messrs. Thomas Worthington & Son, architects, of Manchester. The fountain is hexagonal on plan, and consists of a lower basin, 21 ft. in diameter, standing upon a raised platform of three steps of grey Scotch granite, and is constructed of unpolished red granite from the Hill-o'-Fare quarries; it has a square pier, with moulded cap and base at each of the six angles, the sides of the basin between the piers being moulded. From the centre of this basin rises a second one, 9 ft. in diameter, made of Bolton Wood sandstone. The basin has a moulded base at the surface of the water, and the lower one, upon which stand six triple shafts of red granite, having carved capitals supporting the overhanging corbelling of the bottom of the basin, and the inscription, "Erected in the sixtieth year of the reign of her Most Gracious Majesty Queen Victoria, eighteen hundred and ninety-seven." Above this the faces of the six sides of the basin are worked with moulded and traceried panels, two of the sides being raised in the centre with larger panels; that on the side towards the Town Hall bearing the arms and motto of the city, and the other one the arms of the Duchy of Lancaster. At each angle of this basin a carved gargoyle discharges the water into the basin below. Above the second basin is placed a third, 3 ft. 6 in. in diameter, of shallow section, forming on plan a square, with circular projections upon each face, supported upon a hollowed stem surrounded by four detached circular shafts having a deep moulded base and plinth and moulded caps. From this basin, which is of red granite similar to that of the lower one forming the lower portion of the fountain, rises a short moulded stem of red granite, with a spreading cap, upon which is placed a bronze dolphin. The erection of the fountain was entrusted to Messrs. J. & H. Paterson. The dolphin has been modelled by Mr. John Cassidy.—*Manchester Guardian.*

DISCOVERY OF ANCIENT FRESCOS AT BEBINGTON CHURCH.—"E. W. C." writes:—"In the course of the restorations and alterations now going on in the ancient church of Bebington, it has been found that the west and south walls of the nave were formerly decorated with paintings which appear to be of the thirteenth and fourteenth centuries, and that these walls were originally built with a view to treat them in this manner. The internal stonework was left rough, to form a key to the fine thin plaster in which the frescoes were laid. These paintings have suffered seriously by hacking for the modern plastering, as well as by its removal, but little now remains. The south wall shows small fragments of foliated work. On the west wall is still discernible a picture of St. Michael overthrowing Satan. The figures are partly covered by a modern wall built in 1847. They are strongly outlined in black, and coloured with red, yellow, and white. Where not broken away, the colour is perfectly fresh and clear. The whole subject on the west wall was possibly a 'Doom,' of which this formed part."—*Liverpool Post.*

OLD AND NEW BIRMINGHAM.—Arrangements have now been completed for the demolition of the old house and shop at the corner of the Minories and Bull-street, and the site will be occupied by a block of buildings erected for Mr. George Berrill, the present occupier. It will be remembered that the existing shop did not originally stand at the corner of the Minories, which thoroughfare was widened about eleven years ago by the removal of another shop which was at that time at the corner, the improvement being carried out by the Improvement Committee in connexion with the Corporation

Street scheme. Some excavations were made at the time in order to give Mr. Berrill's premises a frontage to the Minories, and in the course of these operations certain remains of the foundations of the ancient Priory Church of St. Thomas were discovered. It is believed that further traces will be found when excavating for the new building, and Mr. Oliver Essex (the architect for the work) will see that proper records are kept of any further discoveries which may be made. The Priory and Church were built in the thirteenth century. The Augustinian Priory of St. Thomas the Apostle was endowed originally in 1285, but the small church, or free chapel, was dedicated, not to the Apostle, but to St. Thomas the Martyr—i.e., Thomas Becket. The Old Square was originally the Priory Close, but was built upon nearly two hundred years ago, the houses then erected only being removed to make room for the recent improvements necessitated by the cutting of Corporation-street, the widening of the Minories, and other rearrangements.—*Birmingham Post*.

THE GREAT CITY FIRE.—At a meeting of the City Commission of Sewers on Tuesday, at which Mr. Smallman presided, a deputation of owners, occupiers, and ratepayers of Cripple-gate Ward, headed by Mr. M'Bryde, waited upon them in reference to the fire, in which most of them, they stated, had been great losers, while their businesses were practically paralysed by the calamity. They submitted for the consideration of the Commission various matters. The locality of the fire had become a notorious and dreaded one, owing to the occurrence of several previous fires occasioning far heavier burdens on the petitioners, in the shape of losses and extremely high insurance rates, than the citizens generally. There seemed to be a general consensus of opinion that an effort should now be made to prevent, if possible, a repetition of such calamitous disturbances, and that the way to effect it was to open up the locality by means of street improvements, so as to render the area less densely occupied by buildings, and to give readier access to the numerous and important warehouses in the narrow streets and alleys which abound in the vicinity. Many of them had regarded with strong approval a proposal made by Mr. H. H. Bridgman, a late member and past Chairman of the Commission, to construct a new wide street from the corner of St. Giles's Church, diagonally through the scene of the fire to Aldersgate-street Station—viz., the intersection of Aldersgate-street, Barbican, and Goswell-road and Long-lane. Beyond being an important local improvement, which the petitioners considered would accomplish the object sought, it would also be the completion of a direct line of thoroughfare from the Tower and the East End to the markets and Holborn, via Fore-street, London-wall, Camomile-street, Duke-street, and the Minories. It was apparent, moreover, to all taking an interest in such matters, that if any material relief was to be secured for the constantly increased traffic at the Mansion House and adjacent streets—going east and west through the City—the only feasible remedy was the completion of that new main thoroughfare. When such connecting link across the scene of the fire was completed it might fitly be regarded as an important Metropolitan improvement, and would fully justify the London County Council in contributing towards the cost. The Commission would appreciate the necessity, in the public interest, of arriving at a decision as to as early a date as possible, and so prevent the likelihood of the devastated area being again rebuilt on the old foundations, or difficulties and complications arising, and so rendering it impossible to effect any valuable improvement. The memorial was signed by some eighty or ninety firms, some of them carrying on business in Wood-street, but the majority being those whose premises had been destroyed. Mr. M'Bryde, replying to questions, said no improvement would be complete which did not deal with the half-circle of Jewin-crescent. There the houses ran back to back, and a fire would run right through them in no time. In the present instance, had there been a strong wind, the fire would not have been stopped until it had reached the General Post office. On the motion of Mr. Tranter, the memorial was referred to the Finance and Improvement Committee for consideration and report, the Chairman assuring the deputation that it should have every attention. On the motion of Mr. A. A. Wood, the whole question of the prevention of danger and damage from fire in the City was referred to the same Committee.

FIRE AT DOVER CASTLE.—A fire occurred at Dover Castle on Tuesday, the fire having broken out in the roof and travelled downwards. The fire was limited to the western end of the long range of quarters, offices, and officers' mess. The buildings burnt out were used as officers' quarters, with offices in the basement. The upper floors were completely destroyed, while in the lower part a great deal of damage has been done, and a quantity of documents destroyed. Experts have been engaged to trace the cause of the fire, and there is no doubt that it was due to a defect in a chimney which passed through room No. 21. This room is on the top story, and it was above the ceiling of it that the flames were first noticed. The serious inefficiency of the water supply is a matter of much comment, and there is no doubt that the present investigation by the authorities will result in a very great im-

provement in this respect. The disaster will serve a useful purpose, as the Castle contains valuable historical relics and records of the greatest antiquity and interest to the nation, and had the fire broken out in some parts, with such an inadequate supply of water far more disastrous results must have followed. A Board of Inquiry was opened on Wednesday at the Castle.—*Morning Post*.

TOMB OF THE LATE ARCHBISHOP BENSON.—The Dean and Chapter of Canterbury Cathedral have approved the revised design prepared by Mr. Jackson, R.A. for the tomb of the late Archbishop Benson. It will be Early English in character, and has a general resemblance to the tomb of Archbishop Peckham, in the Martyrs' Chapel. The construction of the memorial will be at once proceeded with, and when completed it will be erected over the resting place of the late Primate in the north-west angle of the Cathedral nave.

BUILDING ESTATE, BARROW.—A syndicate of Newcastle gentlemen have purchased a large estate in the neighbourhood of Abbey-road, Barrow-in-Furness, where they intend to commence building semi-detached villas and self-contained houses. The architects for the estate are Messrs. Watson & Curry, of Newcastle.

TRADES' TRAINING SCHOOL.—The yearly presentation of prizes to pupils of the Trades' Training School was made on Wednesday at the Carpenters' Hall by Sir J. Wolfe Barry, President of the Institution of Civil Engineers. Mr. J. Runtz, Master of the Wheelwrights' Company, occupied the chair. Professor Banister Fletcher, as Chairman of the Judges' Committee, reported that the School was a much greater success than could have been anticipated. Its object was to teach thoroughly, avoiding the mere smattering which sometimes disgraced the name of technical education. There were 285 students. In addition to the examinations, for which the Carpenters' Company shared the responsibility, there had been several very successful examinations in carpentry and sanitary building construction. Sir J. Wolfe Barry said that while learning his profession he spent eighteen months at a joiner's bench, where he acquired nothing but good. The hours of work were much longer than now, but he and other men in the small shop were none the worse for that. There was plenty of time left for self-improvement and for athletics. Having urged learners in all trades to remember that attention to trifles was often the secret of success, he pointed out that in this age of specialising and labour subdivision it was particularly important that boys should study the general principles of their trades, lest they should become mere machines. It was, moreover, becoming increasingly necessary to consider foreign competition. Until lately rails for Indian railways were always made in this country, but now they were in many cases bought in America. That was because the price was lower, in spite of the enormous distance they had to travel. That was not all. Machinery was now being brought from America to London at prices which our manufacturers could not accept. Indian, Australian, and foreign orders for locomotives were being transferred from British to Continental workshops, and, of course, foreign countries which used to buy machinery from us were making it for themselves more and more. Even more serious than foreign competition were conflicts between capital and labour in this country. Strikes and lock-outs were terribly rough modes of arriving at a fair division of the profit which capital and labour jointly made. To reach a better method it was important that both the officers and the soldiers in the army of industry should study the great principles underlying trade. In case of a dispute somebody always said "Refer it to arbitration." But that was ridiculous when there was a fundamental difference between capital and labour. When the question was vital no arbitration in the world could give satisfaction. The only hope for the avoidance of these great industrial contests lay in better knowledge of facts and figures. The present condition of affairs was disastrous to our prosperity. Our old supremacy in trade lay in the balance. Let every man try to grasp the problems on which it depended.

CAPITAL AND LABOUR.

ST. HELENS JOINERS AND THEIR WAGES.—On September 1 last the joiners of St. Helens handed to the master builders and joiners of the district notices to the effect that on March 1 next they would require an increase of 2d. in their wages, and certain alterations in the rules as to hours, &c. The joiners at present receive 85d. per hour. The matter having been referred to the Board of Trade, it was arranged that Mr. Drummond, on behalf of the Board, should meet six masters and six men at the Raven Hotel, for the purpose of discussing the whole matter. The masters were represented by Messrs. Peter Ficks, (President of the Masters' Association), W. Powell, (Secretary), T. Ellison, W. Molyneux, R. Ellison, and John Hodson; while the men were represented by Messrs. G. Parr, W. Kay, Jos. Elliott, J. Chadwick, J. Taylor, and Ashurst. The representative of the Board of Trade, we understand, stated that he had come there not to act as arbitrator, but to try and help the masters and men to settle the matter. After the representatives had

conferred for several hours, the following statement was handed to the Press:—"At a joint meeting of the representatives of the Building Trades' Association and the united committee of carpenters and joiners, held at the Royal Raven Hotel, St. Helens, on Thursday, 9th inst., it was unanimously resolved to request the Board of Trade to invite Sir Thomas Wright, of Leicester, to act as arbitrator in the matter of a proposed advance of wages and alteration of working rules."—*Liverpool Post*.

LEGAL.

IMPORTANT CASE UNDER THE LONDON BUILDING ACT, 1894.

THE cases of the London County Council v. Davis, and the London County Council v. Rowton Houses came before a Divisional Court of Queen's Bench, composed of Mr. Justice Hawkins and Mr. Justice Channell, on the 9th inst., the cases raising a very important question under the London Building Act, 1894, namely, whether certain buildings were dwelling-houses "to be inhabited or adapted to be inhabited by persons of the working classes" under that Act, because if they were the owners were affected by the provisions of that Act. It was arranged that the two cases should be taken and heard together.

The latter case, with reference to the Rowton Houses was taken first, and from the statement of counsel it appeared that a summons was taken out charging the company with failure to comply with a notice served by the County Council, under Sections 14 and 20 (2) of the London Building Act, 1894, requiring them to set back a building known as Rowton House, situated at Churchyard-road, Newington Butts, so that every part of the external walls should be at a distance in every direction of not less than 20 ft. from the centre of the roadway. The respondents did not comply with the notice, and when the summons came on for hearing the building had been erected, and it was nearer to the centre of the road than was permitted. The building was erected on the site of thirteen old dwelling-houses with gardens at the rear of them which were existing at the date of the commencement of the London Building Act, 1894. The District Surveyor duly certified the plan of the building under Section 13 (5) of the Act, and no land within the prescribed distance of 20 ft. was occupied by the new building, which was not occupied by the previously existing buildings. The building in question was adapted to provide lodgings for single men, at a cheap rate, by the night or by the week, with recreation rooms and convenience for the use of the inhabitants, and has sleeping accommodation for about 800 persons. The cubical contents of the building exceeded 25,000 cubic feet. The London County Council (the appellants) contended that this building, though a public building within the definition in Section 5 (27), was a dwelling-house to be inhabited, or adapted to be inhabited, by persons of the working class within the meaning of Section 13 (5), and therefore could not be erected without their consent. The respondents, however, contended that the building was, in fact, a poor man's hotel, and a public building within the definition in Section 5 (28), and was not a dwelling-house within Section 13 (5). The magistrate before whom the summons came found, as a fact, that the building was a "dwelling-house to be inhabited by persons of the working class," although it was not exclusively reserved or used by persons of that class, and he held that it was properly described as a poor man's hotel, and that it was a public building, and not a dwelling-house within the meaning of the last proviso but one to Section 13 (5), and that such proviso was intended to prevent the construction of narrow alleys and courts, and of small dwelling-houses higher than the courts are wide, and had no such application to such a case as the buildings in question, and he dismissed the summons.

In the case against Davis an information was laid before the magistrate at Worship-street, charging him (Davis) with non-compliance with a notice from the London County Council in respect of No. 105, Brick-lane. Davis (the respondent) is the owner of a plot of land fronting Brick-lane, upon which there formerly stood a row of buildings consisting of ten shops, with living rooms behind and above. Davis was desirous of pulling down the old buildings and of erecting new ones, and sent in a plan of the new building, which was duly certified by the District Surveyor. Brick-lane is a highway for carriage traffic, and opposite No. 105 is 25 ft. in width. Davis's new house was built as a shop, with rooms above, and was let to Mr. Cohen, who sublet the greater part of it to separate families of the working classes. The appellants contended that because the dwelling-house was occupied by persons engaged in manual labour it came within the proviso in Section 13 (5) of the Act of 1894, and was a dwelling-house inhabited, or adapted to be inhabited, by persons of the working class, and, therefore, could not be erected or re-erected within the prescribed distance—which would in this case be 20 ft. from the centre of the roadway—to a height exceeding the distance of the front wall of such building from the opposite side of the street without the consent of the appellants. The magistrate dismissed the information on the ground that the

words "to be inhabited by persons of the working class" meant for the purpose of being, or intended to be, inhabited by persons of the working class, and that the words "adapted to be inhabited by persons of the working class" meant specially constructed or arranged for that purpose, such as flats or artisans' dwellings. There was no evidence that No. 105 was intended to be inhabited, or adapted to be inhabited, by any class of persons. He also held that the fact of its being inhabited by persons who were engaged in manual labour as sub-tenants of the original tenant, Cohen, was no evidence that the house was erected for the purpose of being so inhabited.

Mr. Horace Avory and Mr. Dadd appeared for the London County Council; Mr. Macmorran, Q.C., and Mr. Roskill for the Rowton Houses, Limited; and Mr. Cripps, Q.C., and Mr. Marshall Hall for Davis.

At the conclusion of the arguments of counsel Mr. Justice Hawkins, in giving judgment, said that Davis was the owner, before the Act of 1894, of ten shops and was desirous after the passing of the Act to put up fresh buildings. He accordingly sent in his plans and description of the proposed buildings, and, as a fact, his new building, No. 105, was erected on the site of the old building. No. 105 was let to a firm named Cohen, a working clockmaker, at 21. per week, as a shop and dwelling-house. The construction of the house was that of a shop in front, upon the ground floor, with living-rooms behind it, which were occupied by Mr. and Mrs. Cohen. On the upper floors were rooms used as sleeping and sitting rooms, and also as certain cabinet-makers with their wives and families. Cohen's son lived on the top floor. The house was not built with the intention that it should be the residence of persons of the working classes. It was intended to be a shop and dwelling-house, and was so let to Cohen, who sub-let part of it. After the house was built, notice was given by the London County Council to Davis to set back the house, and a summons was taken out on his failure to comply with the notice. In his Lordship's opinion, Section 13 (5) of the Act of 1894 meant that in order to bring a building within it as being "a dwelling-house" to be inhabited by persons of the working class, it must be a building that the person erecting intended should be a dwelling place for people of that class. As to the second part, dealing with a dwelling-house "adapted to be inhabited by persons of the working classes," that meant a building structurally adapted for the purpose—viz., adapted to it in its construction. There was nothing to show here that anything more than a shop and dwelling-house was intended, or that the house in its construction was specially adapted for the dwelling of persons of the working classes. The magistrate was right in his finding, and must be supported.

As to Rowton House the circumstances were different, it being used as a sort of poor man's club, or hotel for single men. There was no provision for any wives or families. It was not a house adapted for persons of the working class in the sense of the statute. It was true that it might be adapted for working class people to live in, but any house might be said to be adapted for that; in the house in question there was general provision for any one class of people. As to the third part, as to being a "public building" within the Act, that probably was the case, but it could be none the less a dwelling-house. Looking at the facts of the case he could not think that this was a house intended to be a dwelling-house for persons of the working class. The appeal in this case must also be dismissed. Mr. Justice Channell concurred and the appeals were accordingly dismissed in both cases.

THE COMBINED DRAINAGE QUESTION.

At the North London Police-court, on the 10th inst., Mr. d'Eyncourt gave his decision in the case of the Vestry of Hackney v. the Owners of twelve houses in Culford-road, Kingland. The case raised a vexed question of combined drainage. The drainage of the house was in a bad condition, and alleged to be a nuisance and a danger to health, but the owners objected to repair on the ground that the system of drainage was a common sewer, and as such repairable by the Vestry. On the other hand, Mr. Tiddeman, who appeared for the Vestry, said that as the Vestry had consented to the combined drainage the owners were responsible. Mr. Windsor, for the owners, elicited from the Surveyor that the plan of the proposed drainage as submitted was not approved. An alteration was made and the plan was approved. The builder, however, it had been found, had not carried out the plan as originally submitted and not as approved. Mr. Windsor further quoted the case of "Taylor v. Kershaw" in support of this contention, that the system of drainage now in existence was a sewer, because it had not been approved by the Local Authority. Mr. d'Eyncourt now said that on looking at the case of "Taylor v. Kershaw" it was quite clear that the point taken by Mr. Windsor was right, and that it was on all fours with the case now under consideration. In Kershaw's case approval had been given to the combined drainage of two houses. The builder, however, connected four houses, and the judges held that, as this action was made without the approval of the Vestry, the drain was a sewer. As the judges

pointed out, the remedy was in the hands of the Vestry, who could have proceeded against the builder under another section, and compelled him to lay the drain in the manner approved by the Vestry. He must, therefore, find in favour of the owners, and dismiss the summons. Mr. Young (C. V. Young & Windsor) now said that he represented ten of the owners, and he asked for 10l. 10s. costs. The case showed the carelessness of the Vestry officials in 1858. Mr. Tiddeman protested against such a remark being made. Mr. d'Eyncourt ascertained that the Vestry officials knew that the drain was not laid in accordance with the approved plan before the summons was taken out. Mr. Tiddeman said that it had always been his contention that the system was only approved, not the plans. Mr. d'Eyncourt granted 10s. costs in each case where the owners had instructed Mr. Young. Mr. Tiddeman asked for a case. Mr. d'Eyncourt: Have you read Kershaw's case? The answer: I have, but I nevertheless am instructed to press for a case. Mr. d'Eyncourt: You had better consider Kershaw's case again before you press for a case. In view of that case I think it is perfectly ridiculous to ask for a case on these facts.—*Morning Advertiser*.

INFRINGEMENT OF ANCIENT LIGHTS AT NEWMARKET: MANDATORY INJUNCTION GRANTED.

MR. JUSTICE STIRLING, in the Chancery Division, on the 10th inst., delivered a reserved judgment in the case of *Golding v. Wm. Reilly & Co.*, an action brought by the plaintiff, the owner of certain premises in High-street, Newmarket, occupied by Mr. Wm. Cresswell, milliner, to restrain the defendants from interfering with the plaintiff's ancient lights. The facts sufficiently appear from the judgment.

His Lordship said that the alleged obstruction by the defendants was due to their erection of certain new buildings on the site of the old "Greyhound Inn," at Newmarket. The properties of the plaintiff and defendants adjoined each other. The light said to be obstructed had access prior to the erection complained of to (first) a dwelling-house and shop facing the High-street, and (secondly), to a slanting roof and shop in the rear, and (thirdly) to a house situated in the rear, now converted into a shop. All these premises were now occupied by Mr. Cresswell under a lease of 15½ years unexpired. In the course of last year defendants began to pull down the "Greyhound Inn," and in October, 1896, began to build the new building. The writ was issued in December, and the motion for the injunction claimed by the plaintiff came before Mr. Justice Kekewich on February 4 last. On that occasion the defendants gave an undertaking, agreeing that the case should be dealt with in the same way as if that had been the trial. Since then the defendants had completed their hotel, with the result that the walls facing the plaintiff's premises had been raised 50 ft. from the ground. A further question was raised at the trial as to whether the access of light to a small window at the back of the warehouse had been obstructed as well as the light to three windows facing north-west in the back of the shop, and to ten windows of the back warehouse facing south-east. Dealing with the two sets of questions separately, his Lordship found there was a considerable conflict of evidence as to the small window at the back of the warehouse. Weighing the whole of the evidence, he thought the plaintiff's lights had been substantially affected, and he was entitled to an injunction, which, from the nature of the case, must take a mandatory form. Defendants must pay the costs of the action, except so far as they had been increased by the issue raised as to the small window at the back of the warehouse. On this point the defendants would have the costs as a set off. The operation of the injunction was suspended for a fortnight, subject to the defendants giving notice of appeal within that time.

Mr. Graham Hastings, Q.C., and Mr. Macnaghton, Q.C., were counsel for the plaintiff; and Mr. Butcher, Q.C., and Mr. Eustace Smith for the defendants.

MEETINGS.

FRIDAY, DECEMBER 17.

Architectural Association.—Mr. L. A. Shuffrey on "House Painting." 7.30 p.m.

Institution of Electrical Engineers. (Held, by permission of the Chemical Society, at Burlington House). Continuation of discussion on Mr. L. Epstein's paper on "Accumulator Traction on Rails and Ordinary Roads." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—(a) Mr. Archer D. Keigwin on "The Elastic Properties of Steel Wire." (b) Mr. W. L. Brown on "The Elasticity of Portland Cement." 8 p.m.

SATURDAY, DECEMBER 18.

Sanitary Inspectors' Association.—Paper by Mr. F. L. Bell, Portsmouth. 6 p.m.

London and Provincial Builders' Foremen's Association (Memorial Hall, Farringdon-road, E.C.4).—7.30 p.m.

York Architectural Association.—Visit to Sandeman Free Library. 8 p.m.

TUESDAY, DECEMBER 21.

Institution of Civil Engineers.—Mr. W. E. Daby on "A New Transmission Dynamometer." 8 p.m.

WEDNESDAY, DECEMBER 23.

Builders' Foremen and Clerks of Works Institution.—Annual Meeting of the Directors. 8 p.m.

Edinburgh Architectural Society.—Annual Business Meeting.

Perth Architectural Association.—Mr. J. Anderson on "Dean of Guild Court Procedure." 8 p.m.

THURSDAY, DECEMBER 23.

Edinburgh Architectural Society.—Annual Dinner.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

25,494.—**WATER CLOSET FLUSHING-CISTERNS**: P. Gaddet.—This invention has for its object the economisation of water by graduating flush to matter to be removed. It consists in placing in the same flushing cistern, or in several communicating ditto, two or more arrangements of mechanism illustrated, allowing for flushes of different volume being discharged. Specification describes and illustrates method as applied to various types of cisterns.

29,823.—**FIRE GRATES**: W. R. Lambert.—A grate to utilize heat absorbed by the back block of grates, and produce connexion and distribution, the inventor forms back block of hollow metal, with two or more outlets, leading to corresponding outlets in facade of grate.

2,778.—**SOLDERING IRONS**: A. Dittmar.—Inventor claims the method of constructing soldering-irons, with reservoirs in the interiors in which the solder is melted and from which it can be caused to flow to the point of soldering bolt.

15,200.—**WINDOW SASH FASTENERS**: W. E. King.—Inventor claims in a sash fastener, the combination of a raised plate on meeting rail of lower sash, and a second plate on other meeting rail, of a bolt within the plate, a lip on the end plate, engaging with the second plate, a spring below said bolt causing it to rise, and a locking arm behind said bolt.

10,584.—**GULLY AND STENCH TRAP FOR WASTE WATER**: W. Byrdell.—Claim is for a gully and trap, with an inlet from waste water pipe on one side of a chamber and an outlet to drain on opposite side of said chamber, the inlet and outlet being formed by baffles that are constantly beneath the surface, on a proportion of the water always retained in said gully, and are accessible by means of a cover.

21,066.—**FASTENER FOR WINDOW SASHES, DOORS, &c.**: A. J. Batters.—Invention essentially consists in a fastener with a sliding adjustable link fixed on lower sash, and a hook fixed on upper sash for link to pass over. Link has a set screw cam, or the like, adjusted to one end, by means whereof it is tightened up.

22,853.—**APPARATUS FOR HANGING WINDOW SASHES**: W. J. H. Richards.—Invention consists in a frictional buffer spring to do away with shocks, weights, &c. It consists essentially of a metal brush, in which is placed a spiral spring and a buffer.

NEW APPLICATIONS FOR LETTERS PATENT.

NOVEMBER 29.—28,029, E. & J. Holding, Sliding up and Down of Sash Windows.—28,066, A. Adams, Sockets for Receiving the Ends of Bolts for Doors.—28,068, R. McDonald, Lavatories.—28,081, K. Spreadbury & C. Hide, Registers for Stoves, Ranges, and Other Fire Appliances.—28,085, S. Kingwell, Flush Bolt Fastenings for Cabinet Doors, &c.

NOVEMBER 30.—28,135, G. Badger, Machinery for Working and Dressing Stone, &c.—28,136, A. Hunnible, Clamp or Holdfasts for Scaffold Poles.—28,160, B. Sansome, Roofing Tile, &c.—28,179, J. Connell, Water Supply Valve for Water Cisterns.—28,219, E. Procter, Sash Fasteners.—28,226, C. Shepherd, Flush Apparatus for Water-closets.—28,265, J. Huish, Casement Fastener.

DECEMBER 1.—28,289, C. Russon, Automatic Lockfast Window Fastener.—28,310, P. Tickle, Through Burning of Clay and Terra-cotta Goods.—28,320, L. Lees, Manhole Covers for Sewers, &c.—28,321, N. Sutcliffe, Flushing Cisterns.—28,322, B. Thwaite and H. Allen, Drain or Sewer Gas or other Fluid Conveyor, or Pipe Leak-detector.—28,342, W. Smith, Joints of Earthenware Pipes, &c.—28,393, J. Hogg, Fastening Devices for Window Sashes.

DECEMBER 2.—28,415, A. Twamley, Combined Earthenware Cornice and Spouting.—28,472, W. Rankin, Sash Fasteners.—28,484, H. Loesner, Waterproof and Weather-proof Paint.

DECEMBER 3.—28,554, R. East, Heating Greenhouses, &c.—28,555, J. Taylor and G. Brown, Sliding Windows.—28,567, J. Cooper, Embossed Paper or Cloth for Walls, &c.—28,616, T. Graddon, Sash Fasteners.—28,617, W. Fry, Sash Fastener.

DECEMBER 4.—28,629, E. Duval, Window Sash.—28,636, W. & J. Burton, Tie Press Dies or Plates for the Production of Undercut Recesses in the Manufacture of Tiles. A.—28,647, H. Sutcliffe, Syphon or other Bent Pipes or Siphon Traps.—28,651, A. Fisher and J. Sandilands, Appliance for Holding Brushes for Painting, &c.—28,666, W. Northcutt, Combination Paving Blocks and System of Paving.—28,669, J. Inglis, Drainage, Ventilating, and Cleaning System.—28,676, J. Prestwich, Flushing Cisterns.—28,697, J. Ewen, Prism Lights.—28,712, P. King, Device for Cleaning Out Drain Pipes.—28,719, J. Berlier, Shields for Use in the Construction of Tunnels.

PROVISIONAL SPECIFICATIONS ACCEPTED.

24,437, J. Simpson, Saws.—24,449, T. and R. McARD, Water-closet Seat.—24,573, J. Robinson, Bolts.—25,979, W. Oates, Waste Water Latrine Closets.—26,035, T. Rhodes and R. Gaunt, Chills or Moulds, used in the manufacture of Syphon Flushing Apparatus.—26,108, W. Oates, Waste Water Latrine Closets.—26,239, T. Turner and T. Hurley, Sash Fasteners.—26,258, C. Greenhalgh, Waply Water Closets.—26,268, W. Hird, Fire Resisting Paint.—26,314, L. Gilrath, Tool Chests.—26,324, H. Lake, Composition for Preserving Wood.—26,443, E. Dumay, Earth Closets.—26,464, C. Menet, Stencils.—26,575, G. Rhoads, Chimney Pot.—26,618, L. Darnaud, Safes, Strong-rooms, Doors, and Shutters.—26,645, J. Price, Pipe Joints.—26,685, H. and E. Isaac, Plastic Clay Machines, for use in Brickmaking.—27,046, J. McMaster, Materials for Distempers, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

766, D. Bostel and others, Urinals.—865, T. Thomson, Excavators.—18,364, A. Baill, Device for Opening and Closing Windows, &c.—19,454, D. Hinton, Metal Laths.—22,805, A. Carlewit, Manufacturer of Cornices and other articles of Plaster, &c., which have surface ornamentation in relief.—24,765, A. Tyler, Window Sash Fasteners.

Cadeby, Leicester.—Freehold farmhouse and 49 a.	
1, 3, 30 p.	6, 30
Freehold cottage and garden, o. a. or. 14 p.	17
Barlestone, Leicester.—Five freehold cottages ...	21
By W. Dew & Son (at Fwllhel).	
Langbely, Cambridgeshire.—Freehold farm ...	
190 a. or. 37 p.	6, 35
By F. PITTIS & Son (at Newport).	9
Newport, Isle of Wight.—38 and 39, High-st., f.	
1, 150	21
High-st.—"The Vactus Coffee Tavern," f.	21
1 and 2, Holywood-st., f.	36
St. Thomas's sq.—"Cambridge House," f.	1, r.
St. Thomas's sq.—Freehold building uses ...	32
stores	
Newport, Isle of Wight.—Trafaigard.—"Trafaigard house" and garden, o. a. or. 25 p.	33
Barton's Village, a freehold house ...	33
4 and 5, Clarence-t., f.	42
December 2.—By A. BRODIE, TIMMS, & Co.	
Highgate, Middlesex.—Highgate, 278, f.	79
201, r.	
Clapham.—164, Clapham-rd., u.t. 48 yrs., g.t. 10f.	
1, r.	70
By C. C. R. & SONS.	
Kensington.—13, Sheffield-t., u.t. 46 yrs., g.t. 7f.	
7, 70f.	
South Kensington.—220, Bute-st., u.t. 46 yrs., g.t. 6f.	
By C. C. R. & T. MOORE.	
Whitechapel.—187, Whitechapel-rd., f. 700f.	2, 60
Rotherhithe.—3 to 12, Maynard-rd., u.t. 53½ yrs.	
g.t. 17½, 30f.	1, 80
Peckham.—14, Peckham-rd., u.t. 48½ yrs.	
g.t. 147, 5s. od.	1, 80
Minories.—48, Church-st., f. 80f.	
By NEWBORN, EDWARDS, & SHEPARD.	
Haggerston.—1, 2, and 3, Alfred-t., and 9, Cester-	
7, 8, and 10, Cester-st., f.	1, 07

[illegible]

NATH.—For the erection of a book, Herbert road, Meln
cruthan, for the Llanelli Lower School Board. Mr. J. Cook Kees,
architect, St. Thomas-chambers, Church-place, Neath. Quantities
by architect:—
Lloyd Bros. £339 0 0 Beyer, Thomas, & Co. £573 18 0
Thomas Watkins & Co. £333 10 8 Burnett Bros. £565 0 0
Co. £283 0 0 Thomas Walters. £538 10 0
Watkins Williams. £595 0 0 Walters & Johns. £460 0 0
David Jenkins. £369 0 0 William Thomas. £547 11 0
J. I. Thomas. £579 0 0 D. W. Rosser. £583 0 0
John Davies. £579 0 0 Billings Bros. £595 0 0
Gustavus Birt. £590 0 0 A. George, Neath. £446 0 0
Architect's estimate, £5347.
Accepted.

NORTHAMPTON.—For the rebuilding of the "Bantam Cock"
Inn, Abington-square, for Mr. F. Perkins. Mr. F. Foster, architect,
Leamington. Quantities by the architect:—
House. Stables. Total.
J. Dunkley. £1731 12 6 £341 5 6 £2072 18 0
W. Thorsall. £745 0 0 391 0 0 2046 0 0
F. Harper. £1686 0 0 345 11 0 2031 11 0
C. J. Fisher. £1630 0 0 377 0 0 1997 0 0
A. J. Chow. £1550 0 0 390 0 0 1940 0 0
Woodford & Smith. £1550 0 0 390 0 0 1940 0 0
Wingrove & Stanley. £1534 0 0 311 0 0 1845 0 0
W. Heap. £1530 0 0 398 0 0 1928 0 0
Architect's estimate, £1590 0 0 350 0 0 1840 0 0
[All of Northampton.]
Accepted.

OLD TRAFFORD.—For the erection of buildings for a refuse
destructor and sanitary works at Old Trafford, for the Streteford
Urban District Council. Mr. J. Bowden, architect, 14, Ridgefield,
Manchester.
Wm. Southern & Sons. £3300 A. J. Cottle. £3216
Wm. Thorpe. £3187 Saml. Warburton, Lord.
Chas. Bradnock. £3183 street, Wile Flattings. £727
Jas. Byrom. £3180 Accepted.

PLYMOUTH.—For alterations to "Royal Exchange" hotel,
Vauxhall-street, for the Heavitt Brewery Co., Limited, Mr.
Chas. Cole, architect, 25, High-street, Exeter.
Lapthorne & Co. £500 H. Kerswill, 19, Coburg-st.
Stevens & Sillard. 371 Plymouth. £320
C. Porter. 245 Accepted.

SALTBURN-BY-SEA.—For the construction of drainage works,
for the Urban District Council. Mr. R. A. Jackson, C.E., Council
Office, Milton-street, Saltburn-by-Sea. Quantities by Engineer:—
Thomas Dickinson. £1830 3 0
Thomas Parry. 9554 14 0
John C. Spooner. 2564 11 0
Thomas Pearson. 2555 18 6
John Carrick, Durham (accepted). 2457 10 0

SHERINGHAM.—For the erection of villas at Sheringham, for
Mr. W. F. Pennefather, Messrs. Watts & Carter, architects and
surveyors, Sheringham and Cromer:—
G. A. Laws. £2953 0 0 Birch & Son. £753 0 0
Dawe & Son. 892 0 0 W. Weston. 747 12 0
Bird & Sadler. 845 0 0 R. G. Payne. 725 0 0
Accepted.

SNARESBROOK.—For the erection of a detached house,
Woodford-road, Snarebrook, N.E. Mr. Herbert Riches, archi-
tect, 3, Crooked-lane, King William-street, E.C.
H. W. Tavenor. £2620 C. S. Foster. £1834
W. Mundy. £2590 J. Julliffe (accepted). £1780

STOCKPORT.—For the execution of sewerage works, Bramhall
&c., for the Rural District Council. Mr. H. H. Turner, Surveyor,
Workhouse, Stockport.
Contract No. 1. Contract No. 2.
A. Taylor. £1824 15 10 £9568 1 9
G. Bell. £612 17 3 £9359 8 6
J. & J. Lee. £612 0 0 8700 0 0
A. Kellott. £281 0 0 2997 0 0
P. Smith. £213 2 9 9810 4 9
Naylor & Sons. £222 13 8 15401 3 6
Underwood & Bro. £725 0 0 8220 0 0
T. & W. Meadows. £523 0 0 9085 0 0
H. Lomas, Stockport. £790 0 0 7999 0 0
Accepted.

STOCKPORT.—For excavating, sewerage, forming, &c., Baul-
street and others in the Borough, for the Corporation. Mr. John
Atkinson, C.E., Borough Surveyor, St. Petergate, Stockport:—
Worthington Powell. £1609 2 1 P. D. T. D. Hayes.
W. Biscoe & Sons. £1693 7 10 Stockport. £1609 3 11
Accepted.

STOCKPORT.—For excavating, sewerage, forming, &c., Kenne-
ley Grove-lane, for the Rural District Council. Mr. John Atkinson,
C.E., Borough Surveyor, St. Petergate, Stockport:—
Worthington Powell. £1609 2 1 P. D. T. D. Hayes.
Allen Taylor. £2598 2 11 Stockport. £1728 14 0
Accepted.

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL,
HATTON GARDEN, and 29, RAY STREET,
FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY
THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, No. 74 Holborn. Tele. Address: "SNEWIN, London."

WELSH ST. DONATTS (Wales).—Accepted for widening
Waterside-lane, for the Llandaf and Dinas Powys Rural District
Council. Mr. Jas. Holden, C.E., Queen's-chambers, Cardiff.
Wm. Evans, Pendoylan, Cowbridge. £184 7 3

WORKING.—For the erection of public offices, for the Urban
District Council. Mr. G. J. Woodbridge, Surveyor, Bank-chambers,
Woking. Quantities by Mr. W. Davis, Filton-court, 4, east-street,
London.
Gregory Bros. £5691 P. Peters & Son. £5691
W. Watson. £5083 A. A. Gale. £5614
Ingram & Sons. £5683 Martin Wells. £5600
Heinemann & Brown. £5801 J. Harris & Son. £5600
C. Field. £5728 J. Martin, Addlestree. £5593
Accepted.

LONDON SCHOOL BOARD TENDERS.

At the meeting of the London School Board
on Thursday, the Works Committee brought up
the following lists of tenders:—

HAZELTINE-ROAD SCHOOL.—Heating:—
G. Davis. £137 0 1 J. & F. May. £59 10
Purcell & Nobbs. 72 0 J. C. & J. S. Ellis, Lim. 59 10

LONDON.—For erecting new general offices for the Metropolitan
District Railway Company at the St. James's-park Station, West-
minster. Mr. Henry L. Florence, architect. Quantities by Mr.
James Francis Bull:—
Colls & Sons. £15,560 Kirby & Gayford. £15,430
John Mowlem & Co. 18,000 W. Cubitt & Co. 15,440
Ashby & Horner. 15,708 Accepted.

RUTLAND-STREET SCHOOL.—Heating:—
G. Davis. £350 0 H. C. Price Lea & Co. £149 0
Simds & Co. 187 0 Vaughan & Brown, Lim. 146 0
W. G. Cannon & Sons. 105 0 J. Eason. 145 0
Stevens & Sons. 158 10 J. F. Clarke & Sons. 154 0
Recommended for acceptance.

TO CORRESPONDENTS.

J. B. W. (shall have attention) G. E. S. & Co.—G. D. M. (Too
late, next week).
NOTE.—The responsibility of signed articles, and papers read at
public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have
been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving
addresses.

Any communication to a contributor to write an article is given subject
to the approval of the article, when written, by the Editor, who
wishes the right to reject it if unsatisfactory. The receipt by the
author of a proof of an article in type does not necessarily imply its
acceptance.

All communications regarding literary and artistic matters should be
addressed to THE EDITOR; those relating to advertisements
and other exclusively business matters should be addressed to THE
PUBLISHER, and not to the Editor.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 270.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE

Architects' Designs are carried out with the
greatest care.

CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

CHRISTMAS.—Next week "THE BUILDER"
will be published, at the usual
hour, on Thursday morning, 23rd inst. Altera-
tions in standing Advertisements, or "stop orders,"
also Advertisements for the front page, must reach
the Office in the course of Tuesday. Adver-
tisements will be received for insertion as late
as 3 p.m. on Wednesday, but "classifica-
tion" will be impossible in the case of any which
may reach the Office after 1.30 p.m. on that day.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from
the Office to residents in any part of the United Kingdom, at the
rate of 12s. per annum TRIPART. To all parts of Europe, America,
Australia, New Zealand, India, China, Ceylon, &c., 16s. per annum.
Remittances (payable to DOUGLAS FOURDRINER) should be
addressed to the publisher of "THE BUILDER," No. 46 Catherine-
street, W.C.

SUBSCRIBERS IN LONDON and the SUBURBS, (by
prepaying at the Publishing Office, 12s. per annum or
4s. 6d. per quarter), can ensure receiving "The Builder,"
by Friday Morning's Post.

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing,
and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Douling Stone Co.
(Incorporating The Ham Hill Stone Co. and C. Trask & Son
The Douling Stone Co.)

Chief Office:—Norton, Stoke-under-Ham,
Somerset.

London Agent:—Mr. E. A. Williams,
16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava
Asphalte Company (Mr. H. Glenn), Office, 42,
Poultry, E.C.—The best and cheapest materials for
damp courses, railway arches, warehouse floors,
flat roofs, stables, cow-sheds and milk-rooms,
granaries, tun-rooms, and terraces. Asphalte
Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO., LITHOGRAPHERS,

Employ a large and efficient Staff especially for.
Bills of Quantities, &c.

4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED
accurately and with despatch.

METCHIM & SON (8 PRINCES STREET,
ST. GEORGE'S, WESTMINSTER).
"QUANTITY SURVEYORS' DIARY AND TABLES,"
For 1898, price 6d. post 7d. In leather 1/- Post 1/4 [ADVT.]

PILKINGTON & CO

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.O.

Registered Trade Mark.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING,
ACID-RESISTING ASPHALTE.

WHITE SILICA PAVING
SEYSSSEL ASPHALTE.

ERNEST MATHEWS & CO.

61,
ST. MARY AXE,
LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT FOR SLATES AND SLATE BATHS.
PERMANENT GREEN SLATES, AS USED ON THE LAW COURTS AND OTHER PUBLIC BUILDINGS.

ROOFING SLATES | SLATE SLABWORK OF EVERY DESCRIPTION. OF EVERY DESCRIPTION, PLAIN AND ENAMELLED MARBLE & ENAMELLED SLATE CHIMNEY-PIECES,

Marble and Enamelled Slate Lavatory Tops and Fittings complete, Slate Cisterns, Shelves, and Urinals.

Works—Aberllefenny, North Wales. Midland Wharf, Bow.
Head Office and only City Address, 61, ST. MARY AXE, E.C.
Payne-road Wharf, Bow.
Branch House, 37, Victoria-street, Bristol.
SEND FOR ILLUSTRATED PRICE LIST.

The Builder.

VOL. LXXIII. No. 2864.

DEC. 25, 1899.

ILLUSTRATIONS.

Cardiff Town Hall and Law Courts Competition: Selected Designs, by Messrs. Lanchester, Steward, and Rickards—	
General Elevations.....	Double-Page Photo-Litho.
Detailed Elevations.....	Double-Page Ink-Photo.
Plans.....	Double-Page Ink-Photo.
"Spring": Royal Academy Prize Design for Decorative Wall Painting.—By Miss E. F. Brickdale.....	Double-Page Ink-Photo.

Blocks in Text.

Front of the Soane Museum.....	Page 534	Sketches from the Soane Museum.....	Pages 535-537
--------------------------------	----------	-------------------------------------	---------------

CONTENTS.

The Soane Museum.....	533	Students' Column: Quantities and Quantity Taking.—XIX.....	546	Miscellaneous.....	590
Notes.....	538	Applications under the 1894 London Building Act.....	547	Capital and Labour.....	554
The Architectural Association.....	539	Sanitary Inspectors' Association.....	548	Legal.....	554
Selected Design for Cardiff Town Hall and Law Courts.....	544	Competitions.....	548	Meetings.....	559
"Spring": Design for Wall Decoration.....	544	Trade Catalogues.....	548	Recent Patents.....	559
The London County Council and the Session 1898.....	544	Appointments.....	549	Some Recent Sales of Property.....	553
Architectural Societies.....	545	General Building News.....	549	Prices Current of Materials.....	553
The London County Council.....	545	Foreign.....	550	Tenders.....	553

The Soane Museum.



ON the north side of Lincoln's Inn Fields stands the rather oddly designed house front shown in the annexed sketch (fig. 1); No. 13, formerly the residence of Sir John

Soane, F.R.S., F.S.A., whilom Professor of Architecture at the Royal Academy, but better known in professional history as Architect to the Bank of England, of which all the exterior, and a good deal of the interior, stands as designed by him; also a former architect to the Office of Works (which in those days aspired to something better than surveyor's architecture), and under whose superintendence were erected the old Law Courts under the shadow of Westminster Hall, remembered by some legal practitioners as far more comfortable and better for hearing and speaking in than any of the courts to be found in the present more ambitious building. But in addition to his professional and artistic abilities Sir John Soane was notable as a collector, and having got together during a long life (he died in 1837, aged 84) as many objects of architectural, artistic, and archaeological interest as he could cram into a house most ingeniously devised for the purpose of making the space go as far as possible, obtained in 1833 an Act of Parliament "for settling and preserving Sir John Soane's Museum, Library, and Works of Art, in Lincoln's Inn Fields, in the County of Middlesex for the benefit of the public, and for establishing a sufficient endowment for the due maintenance of the same." Thus No. 13 became "The Soane Museum," under which name it is known by repute to a good many persons in London who have never entered it and have no knowledge of its contents, while to thousands more in London, and to most people in the provinces, its very existence is unknown, though it includes a collection of great and varied interest, housed in a building which, despite its not very promising exterior, is itself a curiosity of planning and arrangement, and in fact one of the most interesting house interiors in London. Perhaps an article specially devoted to the house and some of its contents may be use-



Fig. 1.—Front of the Soane Museum.



Fig. 2.—The Cawdor Vase

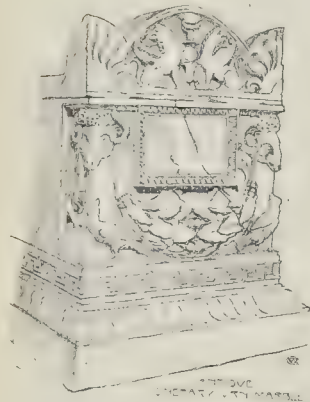


Fig. 4.

ful as drawing a little more attention to an institution which is unduly neglected.

Like some other collectors, Soane was a somewhat intractable and "contrarious" sort of person, and has left a record of this aspect of his character in the exterior elevation of the house itself, in which he deliberately violated the then existing Building Act by the projection of the lower portion of the front beyond the general frontage line, as seen in the sketch. The result of this projection is highly advantageous to the interior, as it enabled him to obtain in the dining room, on the ground floor, two deep window recesses (the sides of which are lined with bookcases), while in the drawing-room on the first floor the piers which carry the upper part of the wall stand free from the real external wall, leaving a passage behind them; one of those unexpected little bits of contrived effect which one finds all over the house. Seeing, however, that the then Act prohibited the erection of "any projection in front of a house next to any public street, square, &c., excepting open porticoes, steps, or iron pallsades,"



Fig. 3.

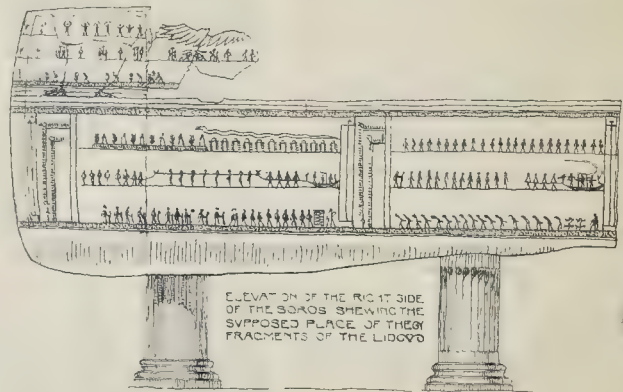


Fig. 5.

there can be no doubt that Soane infringed it, and the odd thing is (and it is an indication either of Soane's influence or of his tenacity as a fighter) that two successive attempts of the district surveyor to get Soane's projection condemned in a court of law were quashed; a result which could hardly have taken place in the present day.

The principal room in the house, the Dining-room, lighted in front from the two

ground floors and at the back from an inner well or small courtyard, and about 40 ft. by 20 ft., is divided architecturally into two nearly equal portions by projecting piers which form a portion of the bookcases with which the room is nearly surrounded, and which were intended (as shown in one of the water-colour drawings in a large album of drawings preserved in the library) to have been connected by a succession of drop-

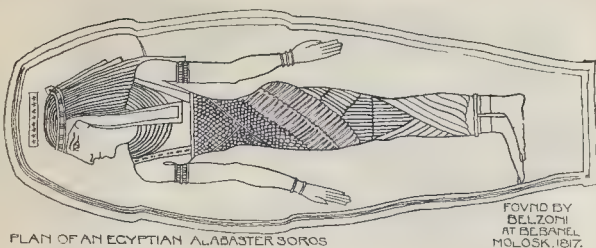


Fig. 7.

arches hanging in the air, a kind of detail which Soane actually introduced in one or two cases in executed buildings; but he fortunately did not carry it out here, and the room is the better for it. There is nothing that strikes one very much in the general aspect of the room, except the amount of bookspace arranged for on the walls, and the deep window-embasures before alluded to as the result of defiance of the Building Act, but a look round into details soon shows one that the room is full of curious and interesting objects. The ceilings are coloured in panels, the principal panels painted with classical subjects by Henry Howard, an eminent Academician in his day, though his decorative methods do not appeal to the taste of the present day. Among the objects in the room are a large and sumptuous carved arm-chair by Chippendale, a series of chairs of original and unusual design, with mother-of-pearl inlay ornament in their backs (believed to have come from Wicklemarsh House, near Blackheath, now demolished), a fine though faded Reynolds, "The Snake in the Grass," Soane's portrait by Lawrence, and a model of Soane's design for the Treasury building in Whitehall (nearly as it was executed) with a corresponding front placed symmetrically and answering to it on the south side of Downing-street, and a triumphal arch, set back from the main line of building, spanning the entrance to Downing-street. The Treasury front is shown, of course, as it was originally built, with the order of columns standing on the plinth instead of in the upper story as they were placed when the front was altered by Barry; but the curious point about the whole design is that the fronts of the two buildings are placed so as to form an obtuse angle if prolonged to the centre, each face falling back in an oblique line; and from some of Soane's drawings and studies in other rooms it would seem that this arrangement of façades at an oblique angle was a rather favourite device of his, on paper at all events, though we do not know that he ever actually carried out any building on these lines. The whole model, however, is characteristic of Soane's ambition in the way of pompous and grandiose schemes for public buildings. There are many other objects of interest in this room, besides a good many valuable books; but the only other one we can mention here is the large and fine Greek vase which stands centrally at the back end of the room, known as the Cawdor Vase, and of which we give a sketch (fig. 2).

A door at the north-west angle of the Dining-room gives access to the most original and interesting room, architecturally, in the

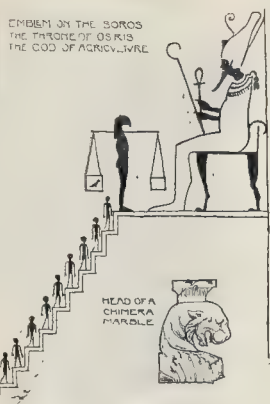


Fig. 7.



Fig. 8 (cast).

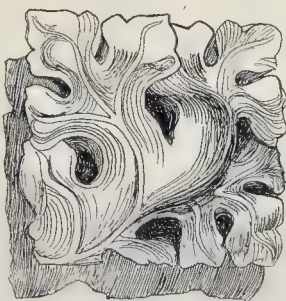


Fig. 9 (cast).

house, the Breakfast-room (fig. 3); a small room with a domical ceiling on four arches, with convex mirrors in the spandrels and a small lantern at the apex; the peculiarity of the design, however, is that the north and south arches are at some distance from the walls of the room, and these portions are without a ceiling and are open to galleries above, whence light is obtained for the pictures and other objects hung on the walls. The room is also lighted from the small court which abuts on the north end of the Dining-room. It is a pity that the prevailing tone (it can hardly be called colour) of the dome is so dark; the room looks in consequence rather cavernous; it would look twice as well if the ceiling were decorated or gilt; but it is nevertheless a most original bit of interior, and the kind of thing one can only imagine an architect doing to please his own fancy, in a house built for himself. The mantelpiece, seen in the sketch, is a peculiar design, with its three little mirror bosses on each side, and three small bas-reliefs by Flaxman let into the lintel. This room contains an exceptionally well-designed Sheraton arm-chair, one of a set of which some others are found in the Dining-room. On the south wall is hung Rysbrach's model for a bas-relief for Blenheim, and two portraits of Napoleon, one by Isabey painted during the Hundred Days, the other by Goya, said to be the earliest known portrait of Napoleon, at all events a very youthful one. Between these hangs a large and richly-mounted Turkish pistol presented by the Emperor of Russia to Napoleon. It is another instance of Soane's independence and originality of mind that he seems to have had an admiration for Napoleon at a time when the conqueror was a general object of execration in this country.

If we go back to the Dining-room and leave it by the door in the north-east corner we are in the small room which was Soane's study and where his writing desk stands; the walls of this little room are completely hung with either casts or bits of actual antique ornament; also, among other things, a small model of a bas-relief by Michelangelo. Here there are also some beautifully preserved examples of Greek cinerary coffers (a name which better describes them than urns) a sketch of one of which is given (fig. 4). By this route we come to the basement, a congeries of small apartments opening out of each other, and in the most central one of which, and open to the story above and lighted from a dome at the top, is placed what is no doubt the greatest possession of the museum, and the only one which is at all generally known or spoken of, viz: the huge alabaster sarcophagus discovered by Belzoni at Gournou in 1817, and bought by Soane in 1824, for 2,000/. Fig. 5 is a sketch of this, carried on two modelled bases and drums of classical columns made for the purpose, not particularly appropriate in one sense, but characteristic of Soane, who would always have his own way of doing things; and as the sarcophagus required to be elevated from the floor, could not be content with ordinary supporting blocks. Fig. 6 gives the plan of the sarcophagus and the figure on the bottom of it, and fig. 7 one of the incised subjects with which it is covered.

The basement, contains, however a great many more objects of interest. In one of the courtyards Soane had built up again

some of the original Early English arches and other work from the old Westminster Palace. In another open courtyard is one of the obelisks which formed a portion of the old fence round the gardens of Lincoln's Inn Fields. A room devoted chiefly to casts or bits of mediæval work was entitled by Soane "The Monk's Parlour." Some of the objects in it are sketched in figs. 8 to 13. The casts of Gothic ornament, of which specimens are given, were specially made for Soane. On the ceiling of one room are two large and very boldly modelled ornaments suggested by the usual antique form of caduceus, and formerly part of interior decorations of Carlton House. A whole nest of drawers here is occupied by original drawings, many of them of great interest, of various designs by Soane. Among other objects to be found in the basement are—vases discovered in getting out the foundations for London Bridge; a plaster cast of the mantelpiece in one of the Elizabethan rooms in Westminster Palace, the pieces of the original of which have been put together again in one of Mr. Pearson's new rooms in connexion with Westminster Hall; the wooden top of an Egyptian coffin, with a carved figure, probably one of the first Egyptian antiquities brought to England; several beautiful Greek funeral coffers in almost perfect preservation; models to scale of two or three Etruscan tombs and the skeletons, vases, and other objects found in them; and a number of casts and studies by Flaxman, presented by him to Soane, with whom he was on very friendly terms.

Returning to the ground floor, we come to the main staircase, a small but very well-designed one on an elliptical plan. In the wall at the foot of the stair a small open archway is formed for the purpose of taking a small model of Flaxman's Michael and Satan. Halfway up the staircase is a small recess, the back of which is glazed with either a study for or a reproduction of a portion of one of Reynolds's New College stained glass windows. The vestibule to what is called the Picture-room contains a quantity of antique fragments or casts from antique ornament. Of one of the best of the antique fragments a sketch is given in fig. 14; another of the various bits here is shown in fig. 15. A small side staircase leads up from this vestibule to the Students-room, where in a comparatively small compass is arranged one of the best collections of casts of architectural ornaments in England, and which are both in a cleaner condition and more closely accessible than those in the larger collection at Tufton-street. Returning to the gallery level, we enter through the vestibule into the Picture-room, one of the most interesting and curious rooms in the house, in which the art of packing many works into a small space, in such a manner that they are well-preserved and can be easily examined, is carried to perfection. It is a small square room, a good deal higher than its width, with the visible walls entirely covered with pictures. These include Hogarth's "Rake's Progress;" a fine portrait of Soane by Jackson; Thornhill's first study for the painted ceiling at Greenwich, and an admirable example of the work of that gifted but little-known painter, Bird of Bristol, "The Cheat Detected," a picture which may be said to present all the best qualities of Wilkie. But the whole walls

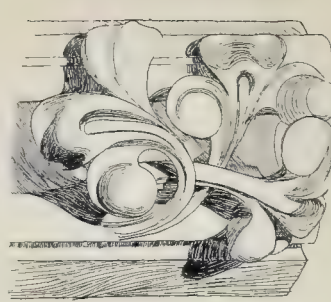


Fig. 10 (cast).



Fig. 11

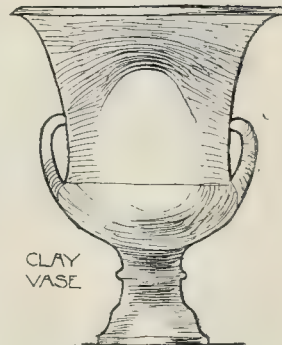


Fig. 12.

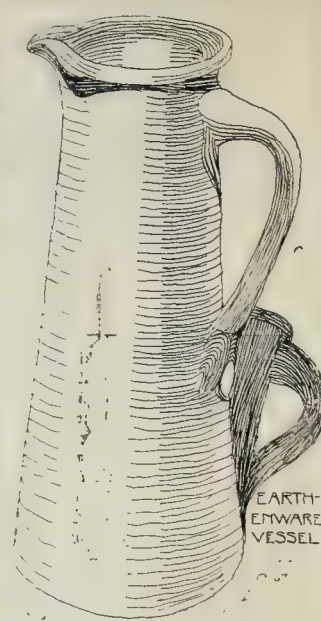


Fig. 13.



Fig. 14.



Fig. 15.

are composed of folding screens, and when these are opened, there is a whole array of architectural studies and pictures at the back of the other works. Among these is a very pompous design by Soane for a Royal palace to stand in the Green Park; a palace which would at least have been more worthy of the nation than Buckingham Palace. Another rather interesting drawing represents, according to the title, "Visions of Early Fancy in the Gay Morning of Youth"; Soane's idea but drawn by Gandy, who did a good deal of draughtsman's work for Soane.

There are also two very fine drawings by Clerisseau, the French architectural artist who was a good deal associated with Robert



Fig. 16.

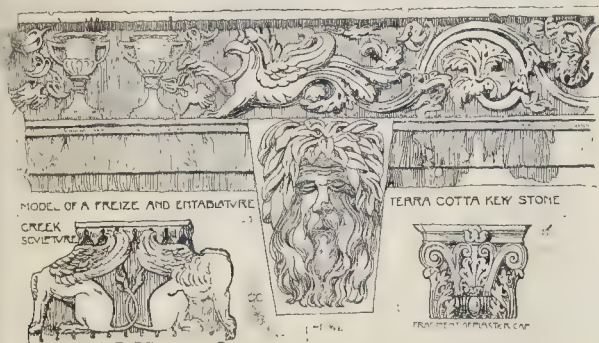


Fig. 17.



Fig. 18.

Adam, and accompanied him to Spalato; and some fine drawings by Bibiena for scenes for classic dramas. On one side of the room, however, the screens when unfolded are not only filled on the back but reveal a second tier of folding screens behind them, and when these are in turn opened we look across an open space to a small gallery on which is placed, among other objects, a large model of the Bank of England. The whole thing is a series of cleverly contrived surprises. The small marble mantelpiece in the room, of which we give a sketch (fig. 16), is a characteristic example of Soane's design, with his predilection for curved or hanging lines; and if not faultless in taste, its originality, as a piece of architectural detail, at least cannot be questioned.

Returning from the Picture-room, we traverse the Gallery, between a colonnade of small Corinthian columns, and hung with a multifarious collection of architectural details, original and cast, of some of which a sketch

is given in figs. 17 and 18. At the end of this is the gallery, with a dome over it, through the open centre of which we look down on the sarcophagus in the basement. Among the treasures of this gallery, and fixed to the balustrade facing the end of the colonnaded gallery, is one of the most beautiful and perfectly preserved relics of Roman work in existence, a decorative panel in inlaid marble, representing a charioteer driving two stags, which is a find from Hadrian's villa, but which, as far as condition goes, might have been made yesterday. Through this latter gallery we come to the New Picture Gallery, constructed in 1887 within a space belonging to an adjoining house the lease of which had fallen in, and a portion of which was secured for the better exhibition of some of the contents of the museum. The new picture gallery includes a large and splendid Canaletti, and an equally large and fine landscape by Callcott, Turner's "Van Tromp's Barge Entering the

Texel," and a rather theatrical picture by Hilton, of Antony speaking over the body of Caesar; interesting because it is Hilton's. In the centre of this room, on a pedestal, is a Roman alabaster vase of unusual shape, with a short Latin inscription. In a smaller room off another side of the domed gallery, and also representing space reclaimed from an adjoining house, is Turner's "Val d'Aosta," much over-rated by Ruskin, a fine unfinished bas-relief by Michelangelo, and some sketches of family portraits, besides other objects.

The front and back Drawing-room occupy the space on the first floor over the Dining-room, the front room, however, including the space over the entrance-hall, forming a room parallel to the line of the house front, and finished at the west end in an apsidal form. Among the contents of the first room are three or four pieces of Oriental ivory furniture of great beauty and richness, part of a loot it is believed from Seringapatam (another piece of the same set is at South Kensington), some beautiful coloured drawings by Clerisseau and some, fine though not equal to his, by Robert Adam, in a powerful monochrome style. Among other specially noticeable things in this room are some beautiful miniature coloured drawings on silk—buildings and landscape, by Labelle. In the cases in the centre of the room are the original manuscript of Tasso's "Gierusalemme," some sketch books of Reynolds's, three or four of the first folio editions of Shakespeare, a beautiful fifteenth-century illuminated manuscript of the life and martyrdom of St. Crispin, and an illuminated Josephus made for Edward IV. In the back Drawing-room we find, in the centre, a large cork model of the then existing Pompeii excavations, and on the top of the case a number of plaster models of Greek temples, &c.; there are also a good many architectural drawings of varying interest, one of them being Soane's design for the House of Lords, a classic front with some good qualities, though we will not say too much for it in comparison with the existing building. Two cases of gems and cameos deserve separate study; we can only here mention that one of them contains a miniature bit of silversmith's sculpture of a hunter and dogs by Cellini. There are whole drawers full of drawings here and elsewhere in the building, the existence of which we can only allude to; the curator, Mr. Birch (who is the right man in the right place, and knows his museum thoroughly), tells us that they are well worth examination.

This general sketch of the contents of the Soane Museum will probably be enough to convince those who have not seen it that it is worth their while to make its acquaintance. But perhaps the most interesting thing of all is the house and collection taken as a whole, the multifarious nature of its contents and the ingenious and original manner in which they are arranged; the whole giving the impression of being the work of a very vigorous and original mind, to whom no detail connected with architecture was without its interest, and whose house, from cellar to roof, is essentially the home of an architect.

SEWAGE DISPOSAL, BRADWELL.—The Newport Pagnell Rural District Council have instructed Mr. D. Balfour, of Newcastle-on-Tyne, to prepare a scheme of sewage disposal for Bradwell, situate in the Council's district.

NOTES.

The Site for the
Cardiff Town
Hall.

In the plan sent out to competitors for the Cardiff Town Hall there is one detail, having no relation to the competition just decided, which seems to show that the official architect to the borough of Cardiff, who we suppose is responsible for the plan, is not alive to the points of the site and the best way of turning them to advantage in regard to architectural effect. In our article on Cardiff some little time since we remarked on the beautiful feature of the straight canal of running water, which crosses Cathays Park in an oblique line a little way south of the proposed building site. In the plan issued to competitors, there is inserted between this canal and the building site a dotted "new road" in a dragged limp curve of no line at all. If this is carried out, the whole possible beauty of the canal as an adjunct to the site will be extinguished. The way to treat it would be to lay out the land between the buildings and the canal in gardens, in such a design that a main terrace and road would be formed along the canal and parallel to it, which might be treated architecturally with statues and other decorative features. The swift-flowing canal would then be made a real element in the scene. If the Corporation lay out the ground in the surveyor's manner implied in the plan sent to competitors, they will be merely throwing away an opportunity for a fine effect.

The Cardiff
Competition.

We find that we were not quite correct in referring to the three architects whose design has been selected for Cardiff Town Hall "as having never carried out a building of any size," as Mr. Lanchester has carried out a large house, and is at present engaged on a building which is to cost about 60,000*l*. Apart from this, we do not consider the point of much importance; our experience being that a man who can plan a good building can generally be trusted to carry it out.

The Broadway
Theatre,
Deptford.

THE opening, on Monday next, of the Broadway Theatre, at Deptford, at a short distance from New Cross Station, makes a further advance in a new phase of London building. It shows that the size of London is so vast that theatres will, sooner or later, become general all over the Metropolis. The new Broadway Theatre stands up in a striking manner in a very commonplace district; internally, it is equal to the best West End theatres. We notice the new erection mainly as an element among the buildings of London. It is obvious, however, that such a theatre as this, with good accommodation, fair acting, and low prices, must be an advantage to large masses of people who are unable to go to the West End theatres.

The Engineers'
Strike.

It seems probable that we are near the end of the Engineers' Strike. The employers have changed the language of what has been popularly called their "ultimatum." Ordinary people are accustomed to regard the form of language in an agreement as a matter rather for lawyers than for men of business. But the engineers' leaders have battled over phrases in a manner worthy of lawyers and

diplomats. If the change of phraseology affords the golden bridge by which the strike may be ended, well and good. At present the actual result of the strike appears likely to be that the workmen gain nothing in regard to their demand for shorter hours, and that the employers gain something in regard to greater freedom in the management of their works.

We are glad to learn from the last issue of the *Berliner Philologischer Wochenschrift*

that the excavation of the promising site of Thermon, in *Ætolia*, has been fairly set in hand. In March of the present year, Dr. Noack drew attention to the site at a meeting of the Berlin Archaeological Society. He had made a tentative exploration and had found remains of a wall enclosing a rectangular precinct or *altis* of 346 by 200 metres. He had little doubt that he had lighted on the site of the fortified precinct, of which Polybius gives an account in his fifth book (v. 7 and 8). If so, it was certain that within the enclosure would be found remains at least of votive offerings and monuments of all kinds, and it was probable that these would have remained undisturbed since the place was sacked by Philip V. As Philip's soldiers had only one night in which to loot the precinct, it seemed likely that they would knock down and partly destroy more than they would actually carry off. The Greek Government—spite of the disastrous financial condition of the country—has taken the matter in hand, and already a mass of antiquities have come to light. Inscriptions make it certain that the place is the ancient Thermon; the *altis* wall is fairly well preserved, and is 2.6 metres thick, and built rather roughly with large stones. Numerous bases of statues have come to light, portions of colossal statues, part of a bronze sword decorated with reliefs, and a small marble head reported to be of fine work. Most important of all, from the general condition of the site, it is clear that it has not been disturbed, so substantial discoveries may be looked for.

The British
Museum.

ON the whole, the decision of the Trustees of the British Museum to put an end to the evening opening from eight o'clock until ten, and instead to keep the Museum open throughout the year until six o'clock, is probably sound and desirable. The two isolated hours in the evening were of little use, and they coincided with the hours of theatres and other places of amusement. If the Museum had been continuously open until ten o'clock there would have been greater reason in the arrangement, and we should even now be glad to see the time extended until seven o'clock. It must be observed, however, that the test of usefulness of the Museum being open during certain hours is not necessarily that a large number of persons visit it during that time. The real value of the Museum is to students and not to mere sightseers, and the visit of a dozen students from eight to ten o'clock is better than the incursion of a hundred mere pleasure seekers. Some day we hope to see the true principle carried out, namely, that this great National Museum should be open throughout the day and evening, so as to be always accessible.

The City
Commission of
Sewers.

IN pursuance of the City of London Sewers Act, 1897, the present Commission, as established in 1848, will expire on January 10, next. A committee of the Corporation have formulated a scheme for appointing, in its place, a Public Health Department, to comprise four committees, each consisting of six Aldermen and twenty-nine Common Councilmen chosen by the several wards. The Court of Common Council adopted the proposals at their last meeting for this year, so the Commission will henceforth be replaced by committees for streets, sanitation, accounts, and improvements and finance, with Mr. Bates as principal clerk, and Mr. Baylis as comptroller for legal work, in succession to Mr. Brand, who is about to resign, we are sorry to learn, through ill-health. In future priority will be given to the business of the new department at alternate weekly sittings of the Court of Common Council. At their meeting last week the Commission resolved to buy the freehold interest of No. 126, Fenchurch-street for 14,250*l*, and that of the ground required for widening the road in front of No. 4, Cheap-side, for 21,230*l*; they have also decided to take the opinion of the London County Council upon their plans and estimates for widening Lower Thames-street, between Fish-street Hill and Botolph-lane to 40 ft. (or 50 ft., or 60 ft.) at a cost of 151,500*l*. (or 171,100*l*, or 190,000*l*).

New Streets
and
Old Paris.

THE street improvements which are being carried out in Paris have one natural but regrettable consequence, in the destruction of various picturesque old streets which are among the last remnants of the Paris of former days. Thus now that the Rue Reaumur is finished, fine new apartment houses are springing up on the ruins of Rue Beaubourg, recently enlarged, and which is to open on the Place de l'Hôtel de Ville; and in a little while the Rue de Renard, the Rue Brisemiche, and other narrow and ancient streets, will have disappeared. The Paris Municipal Council has at last been touched by this spectacle of demolition, and on its suggestion the Prefect of the Seine has appointed a Special Committee to consider the subject of the remains of old Paris, to report on their actual state, and to endeavour to provide for their preservation as far as possible, and to keep a regular inspection of the excavations and other operations undertaken for new buildings, and at all events preserve the records of any discovery which is made in the course of such operations. The Committee is to be called the "Commissi^{on} de Vieux Paris," and will be composed of municipal councillors, artists, men of letters, architects, and officials connected with the city. Among the members are M. Detaille, as representing painters, MM. Bouvard, Formigé, Charles Normand and Charles Lucas, architects, and among literary men MM. Jules Claretie, Arsène Alexandre, Victorien Sardou, Ralph Brown; M. Georges Cain, the new curator of the Carnavalet Museum, is also a member. It seems rather late in the day, but there is still something to save.

Wrottesley
Hall,
Staffordshire.

LORD WROTTESELEY'S country seat, together with some family heirlooms, and the contents of the library and muniment room, was consumed by fire last week. The house

was built in 1696 by Sir Walter Wrottesley, Bart., who pulled down the old hall which his grandfather, the first baronet, had gar- risoned for the King in the Civil War. The manor of Wrottesley, near Tettenhall, origi- nally belonged to the monks of Evesham who, *temp.* Henry II., exchanged it for Moreton and other lands with Simon de Cocton. Simon's son, Adam de Wrottesley, witnesses two deeds cited in the "Monas- ticon," and was grandfather of Sir Hugh, K.G., to whom Edward III. gave a licence to make a park at Wrottesley, and lineal ancestor of Sir John, elevated Baron Wrottesley in 1838.

STUDENTS at the Ecole des Beaux-Arts seem to be a rather troublesome and exacting set of pupils to deal with. Their last outbreak is against M. Guadet, because in giving the subject of "Une Treille" for the Godebeuf prize he barred the use of brush-work in the drawings. The indignant student mind, having had visions of bright effects of land- scape seen through the trellis, to which it was thought that only water-colour could do justice, raised a rebellion and demanded that in future the programme should be drawn up by a special jury instead of by the Professor. The absurdity of the matter is that it is evident that M. Guadet had pre- cisely the intention of preventing the students from wandering away from what was the real object of the competition—the design of a trellis.

Arts and Crafts Exhibition, Cape Town. THERE is about to be held at Cape Town an exhibition of "Arts and Crafts," the first of its kind in South Africa. The movement has met with considerable support locally, and the London Arts and Crafts Exhibition Society has shown most practical sympathy by sending, through Mr. Cobden Sanderson, the secretary, a considerable number of interesting exhibits. Amongst those con- tributing are Professor Legros, Mrs. Godfrey Blount, the Misses Garrett, Mrs. Sparling (Miss May Morris), Mr. Ashbee, Mr. Anning Bell, Mr. De Morgan, Mr. Jacob Hood, and Mr. Sanderson himself. We hope to be able to give in a future number some detailed accounts of the exhibits. The local committee responsible for the enterprise are Mr. H. Baker, Mr. Francis Masey, Mr. F. K. Kendall, Mrs. Alys Trotter.

Drawings in Italy and Egypt. THE collection of water-colour drawings in Italy and Egypt, by Mr. A. N. Roussoff, on view at the Fine Art Society's rooms, is of far greater artistic value than the last collection by the same artist. We thought that collection the work of a mannerist with a rather superficial style. But Mr. Roussoff has emancipated himself from his manner, and the present collection shows a great deal more variety of subject and treatment and a thoroughly good and pure water-colour style. The largest work in the collection—"Winter, Mid-day Sun, Cairo" (37), though not one of the most interesting in every sense, is a first-rate example of an elaborate scene with a great deal of detail, treated with force and brilliancy and entirely without the use of body-colour. A good many of the drawings deal with architectural subjects; one of the best of these is "Drawing Water, Venice" (7), in which the central object is one of the typical carved stone well heads of Venice.

Two large drawings, which are evidently intended as pendants, entitled "Dawn, Venice" (20) and "The Sun is Coming" (5), represent the same scene in the outskirts of Venice, the one with the cold light of early morning, the other with the sky suffused with the glow immediately preceding sunrise. There are some good studies of effect on the Nile, one of the best of which, though very slight in execution, is "Sunlight and Shadow" (29) on the red hills bordering the river. There are a series also of small indoor studies of still life which have a separate character of their own, such as "A Polenta Kitchen, Venice" (9), "Dying Embers, Venice" (30), "A Coffee House, Cairo" (33), and some others, all very carefully and conscientiously painted. The general impression left by the exhibition is that Mr. Roussoff is likely to become a more important artist than his former exhibitions seemed to promise.

The Camera Club, Charing Cross Road.

THE present exhibition of the Camera Club is devoted to an archaeological survey of the British Isles, and is avowedly to display archaeological research rather than picturesque photography. Mr. R. Welsh's photographs of crosses and other antiquities from Ireland are very exhaustive, and are an interesting collection; there is also a set, by another member of the club, of the same class of subjects taken in Devonshire. Sir Benjamin Stone, M.P., shows a number of photographs, noticeable among which are some large views of the less-known corners of Westminster Abbey, which merit attention. Perhaps the most valuable contribu- tion to the exhibition is from Mr. St. John Hope, F.S.A. It consists of a paper scale mounted on wood, marked on one half with English feet, and on the other according to the metrical system; it is like an ex- ceedingly legible five-foot rod, to be placed with the object that is to be photographed. The system is explained in a portfolio of views from Silchester, in which the scale is introduced. Mr. Ernest Marriage has among his exhibits a fine photograph of a capital in Canterbury Cathedral, taken with a telephotographic lens. This is an example where an accurate scale introduced at the side of the photograph would have been of value. The same remark applies to the beautiful photos of the detail at Ely, taken by J. Bulbeck & Co. They also exhibit some large interior views of Norwich, Beverley, and St. George's, Windsor, remarkable for their tone and delicacy of effect. Mr. Harold Baker shows a set of photo- graphs of Shakespeare's country. There are also some good examples of photo- graphy—in which the subjects have been carefully chosen—hung on the staircase, from Messrs. Bolus & Co.

Funeral of Mr. Pearson, K.A.

THE funeral of Mr. Pearson took place on Thursday, December 16, at noon, in Westminster Abbey. It seemed only fitting that the "Surveyor of the Fabric" should be interred within the Abbey, the restoration of which has received so much of his attention in recent years. At half-past eleven the congregation began to collect in the Abbey, and a little later Sir F. Bridge played on the organ Schubert's "Solemn March." At twelve o'clock the funeral procession entered the Abbey. Many distinguished men were present, friends of the deceased and representa-

tives from various Societies. The pall- bearers were the Bishop of St. Andrews, Sir E. Poynter, P.R.A., the Dean of Peter- borough, Mr. George Aitchison, A.R.A., P.R.I.B.A., Mr. Shaw Lefevre, Mr. Alfred Waterhouse, R.A., and the Sub-Dean of Lincoln. There were also many representa- tives from the Royal Academy, the Royal Institute of British Architects, the Foreign Architectural Book Society, and the Archi- tectural Association. The opening sentences of the Burial Service were sung to music by Croft, and the xth Psalm to Purcell's setting. After the lesson, the anthem by S. S. Wesley, "All Go unto One Place," was sung. The committal portion of the service was read by the Dean of Westminster, about 300 persons standing round the grave. At the conclusion of the service the "Dead March," in "Saul," was played, the congre- gation standing reverently round. The coffin bore no plate upon its upper surface, but a simple flat wooden cross ran from head to foot. There were many beautiful wreaths from members of the family and friends. The whole ceremony was most impressive, and no more appropriate resting place could have been found for one who did so much to revive the great architectural traditions of the past than the nave of Westminster Abbey, beside the remains of his eminent predecessors, Barry, Street, and Gilbert Scott.

THE ARCHITECTURAL ASSOCIATION : HOUSE DECORATION.

AN ordinary fortnightly meeting of this Association was held in the meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, on the 17th inst., when the President, Mr. Hampden W. Pratt, occupied the chair.

The minutes of the last meeting having been read and confirmed, the following gentlemen were elected members of the Association— Messrs. C. M. Armstrong, J. F. Bull, C. H. R. Henman, A. C. Notley, and C. Newborne.

The Senior Hon. Sec., Mr. Howley Sim, announced some donations to the library, in- cluding "The Builder Album of Royal Academy Architecture," and Messrs. Banister and H. Phillips Fletcher's book on "Carpentry and Joinery," both presented by the publisher of the *Builder*. A vote of thanks having been accorded to the donors, the President announced that the first Cinderella Dance of the Lyric Club would be held at the King's Hall, Holborn, on January 7, at 7.30 p.m. He also announced the commencement of the following classes:—"Stresses and Strains," Division II., on January 3; "Quantity Surveying," on January 7; "Elementary Construction," Division I., on January 10.

The Architectural Association Water Colour class exhibited a collection of drawings executed during the past year.

The Chairman said that, as they were all aware, there had passed away from their midst a gentleman who was very highly respected in the profession. He referred, of course, to Mr. Pearson, whose splendid works they were all familiar with. One's earliest recollections of church architecture in London were associated with the name of Mr. Pearson, whose very fine buildings were really grand works of the century. They would miss very much indeed so great a master, especially as Mr. Pearson was, as they all knew, so much interested in the rising generation of architects, and he (the speaker) desired to move a vote of condolence to the family of the late Mr. Pearson.

Mr. Sim seconded the motion, which was unanimously agreed to.

Mr. L. A. Shurfrey then read the following paper, entitled "House Decoration":—

The invitation which I received from the Committee to read a Paper before the Associa- tion was accompanied by the suggestion that the subject should be "House Decoration: the Preparation of Surfaces," from which I understood it to be desired that I should treat the subject from the practical rather than the aesthetic side. This I shall endeavour to do,

confining myself mainly to the skin, or surface, which appears to the eye, and the preparation of the ground to receive it. You will doubtless agree with me that the subject is an important one, as the most regular features will fail to please, if disfigured by a bad complexion, and the most ordinary be made attractive by a good one; a shining nose will not compensate for dulness of the eyes, teaching us not to get up a shine in the wrong place.

The trade "painter" hardly gets its share of attention in many specifications, and the description, "clearcole and distemper ceilings, hang paper at so much per piece, and paint all work usually painted four coats of good oil-colour," will not ensure a good result in the hands of the ordinary contracting builder.

For many years the tendency has been towards depending upon manufactured wall and ceiling coverings rather than upon hand-painted decoration, panel, and plaster treatment, and arabesques until the practical painter who can carry out work of this kind has become a rarity. In fact, decoration is now done mostly by selection, which has advantages in the saving of time, but does not tend to elevate the workman and to give him interest in his work.

A difficulty in the painting trade is that fluctuations of work at the different seasons of the year have a demoralising effect upon the men. When work is slack many are thrown out of employment, and when busy others are taken on who can just handle a brush, but who have served no proper apprenticeship to the trade. It is absolutely necessary to the successful carrying out of a job that a skilful and experienced foreman painter should have charge of it, whose duty it should be to control the execution of the work, mix all materials, see that proper tools and plant are used and taken care of, and that the rubbish is cleared away from time to time and the rooms kept clean.

I do not propose to go into the proportions of the mixtures of materials to be used, as I could not give information on this subject from actual experience; it would probably be tedious for you to listen to, and it is a part that an architect can hardly be expected to remember, and must leave to the foreman painter. It is, however, a great convenience, and commands respect from the workmen, to be able to take palette and palette knife in hand and mix the tint required on the job. In so doing it is very desirable never to use a colour or vehicle without knowing its name and qualities, as the experience gained thereby will be very serviceable. It is difficult to gauge the amount of time this mixing of tints will take, and I can say from experience that it is desirable not to make a following appointment too soon after.

In the progress of a new building you have no doubt, when visiting the works, been suddenly confronted with the question from the foreman of the job "What colour are we to paint the outside woodwork and the down pipes and gutters?" and in making the design you will very likely have mentally disposed of the questions whether the frames and sashes should be white, the down pipes green, whether the iron gutter running along the extreme projection of the heavy overhanging main cornice should be treated, as a member of it, at great inconvenience on account of its falls, or to a quite different colour on its own account; whether the outside timber-framing, if any, shall be coated with Stockholm tar, in strong contrast to the white plaster panels treated with a coating of boiled tallow and lime; and whether the barge boards or verge mouldings shall be light, like the sashes, or dark, like the framing; whether the front door shall be dark, and, if so, shall the solid frame which surrounds it be the same. The raising of these questions should be a hint that the inside colouring will be coming on shortly for determination, and a scheme of colour for the various rooms should be thought out. The principal objects of painting are to preserve the material painted, to produce a surface which can be kept clean, and to give it a beautiful appearance. When applied it must become hard, and must adhere firmly to the substance painted. It is desirable, if not absolutely essential, that it should retain its colour, as, although many beautiful effects come through change and exposure, they are generally due to the disintegration of the surface, or decay, which can only go on for a limited time. Many of you may have admired the greenish blue colour, originally a common green, of an old garden gate

but if you examine it for the purpose of imitation, you will find that the colour eludes you, being made up of different coloured particles which you cannot match. The pleasant pinky red of old cart wheels, which looks so nice in a farmyard, is a cheap vermilion which has faded. Tints should be made stronger in outside painting than at first desired, to allow for some diminution from exposure, which will most certainly occur, and for the reason that colours are softened by the atmosphere. In this respect colours vary very much, losing less as they increase in warmth. A soldier's coat will appear its reddest on a foggy morning.

White lead, i.e., carbonate of lead ground with linseed oil, is the principal ingredient used in painting, and it is important that the best quality should be procured. It has more covering power if kept for some time after manufacture. It is capable of adulteration, but I am not acquainted with any simple method of testing its quality, except that any adulteration would be lighter than the lead, and thereby increase its bulk. It is a drier, and can be relied on when mixed with turpentine alone, but it is found for convenience of working that a proportion of linseed oil should be mixed with it and a small quantity of drying oil varnish.

A purer white than white lead is zinc-white, oxide of zinc, but this lacks the requisite covering body possessed by white lead, and is used mostly for finishing pure white or delicate tints. It is more permanent than white lead, and is not poisonous.

Where a pure white is required the ground can be brought forward with two coats of white lead, then one of half white lead and half zinc-white, and finished with zinc-white, light copal varnish, and turps.

The principal vehicle used in painting, for mixing with white lead and colours, is linseed, the natural oil expressed from the seed of flax. It should be yellow, transparent, and sweet to the taste, and have little smell. It has a tendency to darken in colour after drying. If opaque, acid to the taste, and with rancid smell, it is not of good quality. It is an indifferent drier, but when mixed with white lead the drying properties of each are improved thereby.

Boiled oil is linseed oil boiled with litharge, which makes it a good drier but darkens the colour so that it is only suitable for dark colours. It is much used for outside work.

Turpentine is a volatile oil distilled from the resinous oil of fir trees, and is very useful as a solvent and a medium in combination with other substances. It has a bleaching quality, and to some extent corrects the tendency of drying and expressed oils to discolourment. By the overuse of turps a coat of colour may be made too thin to be of much service. The residuum after the distillation of the oil or spirits of turpentine is the common resin, or resin of commerce.

Varnish is used to make colours hold out to their full brilliance of hue, also as a protection. It varies very much in quality and it is best to specify that of the best known makers. The most serviceable are the oil varnishes which dry by oxidation of the oil and form a transparent skin over the work for outside work. An elastic varnish should be used which will not readily crack. In applying varnish it is necessary to see that the surface should be free from dust or grease. Flaking varnishes are supplied by the manufacturers, intended to dry with a dull gloss, but there is some uncertainty about them, and many painters prefer to mix some varnish with the last coat of paint to produce this effect.

Exterior.

The earliest opportunity of a fine day should be taken advantage of to paint all the external wood and ironwork, the priming having been done before fixing. The woodwork, if it be a light colour, will require four coats of white lead, mixed with linseed oil and driers; if it be finished a dark colour, boiled oil, which is a better drier, should be used. It is requisite that outside painting should possess good body. For external ironwork, paint composed of oxide of iron and linseed oil is the best protection. I am informed that in cases of engineering works which have been sent abroad, ironwork which has been painted with oxide paint has stood much longer than similar work painted with red lead.

A drawback to the use of oxide paint is that the range of colour is limited, being principally red, which, in the case of a red brick house, is

the last colour one would desire. Other colours can be obtained by mixing, but the protecting qualities of the paint are reduced thereby. All gutters should be painted inside as well as out. A painted front door to a house if exposed to a sunny aspect, is a constant source of trouble, as the paint soon cracks and blisters, and has to be burnt off down to the wood each time it is repainted. A practical painter has told me, speaking from actual experience, that if zinc white is used instead of white lead this will not happen. The plan of recessing the front door or providing an outside porch has the double advantage of providing shelter and protecting the door from the sun's rays. The front door, being the most noticeable feature of a house, calls for special attention, and should be well rubbed down and have two coats of varnish. A well-painted front door, with hand-polished brass fittings, bespeaks a well-conducted house.

In the case of town houses, cemented or stuccoed fronts often have to be treated, and this is generally done with oil paint; it is a heritage left to us by a former generation, and we must make the best of it. The only satisfactory feature about painted cement work is that it keeps the wet out. The money spent on the painting of cement fronts in London would have paid for the use, in many cases, of Portland stone or rubbed brick—the two materials which, in my opinion, are pre-eminently suited to the London atmosphere. Fresh Portland cement is the greatest enemy of oil paint, and should not be painted for two years. When cement is left from the float with a granular surface it has a pleasant enough appearance, but it gets so grimy in time, painting in oil is resorted to and this looks very well until successive coats have filled up the grain, which then has an unsatisfactory reflecting surface, cracks appear which have to be stopped, and as Portland cement cannot be painted with safety until it has stood about two years, these cracks have to be stopped with Roman cement. A distemper which would stand the weather would be the solution of the problem. This merit is claimed for Duresco, and, provided that it is used under favourable conditions as to weather so that it has time to harden, I consider it very suitable for outside stucco.

The clubs in Waterloo-place are an illustration of the treatment of stucco. The United Service in its natural colour is depressing in the extreme. The Athenæum, with its white painted dressings and grey distempered walls, shows about the best which can be done with it; and the Travellers' is a good illustration of how a good design suffers from being executed in an unworthy material. The conclusion which I come to is, that Portland cement facing is not suitable for London. For reasons of economy, outside painting should be limited in extent as much as possible; woodwork should be painted every three years with good white lead and linseed or boiled oil, special care being taken to see that the surface is dry and free from dust when it is applied.

Interior.

In dealing with the interior of the house, I propose to take the parts of the rooms in the order in which they are usually finished—ceilings, woodwork, walls, and floors.

Ceilings give the decorator more trouble than any other part of the room, for various reasons, the principal being the cracking of the plaster. I have no doubt you are all familiar with the maps of rivers which present themselves when you look at the ceiling on a bright morning a year or two after a house has been built, caused partly by the shrinkage of timbers or vibration from persons walking on the floor above, defective sand, lime, or hair, or by the floating and setting coats following too quickly after the rendering, before it has had time to get thoroughly dry. To prevent this, important ceilings should be lathed on cross battens or ceiling joists fixed beneath the floor joists. If ornamented, the most convenient plan is to make them of fibrous plaster, the method being to make models of the various parts, and then from plaster, wax, or gelatine moulds make their casts of plaster of Paris which have been embedded in their thickness canvas and sawn laths of pine, in places where required for strength or fixing. These slabs are then fixed to the battens with screws and the joints made good with plaster and canvas. Existing ceilings can be covered up by fibrous plaster screwed to the lath and plaster, provided, of course, that the latter is sound. Brass

crews should be used, as iron ones rust and tain the plaster.

Ceilings on the underside of floors composed of iron and concrete can be plastered tight on to the concrete, if the boarding on to which the concrete is thrown is kept down low enough beneath the joists for the concrete to pass under. Cracking sometimes occurs through the iron joists being run into flues, and the expansion and contraction of the metal caused thereby. In fixing ornamental ceilings of fibrous plaster, battens should be used nailed to the concrete. The most usual method of finishing ceilings is in distemper or temper. In the case of new work the surface should be leached, *i.e.*, washed over with a coat of thin size and whitening and a little alum, having previously removed excrecences, if any. This is to make the absorption equal all over the surface. The distemper is made by dissolving the best whitening in clean water until it is of the consistency of thick cream, and perfectly smooth to the touch, to which should be added prepared size, previously warmed, and the necessary colour being separately rubbed up with some of the distemper; the whole should then be gently mixed together, and strained through a coarse cloth or metal strainer. When allowed to set it should be of the consistency of jelly, in which condition it should be applied to the ceiling.

As distemper changes its colour very much in drying, it should be tried on a piece of white paper and allowed to dry. The drying may be assisted by holding it against the face, or back of the hand, but not by holding it to the fire, which would prevent its drying its natural colour. Having procured the right tint it should be applied quickly to the ceiling with large brushes, preferably by two pairs of hands. For high-class work distemper is frequently stippled, taking care not to go over the same part twice. There should be no draught in the room whilst this is in progress, but when completed the sooner it is dried the better. If this operation is successfully carried out, a very pleasing effect is obtained. Even with experienced hands distemping is not always successful, particularly if done during foggy weather. If it does not dry out evenly it should be washed off and re-done.

If dealing with old ceilings the distemper must be washed off right down to the plaster face, all cracks raked out and stopped with putty (plaster of Paris and distemper mixed), and the whole rubbed smooth with pumice-stone and water; stained parts should be painted with oil-colour, and the whole leached and distempered as before described. If old ceilings are in bad condition, it is desirable that they should be lined with paper, which should have a coat of weak size before being distempered.

Distemper is superior to oil-colour in the clearness and delicacy of its tints, and in that it does not discolour in the same way with age. It is also very much cheaper. Its demerits are that it will not bear washing, and, being thick, it soon chokes up delicate mouldings or ornament; it is, therefore, the custom, where there is a considerable amount of elaboration or ornament, to execute the work in oil-colours, either flatted or flat varnished. This in a country house, or where no gas is used, will last a great many years, and bear washing and touching up. If dealing with ornament in relief, it is a good plan to paint the work twice with oil-colour and then distemper it. The distemper coat rather pleasantly softens the ornament, and can be washed off down to the oil-colour, when the work has to be re-decorated.

Some of the coarsely-modelled ornament of the Jacobean period may owe its charm to the indistinct suggestiveness caused by successive coats of distemper, but it is hardly desirable to aim at an effect of this kind.

The style of ornament which we understand as "Adams" is often executed of composition fixed with tacks and glue in small repeats on a plain ceiling previously lined with paper. This is a very refined style of ornamentation, and is often pleasantly relieved with painted medallions, in which case a part-coloured treatment is desirable to hold up the medallions and prevent their spotting too much. The light to a ceiling is to a great extent from a horizontal direction, and the amount of relief should be tried in position. Ornament, whether in relief or painted, should be simple and depend rather upon graceful lines than upon elaboration.

Covering a ceiling with a pattern paper is a

simple and satisfactory way of treating it. The pattern should be centred with the room, and the joints carefully butted. Stamped materials for ceiling coverings are numerous, and by their use an exceedingly elaborate effect can be obtained at a very moderate cost. The best are they which do not imitate plaster work. They are very useful for strengthening and hiding the defects of old ceilings in a bad condition, but have not the individuality which can be procured by even a little plaster ornamentation designed for its special position, and I look upon them as suitable rather for old than for new buildings.

The plan of hanging a heavily flocked paper on the flat of a ceiling and painting it is a good one, and the effect is much improved if a flat band forming a frame to it next the cornice can be arranged so that the ornamented portion has a recessed appearance. This flat band was much affected during the Greek revival period, and often had paterae fixed on it at intervals.

In applying to an old ceiling either ribs, or any relief ornament which has strongly pronounced straight lines, it is necessary to apply a straight-edge to the surface to ascertain whether it sags or undulates, otherwise you may find that what appeared level before becomes like the waves of the sea.

Woodwork.

Painting on new woodwork will require at least four coats, and it is better to specify five as joinery well prepared four is only just enough, if it is desired that the woodwork of a house should be painted and not stained and varnished, a process which I am thankful to believe has almost died out. Knots should be covered with patent knotting, to prevent the resin in the knots discolouring the succeeding coats of paint; or, if bad, they should be cut out or covered with silver leaf. Before the work leaves the carpenter's shop it should be primed with red or white lead, mixed with linseed oil and turps, to prevent its being affected by a damp atmosphere. Backs of paneling, or any woodwork which has to be fixed against a wall, should have a thick coat of oil colour before fixing. Before the next coat is applied the surface should be lightly rubbed down with glass-paper, and the bad holes, open joints, or cracks filled with hard stopping, and the dust removed. The second coat, mainly of linseed oil and white lead, should then be applied. Any filling up required should be done after the second coat. In new work, and if the joinery has been well prepared, little will be required. It consists of a paste made of plaster whitening and size, and is required to level up hollow places. Three coats are required after filling up. The third coat, which is the ground for the finished colour, composed of white lead and linseed oil and turps in equal proportions, and with an approach to the finishing colour, should be evenly laid on, the direction of the brush following the direction of the grain of the wood. Some judgment is required in selecting the ground colour as the finished coat will be affected thereby; in many cases a brighter colour may be used than finished colour—with advantage. This should dry out uniformly, and if it does not do so, should be repeated before the finishing coat is applied. By mixing varnish with the finishing coat, an egg-shell gloss is obtained, and this is the finish which appears to me most suitable for work generally. It does not require so much preparation as varnished work, does not show up slight unevennesses, and will bear washing. It is sometimes called a bastard flat. If it is desired that the surface shall not shine at all, it will require a flating coat of the required colour mixed with white lead and turpentine only. Flating should follow the previous coat about twenty-four hours after, before it has had time to get hard, so that it may be incorporated with it, and the more shiny the previous coat the more dead will be the flat. Flating is easily soiled and will not bear washing. As it dries very rapidly, it is necessary that it be done quickly and without break, something like putting on a large flat wash of water on a drawing.

Old work should be gone over with the stopping knife, then rubbed with pumice-stone and water; greasy parts should be washed with turpentine, and, where the paint is rubbed away, primed; cracks or holes should be stopped and hollows filled up, being left full to allow the stopping to shrink, and then levelled off afterwards. The first coat should be mixed

with turps, and the succeeding ones as before described. Woodwork intended for varnishing requires extra care bestowed upon it from the beginning to secure an absolutely smooth surface, and, after the fourth coat, should be applied one or more coats of French oil, varnish, or pale copal for delicate tints, being rubbed down between each coat with pumice-stone, powder and water, and a felt float to remove all inequalities. This can be repeated until the work has the finish of a coach panel or Japanese lacquer tray. Work of this kind is expensive, but very durable, and should be designed with this finish in view with very simple mouldings and large plain surfaces. It is, in my opinion, only under these conditions that internal varnished work is tolerable.

It would be unwise to treat the work of a new house in this way before it had got over its infantile diseases. If it can be so arranged, a good plan is to leave a house with three coats of paint and lining papers on the walls for a season or two, when the finishing decorations can be carried out with the satisfaction that they are being executed on a good basis. Often the contractor who builds the house is not the best man to employ for the decoration, and one set of men is conveniently got rid of before the other commences.

Some of the most beautiful colours can only be obtained by "glazing," the tints given to painting with a semi-transparent colour mixed thin over an opaque colour. This is generally done with tube colours.

In treating of house painting, the subject of graining should not be omitted, although out of favour at the present. Personally, I dislike it mainly for the reason that I never meet with any that is pleasant in colour. The merits justly claimed for it are that it wears well on account of its broken colour and varnished surface, and can be easily touched up without repainting. I see no reason why combed work, in colours not necessarily resembling wood, should not have a good appearance; also the merits claimed for grained work. Another plan is to stipple the second colour and then varnish.

IValls.

New walls, if intended to be painted should be plastered with Parian or Keene's cement, and should have two coats of white lead and linseed oil and litharge mixed rather thin, to soak into the plaster and stop absorption, the third coat should be thicker and mixed with spirits of turpentine and colour, and the fourth thicker still and mixed with equal parts of linseed oil and turpentine, with sugar of lead as a drier; the colour should be darker than intended to be finished, each coat should be allowed to dry thoroughly before the succeeding one is applied, and should be well rubbed down with glass-paper. The finishing coat is best stippled with large flat brushes, as a granular surface is obtained, the wearing properties are not impaired, and the unpleasant reflecting surface is broken up. The internal walls of large rooms and passages are best left from the trowel with a granular surface.

Any appearance of damp must have the cause removed, as no tinkering with the face of the wall will be a lasting remedy.

Any patching or chases should be made good with Parian or Keene's cement, which can be painted soon after, provided that the bed or backing has been first painted with oil-colour to prevent the damp from the cement soaking into it.

It is claimed for adamant plaster that it can be painted in twenty-four hours, but my experience of it is that this cannot be done with safety if cement has been used in the wall or floor, as the salt from the Portland will continue to come through for weeks after the plastering is done. The manufacturers recommend a wash of barium chloride, but this I have not tried.

Another trouble which affects the finishing of walls is discolouration in patches where Fletton bricks have been used. I have spoken to the manufacturers about it, and am informed that it is caused by using overburnt bricks, and that a bricklayer experienced in the use of these bricks would not make use of these overburnt ones for inside work. Considering the very large quantities now being used in London in place of stocks, it is very important that the matter should be understood, the only remedy being to cut the brick out.

Wall-papers.

The most convenient way of finishing walls, and that most largely adopted, is covering them

with printed wall-papers. It is a simple process, and may be quite inexpensive, and they are easily cleaned off and renewed. Skilful paperhangers are not difficult to find, so a badly-hung wall-paper should not be tolerated. The surface of the wall should be rubbed over with glass-paper to remove all excrescences, and it should then be clearcoated, and the papers hung without joint from top to bottom, having their joints carefully trimmed and butted. On new walls it is a good plan to hang white lining paper preparatory to hanging a more expensive paper, this gives the latter a much better chance as far as discolouration from the fresh walls is concerned. Walls should be lined with brown paper before hanging embossed or strong papers, as otherwise they are liable to slide in shrinking, and open at the joints. It is a good plan also to line and clearcoat preparatory to distemping walls; it has an advantage over using a tinted paper ground, as the joints need not show, which they would do in the case of the latter.

The varieties of wall coverings which may be suitably used for the space usually called the filling are numerous. Immense talent has of late years been employed in the designing of wall-papers until we almost have more than enough, and there is a temptation, when choosing from a number of ambitious designs, to forget that in most cases the wall on which they are to be hung should be looked upon as a background—a purpose for which many of them are eminently unsuitable, and if there could be more connexion between the designing and the using of them, the designs and colourings would be very much modified. I am not now referring to the large flowered designs in natural colours which are exhibited in drapers' windows, accompanied by the notification that they can supply the chintz for hangings to match them. A less interesting arrangement I cannot conceive. A piece of English wall-paper is twelve yards long by 21 in. wide, containing 63 square feet. French paper is nine yards long and 18 in. wide, containing 40½ square feet; so in estimating the quantity required, half must be added to the measure for English papers, and the price considered in relation thereto. The simplest wall-paper consists of a pattern printed from a wood block, in repeats, with distemper colour on previously distempered roll of white paper, and in this form is suitable for use from the servants' bedroom to the principal reception-room, the dignity required depending upon the form of the design and colouring, and if we had nothing more than this we should still be very well off.

The varieties of embossed coverings for walls now available in decoration are numerous, and I have thought it the best plan to exhibit specimens, and make any remarks about them which occur to me.

They have the merit, when hung on an ordinary plaster wall, of presenting a wearable surface, and one that is capable of decoration, after hanging, in various ways, either by painting all over, particolouring, rubbed out, or stippled effects. The skill displayed in the Japanese leather papers in design, modelling, and treatment of the surface with metal and colours, made them very popular, and they have been used in place and out of place until we are rather overdone with them.

A luxurious finish to a wall is covering it with silk damask or brocade, and this plan can be adopted with more propriety now the electric light is more general, and the dirt and discolouration from gas got rid of. It may be treated as a continuous band round the room, or introduced in the form of panels.

In either case it should be so arranged as to have a solid back to prevent the accumulation of dust behind it, and to enable it to be brushed.

Lastly, I may refer to the hanging of real tapestry, which I consider has a value beyond any other wall covering, either as covering the entire wall, suspended from the top, or in panels. No other decoration is required, and a tinted white for the woodwork appears to give the best value to the tapestry colours.

Following the order which I first laid down, we come to floors. The ordinary deal floor, by the process of building, gets so stained and disfigured, that it is necessary, if any part is intended to show, to stain it a dark colour and varnish it. A border around the room enables a reversible square of carpet to be used, which is easily taken up and shaken. The reception-rooms should be laid with solid oak or ½ in. parquet over the ordinary floor, which makes a

very good job, provided the floor has got to its normal condition. It is best deferred for a season, as the best flooring will sometimes swell and buckle, when, if laid, the parquet will follow it and present a series of corrugations. The usual plan for finishing the oak is to give it a "stiffener" of French polish, and then brush over with beeswax and turpentine. Waxing without the polish is slippery, and does not keep the dirt out. Plain linoleum of its natural reddish-brown colour will be found serviceable (and pleasant for many of the secondary rooms of the house: it is very durable, and although I have heard something said about its rotting the boards through excluding the air, I have never found this to be the case).

Natural Woods.—Oak if left its natural colour without varnish gets dirty, where in contact with much wear as in living rooms, and if French polished of its natural state a light yellow colour is produced, which it is not easy to decorate to.

The best plan is to darken it by fumigating with ammonia by the dry process, as it does not raise the grain, it can then have a "stiffener" of French polish, and be finished with beeswax and turpentine. No liquid stain should ever be used to stop up and dirty the pores of the wood. Mahogany is pre-eminently the wood which is improved by polishing. Good wood may be left its natural colour, of a golden brown, but if a darker colour is desired it can readily be done without the beauty of the wood being destroyed. The dark purple colour so much affected by makers of antique and called imitation rosewood colour (which it is not) is most objectionable. The difficulty comes in with mahogany where there is any carving to be treated, as to polish carving ruins it, and you must either give up your carving or your polish. A compromise is sometimes arrived at, and the whole is dull polished. The makers of furniture at the end of last century no doubt realised the difficulty, and we find sideboards inlaid and without projecting mouldings, so that the whole surface could with fitness be very highly polished. Walnut gets most of its beauty from polishing, the same as mahogany. Pine and pitch pine are not pleasant woods polished, as it brings out a hot yellow, which is most difficult to decorate to, almost demanding a strong scheme of colouring to make them harmonise. American ash and bass wood take a green stain very well, but the colour fades, and if in positions where there is much wear the wood soon gets shabby. Trying to make a common material look like a rarer one does not often pay in the long run.

Before going on to the subject of colour, I may sum up in a few words the processes which I have been describing, omitting, for want of time, descriptions in detail of the materials, pigments, and vehicles used.

Surfaces which have to stand wear should be painted with oil-paint, composed of white lead, linseed oil, and driers.

Surfaces which do not come in contact with any bodies may be treated with less labour, and as good an effect with distemper, composed of whiting and size, and the necessary colour.

Oil surfaces may be made more durable by varnishing, the degree of finish being a question of labour and expense.

It is important for the stability of painted decoration that pigments of a fugitive nature should be avoided, also that their chemical action when mixed one with another should be understood, and this subject has been treated of by W. J. Muckley in one of the handbooks of the Science and Art Department at South Kensington Museum. He therein gives a list of permanent, semi-permanent, and fugitive colours, and practice might very well be confined to the use of the first two classes, if not of the first only. As house-painting must necessarily be renewed there is not quite the same necessity for permanence as in a painted picture. The simpler the mixture of colours to produce the required tint the more likely it is to be satisfactory, and to keep its colour. I have read somewhere that the "quickest way to good colouring is through a short palette."

The theory of colour is treated exhaustively in the work of M. Chevreul, an eminent Frenchman, "The Principles of Harmony and Contrast of Colours," and to those not acquainted with it I would recommend it as a winter's evening's amusement, as also the works of Owen Jones on the same subject, with his series of propositions on the principles which should govern the decorative arts; but the bes-

t study for colour is the book of Nature, and to an enthusiastic student her instruction is infinite. Suggested schemes of colour are all around us. Combinations of clouds, the spring and autumn tints of trees, with their leaves back and front for colour or texture, fruit and flowers, the plumage of birds, vegetation on buildings, oxidising of metals, marbles—all present beautiful combinations which may be made use of, and an enthusiastic study of colour in the ordinary walks of life will repay the time and attention given to it. When an impression has been received, take the earliest opportunity of registering your recollection of it with your colour-box; it will then be ready for use when the opportunity occurs.

In a satisfactory scheme of decoration the three primary colours, yellow, red, and blue, should be in some degree represented, not necessarily on the walls of the room, but supplied by the hangings and furniture. They need not be represented in their primary condition, but in the form of secondaries and tertiaries. I should say that the most useful colour for the background or walls is green, contrasting with the furniture of yellow or red browes with blue introduced in the hangings.

Yellow, being a primary colour, cannot be produced by mixture of other colours; it is an advancing colour, has great power of reflecting light, and, compounded with red, gives the range of warm colours, orange and brown. It diminishes in power by artificial light, and for that reason is difficult to make satisfactory for both day and night effects. It is a delicate colour as a pigment, and is easily killed by admixture with other colours. It contrasts powerfully with black, and may be represented by gold in a colour scheme.

Red is the intermediate primary coming between yellow and blue, and in like intermediate relation also as to light and shade, white and black.

It is a most positive colour, forming, in combination with yellow, the secondary orange, range; and with blue, the secondaries purple, crimson, &c. It gives warmth to all colours, especially to yellow. In combination with yellow it becomes advancing, and with blue retreating. It is very much affected by the quality of the light in which it is viewed. Reds easily spoil one another side by side, and great skill is required to print one red on another satisfactorily. Red lights up by artificial light better than any other colour. Vermilion is the pigment which most nearly represents this primary.

Blue is the third primary, and the coldest of colours. It is best represented by the genuine ultramarine, which is said to be a true colour, neither inclining to yellow or to red. Blue is a retreating colour. The blues most used, on account of the high price of genuine ultramarine, are cobalt and Prussian blue; but the former inclines to purple by artificial light and the latter to green. These colours are very useful and pleasant in light tints for making greens, but as blue lights up so badly, it may well be represented in the colour scheme by curtains or carpet.

Having gone through the usual processes in the decorating of a house, I will proceed to consider the points which should influence us in setting on a decorative treatment, and will commence with the vestibule. For the wall of this an excellent plan is to line to a height of about 4 ft. with Dutch tiles, leaving the brickwork above, or, if too dark, this may be distempered on the brick with a stencilled pattern. The dado may go down to the floor without plinth and all be washable. If the house be sufficiently large the entrance hall often becomes a room with its entrance lobby screened off and the staircase recessed from it or leading off from one side. It may contain an open fireplace and the doors to the principal rooms open immediately out of it: it is therefore desirable that the colour should be considered in reference to the adjoining rooms. As the sunniest aspects are required for the living rooms, that of the hall is likely to be a northern one, and consequently a warm colouring would be best—a high wall panelling, or dark wall treatment to about the level of the top of the door architrave, with deep frieze of stencilled ornament in red tones, with an olive cornice and the ceiling a lighter tint of the same. There would be very little blue or cold colour in this arrangement, and the fireplace might supply this in the form of blue tiles on a white ground and the grey metal of the stove. The old-fashioned crimson, blue, and green Turkey carpet would complete the colouring, bordered by a parquet floor, yellow stain being introduced in

the window-glass. The red colouring could be carried up the staircase above a wall panelling, repeating the handrail on the wall side or in the absence of this a wood moulding at this level, with the space below painted a greenish brown on a simple pattern embossed paper. This gives a durable surface where the wall gets most wear, and the papering above may reasonably be left unvarnished, as, except on the score of durability, varnished papers have nothing to recommend them. The varnish changes colour, and becomes in most cases very unpleasant, and is more susceptible to changes of temperature than an unvarnished paper, a sudden change from a cold day to a hot one covering the walls with moisture. An oil-printed paper on an oil ground is a good substitute, a pattern of which I have here, as it is pleasant in appearance and can be sponged without harm to it. We seldom now see the walls of a staircase panelled out in plaster or wood. It has a good architectural character, and it is astonishing what can be done with a few hundreds of feet of wood moulding judiciously disposed on the walls. It is tedious making a drawing of the four sides of the stairs, so the best plan is to set out the panels on the walls with a piece of chalk. Everything above dado level can then be distempered. Duresco is a good material for the purpose, using the petrifying solution supplied with it. It is more expensive than ordinary distemper, coming between that and oil-paint, but has the merit when hardened of being to some extent washable, and it is much less liable to discolouration from defects in the walls than ordinary distemper. It is also pleasant in appearance. The treatment of the walls of stairs suggested apply rather to old than new buildings.

In considering the horizontal divisions of the walls of a room, I have in mind the ordinary house, with rooms from 10 ft. to 12 ft. from floor to ceiling. The necessary skirting, if with about 6 in. of plain face, is generally sufficient if of good thickness, with simple mould receding to the wall, thickness rather than height being required; this will keep the furniture away from the walls without considering what is called the chair-rail, which should in most cases be lower than the back of a chair—from 2 ft. 6 in. to 2 ft. 9 in. to the top of it. The space between these two is best of wood, the face of it projected somewhat from the face of the upper wall. The skirting, plain or paneled, face and rail should either be of one colour or of harmonising colours of the same depth of tone; to cut it up into thin lines is a mistake. Above this the wall may be plain and uninterrupted up to the frieze-rail. This, with the frieze and cornice, about one-seventh the height of the room, should all be designed together and kept to about the same tone of colour, of sufficient weight to look like a part of the wall. In designing these mouldings, mould the top of those below the eye and the bottoms of those above the eye.

Another division as to height is to increase the frieze with rail and cornice to about one-fifth of the height of the room, giving the extra space to the frieze, and if the room is very low, sacrificing or squeezing the dado. In a drawing-room this plan will be found convenient, as pictures being generally small will not look well sized, and the ornamental frieze furnishes and gives interest to the upper part of the wall. If there is height enough, the cornice mouldings of the treatment last described can be moderated in size to form the starting of a cove or hollow, connecting it with other mouldings to form the frame of the ceiling. The cove, so very general in the French work of the last century, is very much out of fashion, but is undoubtedly very serviceable in softening the connection between the decoration and walls and ceiling. If there is not height enough for a cove, the cornice kept down a few inches from the flat of the ceiling will give an opportunity of adding recessing mouldings, and preventing the sagging appearance of an absolutely flat ceiling.

For bedrooms, the deep frieze arrangement is very suitable, either with or without the dado, according to the height of the room.

It is a good plan, when arranging window-casings and architraves, to break the cornice out so as to form a boxing for the top of the curtains. The breaks have a good appearance, give good shadows falling on the curved surface of the curtains, and preventing the accumulation of dust. If curtains are not arranged for Mr. Upholsterer comes along and does it his way.

Wall surfaces should be squared up; a

narrow slip of paper over door or window architraves is best got rid of, also the long spandrel piece over an arch. It is better to break it forward with a vertical line and break the cornice over it. Soffits of arches should not be left plain as ceiling, but should be treated same as arched mould. These are points which cannot well be carried out unless done at the time of building. I have often had to ornament a ceiling where all the mouldings have had to be suspended from it, as it were, on account of the fixed position of the cornice. In low rooms the plan of treating the whole chimney-breast as a feature instead of applying the chimney-piece is a good one.

Dining-room.

The division of the wall space in this room might conveniently be by a wood skirting, plain face and rail, to a height of about 2 ft. 9 in. (pictures could then, if of large size, occupy the space up to the frieze rail), the cornice, frieze, and rail, grooved for picture hooks, being one composition. The heavy, Early Georgian type of cornice and dado always appears to suit a dining-room. If it gets the morning sun the main filling of the walls might be a wall-paper two tones of deep green, the ground being warm in tone, with a lighter and colder print. The paint a golden green, and the flat of dado a deep, rich red, inclining to crimson; cornice and frieze tones of citrine, and the ceiling a still lighter tone. If the owner of the house has any oil paintings they are likely to be hung in this room, and the question of the best background colour has to be considered; this may very well be studied in the public galleries which we have access to, and that used in the entrance-hall of the National Gallery appears to me the most satisfactory. It is a flock paper printed in two tones of a mellow, dark green, inclining to olive. It is there very pleasantly contrasted with dull red marble columns. Both the colour and texture contrast well with the oil paintings, and give the very greatest value to them. There are other colours adopted, including red, which, I believe, is generally considered a good oil picture background, but none appear to me so satisfactory as this. At South Kensington a dark, neutral green wall-paper of Morris's is very much used, but it appears to me too cold grey for the purpose.

The question whether the cornice of a room should be treated dark like the paint or light like the ceiling is always cropping up, and although it is rather trying to darken some nice plaster work, which looks so fair in its natural white, I consider it should be treated with the walls, not necessarily so dark, but sufficiently so to prevent the sudden contrast from dark to light just below the cornice.

The Drawing-room.

The decoration of this room, of all others, should be bright and cheerful, and should light up well. (Here light or white paint is in place.) For this room the mistress of the house must be consulted, and the various parts thought out with furniture hangings and carpets to make the picture complete when furnished and occupied. Should the lady be a brunette, a cream paint and walls of a yellow tone may be suitable; if a blonde, a bluish grey or grey-green. The architectural paneling out of the walls of a room is but little practised now, although nothing gives such size and dignity to an apartment, whether by framing with large panels or by painted styles and rails. The tendency of late has been to ignore symmetry, and to indulge in corners and recesses, and small windows in odd places, by which a certain picturesqueness is obtained, but unbecoming cross-lights are developed, and a mere prettiness without dignity is the result. There is little fear of stiffness, and when the furniture and upholstery come, the severe lines of an architectural treatment of the walls will be pleasantly contrasted. I have had full-sized models made to represent slices out of the walls of a dining and drawing-room, and I invite discussion or criticism as to the horizontal divisions or colours.

Library.

In this room a quiet, restful tone of colour should be aimed at, bearing in mind that books are the best ornamentation of the room, and choosing colours which will give value to their bindings. The fittings should be of hardwood, and as it is inconvenient to reach books higher than about 7 ft. 6 in., this should regulate the height of them—a rail at this level (grooved for picture books) may be conveniently carried round the room where the

book-cases do not occur. A fairly strong green, as pattern exhibited, is, in my opinion, the best to show off bindings, and this may cover the space above the bookcases with a deep vellum coloured cornice and ceiling. The floor should be felted all over.

Bedrooms.

The deep frieze treatment for these is generally most convenient, and the chief characteristic of the colouring should be freshness. Here white paint, which in sitting rooms makes the furniture, hangings, and carpets look dirty, is in place, and should be the standard of cleanliness and freshness generally in the room. The space above the picture-rail looks quite well in plain distemper, but may have a running frieze in colours with good effect, and in the ceiling I would plead for a little ornamentation to relieve the absolute blankness, which is so very general.

I will not weary you by referring to other rooms without illustrations to refer to. Colour is too subtle and indefinite to talk about with advantage. Colour is relative; there is no such thing as a bad colour when regarded alone, as there may be a situation where that particular colour would be the best in combination with others for its position. A parti-coloured suit will keep fresh longer than a suit of one colour and the same holds good in decoration. Contrasting colours enhance the value of one another, and it is quite possible by altering one colour in a decorated wall or ceiling to give freshness to the whole which before may have looked dirty and worn out. The conception of a room should be the coloured conception of a room, and the plan I advise is to make your sketch and stick to it as you would to your scale drawings in a building. I am well aware that in practice this cannot always be carried out, and it comes to doing the best you can under the circumstances, and if your lady client has set her heart upon shrimp pink or hedge-sparrow egg blue for her drawing-room why do the best you can to make a satisfactory combination in which those colours predominate. What I should like to impress upon all who are not in the habit of doing so is that a constant study of colour brings great enjoyment with it. The critical faculty can be used everywhere. As you study old buildings to improve your sense of form and proportion, study natural objects for improving your colour sense. The most unlovely object if left alone will be covered by nature with the most beautiful colours and the book is open for our delight.

The Chairman said they were very much indebted to Mr. Shuffrey for his exhaustive paper on such an interesting subject. It was unfortunate that in designing houses they did not have the opportunity of decorating them at the time, as they had to introduce a certain amount of permanent decoration in the shape of chimney-pieces, tiles, &c. It was unfortunate because they had to use those permanent materials, and were not called upon until some time afterwards to consider the general decoration of the house. What was wanted was a scheme of colour decoration at the time of building the house, and if architects had that they would be able to consider more satisfactorily those matters of detail in the permanent decorative features of the house. Frequently the architect's scheme of decoration was destroyed before he was called upon to carry it out. In regard to the decoration of a house, they were too apt, he thought, to take each room separately, and did not consider a general scheme for the whole house. They often found that their client wanted a particular room to be treated in a particular colour, which was an inconvenient fact to deal with, and which affected their ideas for the general and harmonious decoration of the house. House decorators were assisted very often at the present day in having for artificial light the electric light. Where that light was adopted the same effect of colour could be obtained by day as by night, and it was a distinct disadvantage to have to consider the effect of decoration under two different lights. With the electric light there was a sharpness owing to the brilliancy of the light, and they had to consider very seriously the effect of the colours. In regard to ceilings, and for the matter of that, walls, the treatment of them had in late years been somewhat overdone by the enormous quantity of raised and over-ornamented materials that were used. The ten-

dency was to overdo the decoration, especially that of the ceiling, though he was not advocating a plain ceiling, because he thought that some treatment with raised materials was most effective; but to treat both the ceiling and the walls with such decoration was perhaps carrying the decoration too far. In his opinion it would be better to keep the walls somewhat plain if the ceiling were ornamented with raised materials, or *vice versa*. With regard to varnished surfaces, he had always found a difficulty with painters in getting them to mix varnish with the finishing coat, and he agreed with Mr. Shuffrey, that a dull effect was what was wanted rather than the bright effect that varnish gives. In the matter of decoration they had to deal more often with old than with new buildings, and in dealing with such buildings, if they had a room with bad proportions they could often materially improve those proportions by their colour treatment and the way they treated their walls. He was disposed to think that with low rooms a dado and frieze treatment cut up the wall too much, although a dado had its advantages, but in a room to ft. high with a deep frieze, the dado was not required. One little difficulty in regard to the picture rail which had been advocated and which was constantly used, was that if it projected much it was a nuisance, and a picture did not hang well against the wall unless it had a heavy frame.

Mr. Cole A. Adams said he had very great pleasure in proposing a vote of thanks to Mr. Shuffrey. The lecturer was a very old member of the Association, who had left the profession of architecture and had taken up the vocation of supplying mantel-pieces, wall papers, tiles, and metal work for use by the profession and the public. Mr. Shuffrey had used his architectural knowledge and his great taste as a designer in the materials which he produced, and he (the speaker) had found his services invaluable on many occasions. If outside timber were treated with Stockholm tar the sun after a time had a tendency to bleach it. He found that Brunswick black, made to the required shade by turpentine, was a fast colour. Any shade could be obtained down to the deepest brown, though, of course, it could not be painted upon. It was an admirable stain, however. In regard to cement work his dislike to its colour was as great as Mr. Shuffrey's, but when it was painted there was something very nice about it in our London streets. In Regent-street the occupiers of the buildings in the Quadrant were compelled by the terms of their lease to give one coat of white paint every year to the fronts of their premises, which produced one of the pleasantest effects. Mr. Arthur Cates he believed, the holders of the leases petitioned against the clause at first, they were now quite agreed as to its wisdom. In regard to that troublesome matter of cracked ceilings, it was not always possible to go to the expense of double ceilings in attempting to get over the difficulty, and in old work that he had seen, in some speculative built houses, there was scarcely a crack visible. He thought that plasterers in those days understood their work better than they do now. To have mentioned graining thirty years ago would have been anathema, but it was now generally recognised that it served a very useful and economical purpose and had a very pleasant and quiet effect, being suitable for inexpensive houses and offices, and was a saving of expense in maintenance. The lecturer's remarks about the effect of Fletton bricks was quite a new point to him. In regard to wall-papers, the effect of some printed on cartridge paper, which he had with him, was very good. They had a very pleasing effect, and instead of the colours being flat they were broken. The lecturer had not referred to the great value to be got out of ordinary brown paper for wall spaces and dados. It was a good paper to use, and very durable and clean, for it would last for a long while without showing the dirt. Something besides the lady client's complexion should be considered in the colour decoration of a room, viz. the general effect it would have upon her guests. In his opinion there was nothing so good for a drawing-room as some scheme of yellow. He did not know whether any of them had ever come across the work of Mr. Cottier, who was one of the cleverest, most original, and audacious decorators he had come across. Cottier had had a large practice in America, and he had carried out excellent work in England. One of his methods was to mix up

his colour with oil in a thick slab, which he laid upon the walls and surface modelled it. He obtained some very good effects in this way. Cottier was very strong on one point, viz., that the place for colour was the ceiling. The walls, he said, were for pictures, decoration was for the frieze and ceiling.

Mr. W. J. N. Millard, in seconding the vote of thanks, said that Mr. Chevreul had concentrated into the book which the lecturer had referred to all the laws of colour, and his work was the foundation of all the teaching on the subject. In looking at some of the specimens which the lecturer had exhibited, the question had been raised in his mind as to the possibility of treating the cornice not so much as part of the ceiling as the crown of the wall. The cornice, he supposed, was actually the crown of the wall, and was it not possible in certain cases to get a good effect by adopting a darker treatment for this top of the wall, alloying it with the wall surface instead of the ceiling surface? One got weary of patterns, and he often thought how pleasant it would be to build a house and have no patterns on the walls at all, letting the objects be the decoration and the walls as undisturbed background. As a practical decorator said to him recently, the first thing they had to do in advising people as to decoration was to know what people possessed in the way of furniture. People would not give up their possessions for any scheme of decoration whatever. It was no use providing a fine pattern for a wall if it were to be covered up by pictures, and it was useless to tell an owner to remove pictures in order that the scheme of decoration might not be disturbed. He heard of some one who recently got the owner to concentrate his pictures over the chimney-piece, and so left the other parts of the wall free for treatment. He thought the modern idea in decoration was in the direction of excess, and it was worth while considering how much could be left out rather than what could be put in.

The vote of thanks was then put, and carried unanimously.

Mr. Shuffrey, in reply, said that, unfortunately, there were very few men like Cottier to be found, notwithstanding the teaching of arts and crafts. He had found it a very difficult matter to get what he wanted from ordinary painters, and it was very difficult to get information from them. A book by a practical man, which he would advise them to read, was by Mr. Pierce, of Manchester. In regard to the use of pictures, it was very difficult to arrange them properly; they ought to chime in with the decoration, or should not be used at all. A heterogeneous collection of pictures in an ordinary dwelling-house was very difficult to deal with. In regard to floors, he liked them to be dark. A deal floor, even if stained, was not pleasing to look at.

The Chairman announced that the next meeting would be held on January 14, when Mr. F. T. Bagallay would read a paper on "Composition in Regard to Public Building."

The meeting then terminated.

Illustrations.

SELECTED DESIGN FOR CARDIFF TOWN HALL AND LAW COURTS.

WE give this week illustrations of the elevations, detail elevations, and plans, of the design by Messrs. Lancaster, Steward & Rickards, which gained the first premium in the competition for the proposed new Town Hall and Law Courts for Cardiff, and to which we have already referred at some length in our issue of last week.

The relation of the two blocks of building is shown in the block plan inserted in a corner of the detail elevations sheet. In the general elevations and plans the lithographers have rather unfortunately reversed the real order of things by placing the Town Hall plans, and elevations to the left of the Law Courts on the page, instead of to the right as they should have been. The two sets of elevations must, however, in any case have been considered separately on the drawings, as the page does not allow space for showing the actual distance between the two buildings by scale; but in view of this oversight made by the lithographers in defiance of the block plan (which ought to have been sufficient guide to them) it is as well to call attention to the fact that the block of municipal buildings is really to be

erected with its principal façade to the right, and not to the left, of that of the municipal buildings.

The authors state that they have regarded the two buildings, on contiguous sites,

"as portions of a single homogenous design, arranged, as regards its general mass, symmetrically about the centre line of the Avenue, and an axial line at right angles to this road; by so doing we are enabled to obtain a breadth and dignity of treatment suitable to the principal buildings of an important town."

With regard to the details of the plans but few notes will be required. Speaking generally, every effort has been made to keep the various departments compactly arranged and in the best relationship to each other, so as to avoid all unnecessary traffic. While indicating the possible lines of future additions, we may frankly admit that we have considered this point of less importance than the satisfactory arrangement of the buildings as they stand, more particularly as we have regarded the instructions in a liberal spirit, and given in most cases rather more accommodation than is specified.

In the plan of the courts, &c., it will be noted that the police-courts (tinted green), and Head Constable's department (tinted red), are placed on the ground floor; while the assize courts (buff) and wreck-court are on the first-floor. This enables all the prisoners' cells to be grouped round their exercising ground, from over the roof of which the lighting to the cells and adjacent rooms is obtained. The cells being placed in juxtaposition to the police-courts simplifies the admission and removal of prisoners, while the access to the assize courts is also easy and direct. Public galleries are provided to these courts, as it appeared doubtful whether this accommodation was required or not; they do not, however, form an essential part of the design and could be omitted without affecting the remainder.

Town Hall.—In arranging the Town Hall the open character of the site renders the satisfactory lighting and grouping of the offices a comparatively easy matter. The position of the Rates Office permits of its receiving the increased height desirable in so large a room. All drawing offices have a north-east aspect, and the various officials are placed in the positions most suitable for the proper supervision of their departments.

We should like to draw special attention to the arrangement of the principal suite of rooms and to the various adjuncts. The cloak-rooms on the ground floor are schemed with entrance and exit so that the traffic shall circulate from the entrance-hall round to the foot of the stairs and vice-versa. On reaching the first floor the staircases terminate in spacious landings on either side of the reception-hall, which in its turn gives access to the council chamber and ante-assembly hall. It is thought that the positions of the members' private room and council waiting-room will be found particularly convenient and advantageous, in enabling these rooms to be used en suite with the assembly-hall, &c.

"SPRING": DESIGN FOR WALL DECORATION.

This design, by Miss E. Fortescue Brickdale, gained the prize of £40 for the best decorative painting produced by students in the Royal Academy schools. It is to fill a space on the walls of the Refreshment Room at the Royal Academy, where the subjects of "Summer" and "Autumn" have already been designed and executed by Academy students.

The space for the painting is a lunette broken into by a door, which of course influences the arrangement of the composition. The central group represents the infant Spring standing in the lap of Mother Earth, with groups of attendants on either side, accompanied by young lambs and other animals.

THE LONDON COUNTY COUNCIL AND THE SESSION 1898.

OF the Council's five Bills one is designed to effect amendments of the London Building Act, 1894, in terms of their Building Committee's report, printed in our columns of November 20, see pp. 421-2, *ante*. The Council propose to amend (1) Section 188 of the Act so as to make it clear that in all cases of dangerous structures all documents in proceedings may always be served on some persons on the premises to which such documents relate, or if no person be found there, by affixing such documents thereto. (2) Sections 13-14, so as to ensure that no part of any new building nor of the forecourt boundary fence or wall in front thereof shall be at less than the prescribed distance from the centre of the road. (3) Section 200, so as to provide for penalties for offences in respect of the general line of buildings, and of wooden and other structures; and (4) Section 13 to make it clear that



FRONT ELEVATION (TOWN HALL)

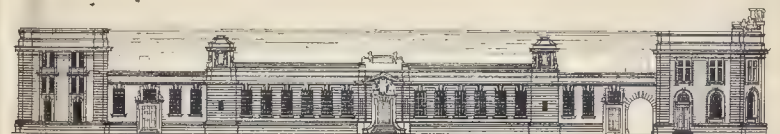
GARDIFF TOWN HALL AND LAW COURTS COMPETITION - SELECTED DESIGN
MESSRS LANCHESTER, STEWARD, & RICKARDS, ARCHITECTS



FRONT ELEVATION (LAW COURTS)



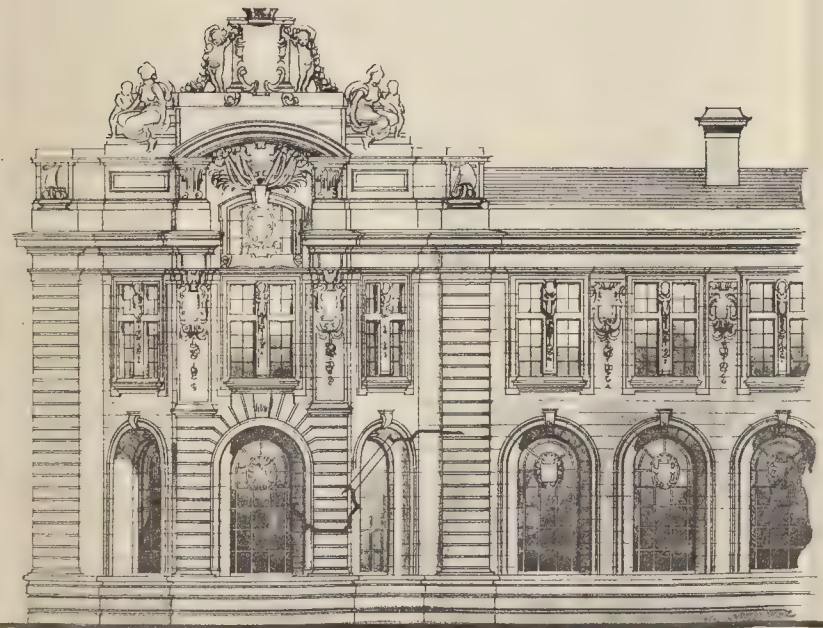
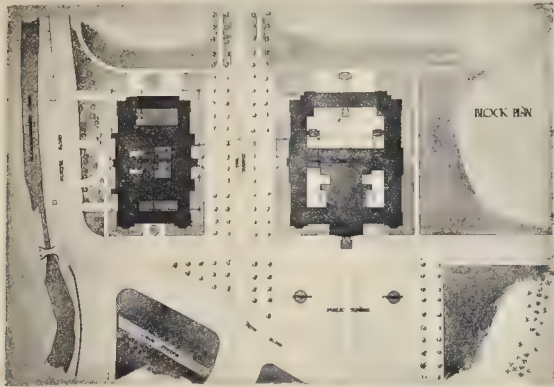
ELEVATION TO AVENUE (TOWN HALL)



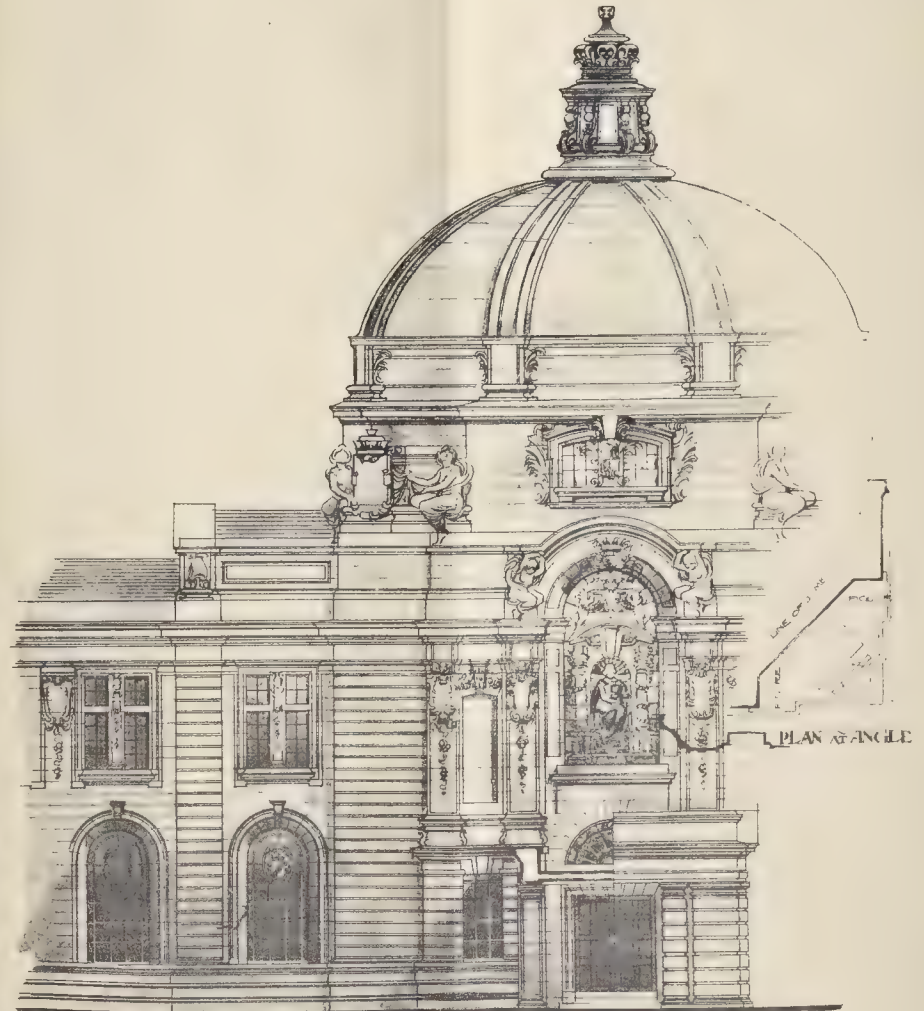
ELEVATION TO NORTH ROAD (LAW COURTS)



ELEVATION TO AVENUE (LAW COURTS)



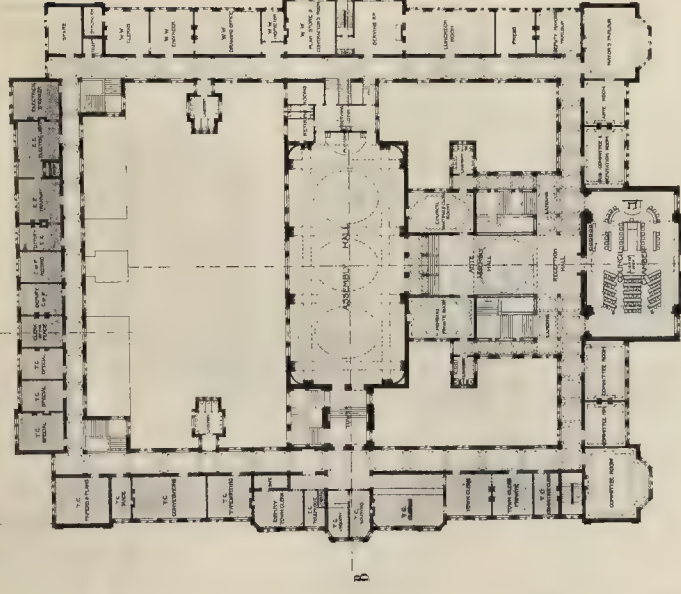
Detail of Portion of Front



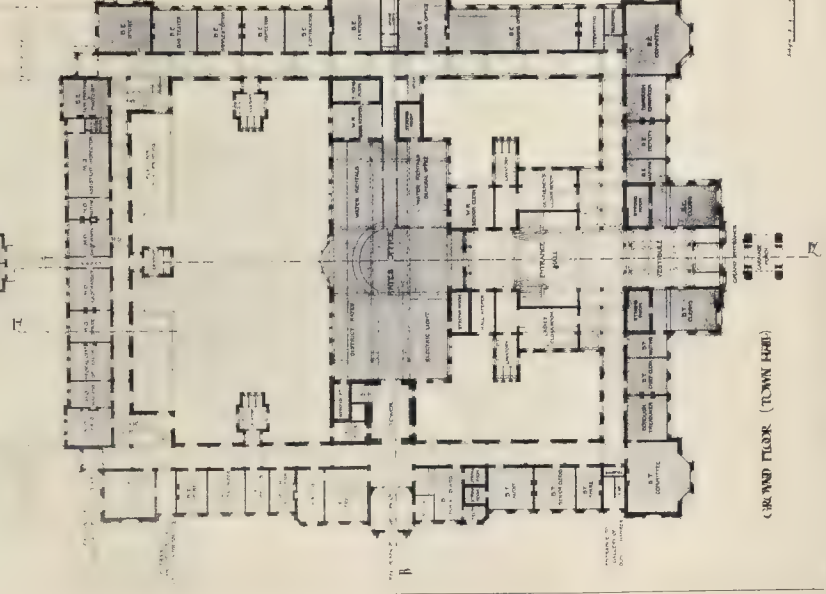
Detail of Portion of Front

SCALE 1/4" = 1'

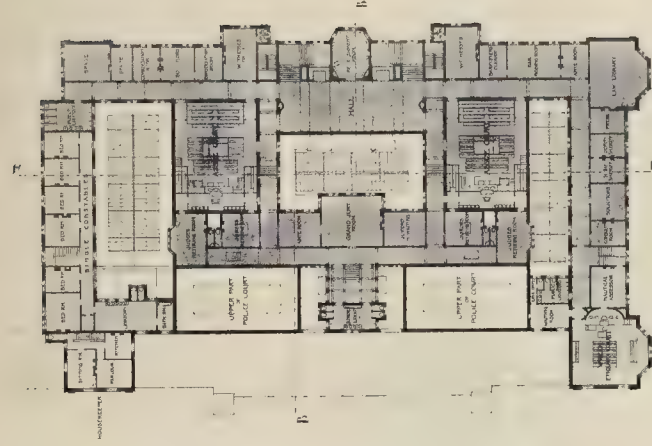
FUTURE EXTENSION



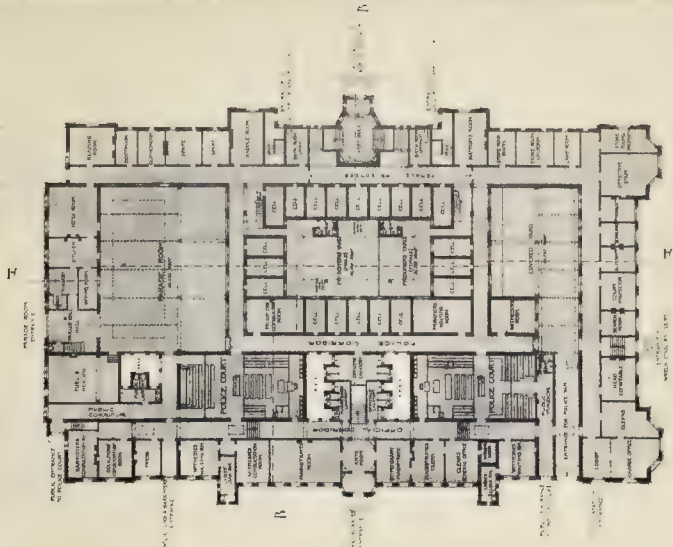
FIRST FLOOR (TOWN HALL)



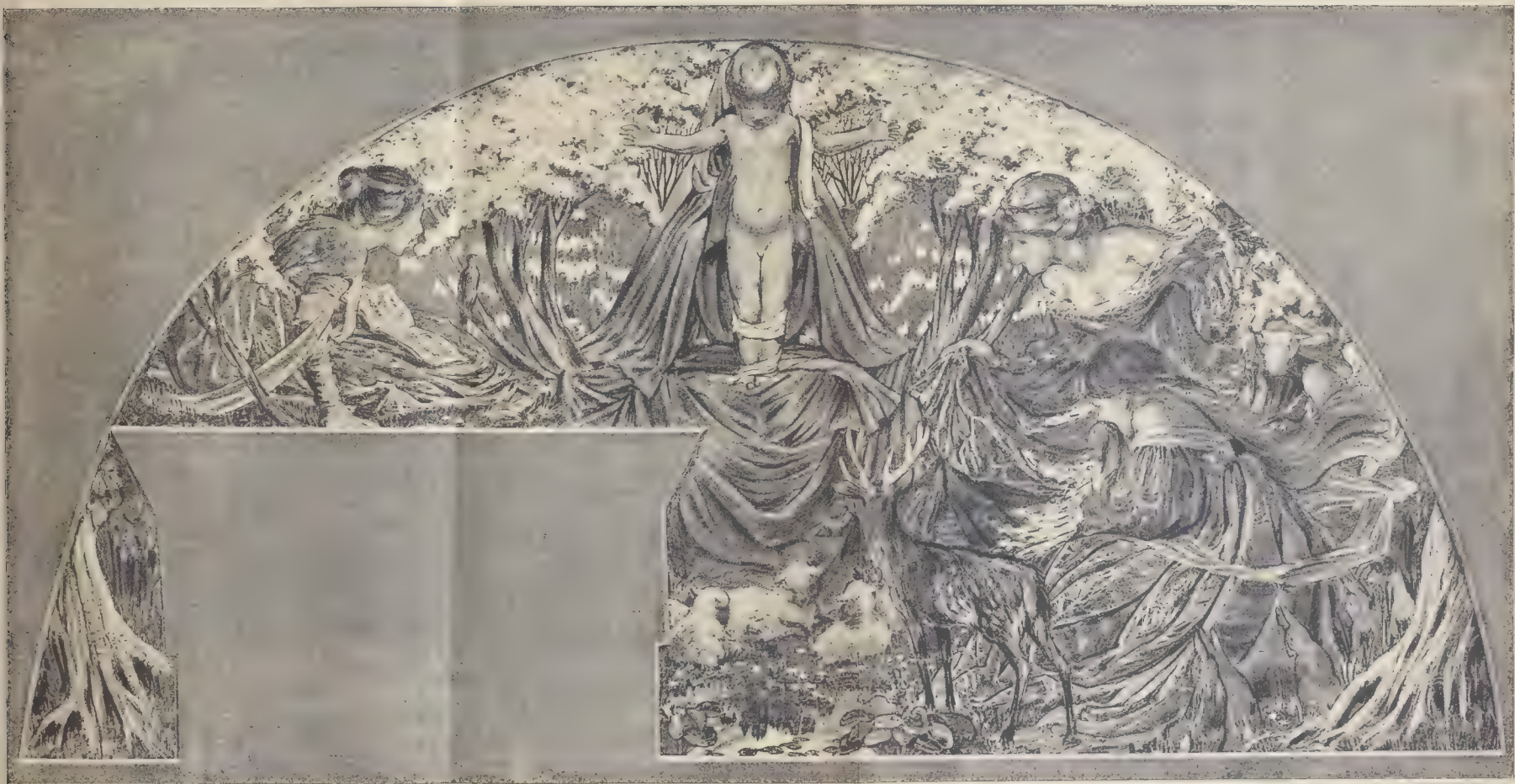
GROUND FLOOR (TOWN HALL)



FIRST FLOOR (LAW COURTS)



GROUND FLOOR (LAW COURTS)



"SPRING". DESIGN FOR DECORATIVE WALL PAINTING—By Miss E. FORTESCUE BRICKDALE.

no working-class dwelling shall be erected within 20 ft. from the centre of the street or way on which it abuts. Under a "General Powers Act" they ask powers for the following purposes—(1) a new street, about 60 yards long, from Ponsonby-place to continue Rotherham-street to a junction with the new road now being made over the site of Millbank Penitentiary (estimated cost £5,000); the Vestry of St. Margaret and St. John, Westminster, to contribute; (2) a widening of York-road in portions between Falcon-road, Battersea, and Wandsworth-road station, London and South-Western Railway, the Battersea Vestry and the Wandsworth District Board of Works to contribute; (3) to widen Albert Embankment on the east side, between Vauxhall-walk and Upper Kennington-lane. This is to be a county improvement; the road, formerly High-street, is to be widened to 60 ft. throughout, at an estimated net cost for paving, &c., of 3,700*l.*; and for property 30,300*l.*; (4) to rebuild Rosemary Branch Bridge across the Regent's canal (estimated total cost 6,800*l.*, net cost, after deducting contributions, assessed at 4,100*l.*); the St. Leonard, Shoreditch, and Hackney Vestries to contribute; (5) to acquire a plot of ground near Streatham railway station for their fire brigade purposes; (6) to provide for contribution by the Hammersmith Vestry towards the Council's purchase of lands adjoining, and to be added to, Ravensworth Park, which is now open to the public; and, similarly, by the Wandsworth District Board of Works in respect of lands between the Thames and Putney Bridge-road for a public recreation ground; (7) to prohibit the collection of money on any part of their parks or open spaces; (7) to abolish and remove certain gates, posts, walls, bars, or railings at the south end of Camberwell Green; across College-road, Camberwell Green; across Dunckerley-street, Islington; at Nelson-square, Blackfriars-road; and across the north ends of Caesar-street and Long-street, Shoreditch; (8) An extension of the time now limited by their Vauxhall Bridge and Tower (Southern Approach) Acts, 1895, for the compulsory purchase of lands for purposes thereof; (9) to make provision with respect to the wearing of the uniforms of the Metropolitan Fire Brigade; and (10) to enable the Council to demand and recover money for expenses they incur in connexion with chimney fires, either in addition to, or instead of, penalties imposed under the Metropolitan Fire Brigade Act, 1865. Two Bills concern new tramways: one being for a tramway from the north end of Blackfriars Bridge, along Victoria Embankment and Westminster Bridge, to join that of the London Tramway Company, with a branch along Stangate, to meet the South London Tramway line at St. Thomas's Hospital; the other for tramways from junctions with existing lines of the North Metropolitan Tramways Company at Holborn Town Hall, Theobald's-road, and High-street, Shoreditch, to pass respectively along Rosebery-avenue and St. John-street-road to the "Angel," along Theobald's-road, Vernon-place, and Hart-street, to Bury-street, Bloomsbury; and along Bethnal Green-road to Cambridge-road. The gauge of the proposed tramways will be 4 ft. 8½ in., and animal power is to be employed. By the fifth Bill, "Action Sewage," the Council seek powers of summary procedure in order to prevent the discharge by the Urban District Council of Acton of any sewage into the Metropolitan Main Drainage System except such as the London Council may have agreed to, to cut off connexions between that system and the district sewers, and to remove sewers or drains within that district connected with the said system, also to enable the two Councils to arrange for the admission, on payment, of sewage from part of the district into the London Council's system, namely, from Acton, Acton Green, Acton Vale, East Acton, and Old Oak Common, as well as from any other portion that drains into the Metropolitan system along the lines of the east and west branches of the Stamford Brook.

CONSERVATIVE CLUB, OXTON, CHESHIRE.—On the 16th inst. Sir E. Lees, Bart., M.P., opened the new Oxton Conservative Club, in Village-road. The new club is built of brick and stone with Ruskin brick facings. The architect was Mr. Francis Holme, and the builder Mr. W. Thomas.

* Nearly all of the land to be taken consists of foreclosures; the estimate of net cost, 80,150*l.*, was computed on the assumption that the Council—as the Bill provides—will be exempted from the payment of Section 92 of the Land Clauses Consolidation Act, 1845, and thus be relieved from liability to take the houses as well.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.—The fifth meeting of this session of the Discussion Section of this Association was held at 56, Great Marlborough-street, on the 15th inst. Mr. Matthew Garbutt, Chairman of the Section, occupying the chair. The paper of the evening was entitled "An American Hospital: its Heating and Ventilation," by Mr. A. W. Cleaver, B.A. Mr. Cleaver was holder of the Godwin Bursary, 1895, and during his tour in America made a study of the Johns Hopkins Hospital at Baltimore. The systems of heating and ventilation in this hospital were the theme of his paper, and he treated it very exhaustively. He described and illustrated by diagrams the special treatment of the buildings necessitated by the extreme variations in the temperature of the American climate, and the construction of the wards so far as it affected the heating and ventilation. The wards are contained in pavilions, and are one story high, except the octagon ward block, which is two stories high. The floors are double and finished with Georgia pine, wax polished; the ceilings rise gradually towards the exhaust flue; the external walls are built hollow and carried up high above the ceiling line; and the roofs are boarded, felted, battened, and slated. The heating is on the system of indirect radiation; fresh air is passed over hot-water coils in the basement (which is above ground), and admitted through flues into the wards. Through the courtesy of the Council of the Royal Institute of British Architects, the author was able to illustrate his paper by reference to his report as holder of the Godwin Bursary. In the discussion which followed Mr. Brodie called attention to the circumstances under which this remarkable hospital was designed and erected, its unique site, its immense cost, the careful experiments and deliberations of the trustees, who sent a Commission to Europe more than once to collect information, the long time occupied in building it, and the unlikelihood of such conditions ever being within the reach of any hospital committee in this country. He also alluded to the magnificent monograph on the Johns Hopkins Hospital by Dr. Billings. The discussion was continued by Messrs. G. H. Smith, P. L. Marks, Satchell, Wonnacott, Hopkins, and Hall. The next meeting of the Section will be held on January 12, when Mr. Alfred Hale, of Birmingham, will read a paper on "The Symbolism of Ecclesiastical Architecture."

EDINBURGH ARCHITECTURAL ASSOCIATION.—The evening of the Edinburgh Architectural Association was held on the 15th inst. in the Royal Institution, Princes-street.—Mr. Thomas Ross, the President, in the chair—at which Mr. Leslie Ower, President of the Dundee Institute of Architecture, read a paper on "The Evolution of Style in Architecture." There were, he stated, many influences at work in the development of the styles, such as climate, materials, habits of the people, political disturbance, and so on; and in modern days they had such influences as new materials, scientific inventions, facilities for travel and transport, and the like. One of the baneful influences of our commercial and city life on architecture was smoke. It was not encouraging, to say the least of it, to see a fine piece of architecture become in a year or two, sometimes almost before it was completed, so soot begrimed that it lost much of its effect. Surely engineers and scientists were not yet prepared to admit that everything had been tried, and that the cure of this great evil was beyond them. The thought had been expressed by many, why was there no new style of architecture invented? And they lamented the inartistic spirit of our time, which seemed to them to fall behind past ages in this respect. These people forgot that no architectural style had ever been invented but had been the slow growth of centuries, and a little reflection would show that it was not to be expected even in an age like ours, unsurpassed for progress in science and invention, that either new materials or inventions would quickly work such a radical change in building design and construction, as to create anything that could be called by the honoured name of a style. The world moved slowly in such matters, and it might even be that, all unknown to ourselves, as it had always been to those who were the busy agents in producing it, a style might be developing under our hands and eyes which, in the estimation of following generations, would be fit to take rank along-

side the great architectural styles of the world. The lecture was illustrated by lantern views of ancient and modern buildings.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Poplar District Board £11,620 for the construction of a dust-destroyer, cart-sheds and stores, workshops, engine-house, &c.; the Wandsworth District Board £10,000 for the purchase of a site and the erection of a dust-destroyer at Tooting.

The Works Department.—The same Committee reported, in reference to their previously stated intention to submit some general observations in connexion with the statements of works executed by the Works Department, that they proposed to defer presenting their financial observations until after the Christmas recess, when the reports of the Committee, postponed from last week, will be considered.

The Works Department.—Mr. E. White resumed the discussion on a report of the Housing Committee asking authority to refer the revised estimate of 14,018*l.* for the work of erecting Hogarth-buildings, Millbank, to the manager of the Works Department for consideration and report before inviting tenders.

Mr. White said that the department had never made a success of building works. He moved an amendment to refer the report back to the Committee for further consideration and report.

Mr. Corbett seconded, and said if the new Council decided to modify or abolish the department, they would find themselves saddled with building works on which there would be more losses.

Mr. Ward denied that the Council had invariably lost on buildings erected by the Works Department. It often happened that when the plans and estimates had been rejected by the department that they were revised so considerably that the tenders subsequently received from the contractors did not relate to the same buildings. As these plans had now been altered, he thought the department should have another chance.

Sir John Lubbock, M.P., thought the department had had too many chances. It had been shown by Mr. White that the department had made a loss on certain works of something like 30,000*l.* The experiment had been very costly, and he was opposed to giving more work to the department.

Mr. Hoare said a report of the Finance Committee shortly to be submitted would show that since the beginning of this year every job undertaken by the department had been executed within the estimate. This satisfactory result was largely due to Mr. Ward for the way in which he had organised the department. The initial difficulties were very great, but these had been got over now, and they were reaping the benefit of Mr. Ward's organisation.

On a division the amendment was rejected by 53 to 49, and the Committee's recommendation was agreed to.

Leicester-square Improvement.—On the recommendation of the Improvements Committee, it was agreed that the Council should contribute 1,000*l.* towards the cost of widening the footway and carriageway east and west of Leicester-place, Leicester-square.

Churchyard Bottom Wood.—The Parks Committee recommended the Council to contribute towards the cost of acquiring Churchyard Bottom Wood, Highgate, 2,500*l.*, the land to be maintained by the Hornsey District Council. The price asked by the Ecclesiastical Commissioners for the wood was 25,000*l.*, and a further sum of 5,000*l.* would have to be expended in fencing and other work. The Hornsey District Council would contribute 2,000*l.*, the Islington Vestry 2,000*l.*, the St. Pancras Vestry 1,000*l.*, the Middlessex District Council (contingent on another 5,000*l.* being raised) 5,000*l.*, and private donations to the extent of 5,577 had been received.

Mr. Shaw-Lefevre moved an amendment to refer the report back with instructions to consider whether the proposed contribution should not be increased. He said if this important open space was to be secured to the people of London it was absolutely necessary that the

Council should contribute a larger sum than was recommended by the Committee.

The amendment was seconded by Dr. Napier, and adopted.

Proposed Theatre at Kennington.—The report of the Theatres and Music Halls Committee contained the following paragraph, the recommendation being agreed to:—

"We have considered ten drawings, dated December 6, 1897, submitted on behalf of Mr. Robert Arthur, showing a theatre it is proposed to erect at the corner of South-place and the Kennington Park-road. The site is in accordance with the Council's regulations. The building will accommodate 1,204 persons. We recommend:—

(a) That the ten drawings, dated December 6, 1897, in respect of a proposed theatre at the corner of South-place and Kennington-park-road, be approved on condition that the transformer room in the basement be properly and adequately ventilated, and that provision for a second transformer or transformers be made for the auditorium circuits entirely separated from those supplying the stage; and that the works be commenced within six months and be completed in accordance with the Council's regulations and the provisions of the London Building Act, 1894.

(b) That upon our reporting the satisfactory completion of the building a certificate under the Metropolis Management and Building Acts Amendment Act, 1878, be sealed and issued to the owner of the proposed theatre at the corner of South-place and Kennington-park-road."

Proposed Improvements in Cripplegate.—The

Improvements Committee reported as follows:—

"We have had before us a letter from the City Commissioners of Sewers, stating that they have had under consideration the question of proposed street improvements in Cripplegate, where so many buildings were recently destroyed by fire, and asking us to receive a deputation upon the subject. We have had a conference with a deputation from the Finance and Improvement Committee of the Commissioners, who have laid before us plans showing proposals for the formation of a new east and west thoroughfare directly connecting London-wall with Smithfield, and passing through the district affected by the fire, and also of a new street passing from Red Cross-street to Falcon-street by way of Hamsell-street. It will be apparent, however, that these proposals do not provide for such a rearrangement of the narrow streets on the area affected by the fire as would prevent the recurrence of a great conflagration, and the proposals therefore in their present form do not commend themselves to us. We have accordingly informed the Commissioners that in our opinion any improvement to be actually undertaken should provide primarily for the lessening of danger by fire in the district in question, and further that we feel disposed to favourably consider any proposal for the formation of a new thoroughfare through the area affected by the fire to facilitate the east and west traffic. We are awaiting a further communication from the Commissioners, but in the meantime we report these particulars to the Council, in the belief that the Council would desire to be put in immediate possession of all the facts."

Complaints as to a District Surveyor.—The Building Act Committee reported:—

"For some time past complaints have been made as to the conduct of one of the district surveyors; and we are of opinion that a special inquiry should be held, at which he should be asked to attend and to be represented by counsel—should he so desire, into his conduct with reference to certain specified cases in which, it is suggested, he has not properly and efficiently carried out the duties of his office. We consider, in the circumstances, that at the inquiry witnesses should be examined and evidence be taken, to enable us to come to a proper conclusion upon the matter and for the adoption of this course, the special authority of the Council is required by Standing Order No. 144. We recommend that, for the purposes of a special inquiry into the conduct of a district surveyor, the Building Act Committee be empowered by the Council, under Standing Order No. 144, to examine witnesses and to take evidence."

The recommendation was agreed to.
The Council, at its rising, adjourned until January 25.

ORGAN CHAMBER, FREE CHURCH, NEWPORT, FIFESHIRE.—A new organ chamber has been added to this building. The plans were prepared by Mr. J. Murray Robertson, architect, Dundee. The mason work has been carried out by Mr. Robert Tait Newport; the joiner work by Mr. George Johnstone, Newport; plumbing by Mr. James Jack, Newport; and the painting and decorating have been executed by Mr. F. M. Boyd, Dundee.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER XIX.—EXAMPLE OF BILLING.

FOLLOWING up the example of "abstracting," in this chapter is given an example of a bill (the finished product of the surveyor) containing the items previously "abstracted." The same remark as to completeness applies to this as to the example of abstracting. Where headings are given without items under same, these are merely to give the relative positions of the items.

The first bill would be that of the "preliminaries and sundries" containing general particulars of the nature of the work, and also all items that apply generally to the works as "notices and fees," "insurances," "protection," and such like, and also in the case of alterations to "works on site" requiring reference to the building.

The amount of each trade is entered into a "summary," and this, when cast up, represents the amount of the tender.

Excavator and Bricklayer.

(Descriptions of Materials, &c.)

Yards.	Feet.			£	s.	d.
83	...	sup.	Remove top soil 6 in. deep, wheel, fill, and cart away...			
19	...	cube	Excavate to surface trenches, throw out, return, fill in, and ram around foundations...			
37	...	"	Do., and wheel and fill and cart away.			
23 1/2	...	"	Concrete (as described)...			
4	...	sup.	Reduced brickwork in mortar...			
141	...	"	Half brick wall in cement...			
7	...	"	Rough cutting...			
150	...	"	Damp-proof course (description)...			
28	...	run	Labour to beam filling...			
23	...	"	Rake out and point in cement to lead flashings...			
18	...	"	Do., to stepped do. ...			
No. 8	...	"	Ends of timbers cut and pinned...			
" 3	...	"	Extra labour, waste, and cement to relieving arches, 1 B x 1 B, and 6 ft. girt...			
" 3	...	"	Window frames bedded and pointed in cement and hair mortar; the sills bedded in white lead...			
18	...	"	Fixing blocks (description)...			
Facings.						
865	...	sup.	Extra over ordinary brickwork for red brick facing (description)...			
13	...	"	Do. for red brick axed segmental arches (description)...			
40	...	run	Fair raking cutting and waste in red brick facing...			
5	...	"	Do. to skewbacks...			
12	...	"	Fair circular cutting and waste in red brick facing...			
39	...	"	9 in. x 4 1/2 in. red brick on edge coping, set and pointed in cement, and double tile creasing in cement under, and cement fillet both sides...			
No. 2	...	"	Returned ends...			
" 1	...	"	Mitre...			
" 1	...	"	Apex mitre...			
" 2	...	"	Mitres of raking, with horizontal...			
" 6	...	"	Ends of window-sills made good to in facings...			
Carried to summary				£		

Mason.

(Descriptions of Materials, &c.)

Feet				£	s.	d.
11	...	run	Yorkshire Stone, to in. x 3 in. tooled, sunk, weathered, throated, and grooved window-sills...			
No. 6	...	"	Short fair tooled ends, including stools for jambs...			
Carried to summary				£		

Tiler.

(Descriptions of Materials, &c.)

Sqres	Feet			£	s.	d.
4	...	sup.	Tiling (description)...			
60	...	run	Extra to tile and half at verge...			
19	...	"	Pointing to verge...			
23	...	"	Extra to hip tiles (description)...			
22	...	"	Extra to valley tiles (description)...			
23	...	"	Ridge tile (description)...			
No. 1	...	"	Fair end...			
" 1	...	"	End cut to face of wall...			
" 1	...	"	Do. to slope of roof...			
" 1	...	"	Returned end at hip...			
Carried to summary				£		

Carpenter.

(Descriptions of Materials, &c.)

Feet				£	s.	d.
10	...	run	Turning piece to 4 1/2 in. segmental soffit...			
13	...	cube	Fir in plates and lintels...			
40	...	"	Fir framed in floors...			
58	...	"	Do. in roofs...			
Deal.						
4	...	sup.	in. x in. sawn battening for ceiling...			
4	...	"	in. rough boarding, edges shot to roofs...			
2	...	"	in. rough sound boarding on in. x in. fillets nailed to joists (joists measured in)...			
20	...	"	1 in. gutter boards and bearers...			
44	...	run	Splayed edge to in. roof boarding...			
90	...	"	Do. cross-grain to do. ...			
46	...	"	Double splayed edge to 2 in. hips and ridge...			
84	...	"	Tilting fillet...			
26	...	"	2 x 2 double herring-bone strutting to 9 in. joists...			
28	...	run	in. x in. wrot splayed (staff-banded, moulded, or chamfered) fascia to eaves...			
No. 2	...	"	Internal mitres...			
" 1	...	"	External do. ...			
" 4	...	"	Returned ends...			
" 1	...	"	Short drip in gutter, cross rebated and rounded...			
Carried to summary				£		

Joiner and Ironmonger.
(Descriptions of Materials, &c.)

Sqrs.	Feet.	Floors.	£ s. d.
2	50	sup. in. flooring (description) ...	
		Skirtings in Deal.	
67	run	9 x 1 moulded skirting and grounds and backings plugged to wall ...	
No. 6		Internal angles ...	
" 2		External angles ...	
		Doors in Deal.	
		Windows in Deal.	
81	sup.	Sashes and frames (description) in No. 3 ...	
10	run	Splayed, splay-rebated, and throated bottom edge to 2 in. sash ...	
No. 6		Extra to moulded horns to 2 in. sashes	
		(Door and) Window Finishings in Deal.	
9	sup.	1 1/4 in. moulded window-board, rebated one edge, and including bearers ...	
No. 6		Notched and returned moulded ends ...	
53	run	Do. in oak ...	
12		Do. in oak ...	
		(Door and) Window Finishings in Deal.	
53	run	3 1/2 in. x 1 in. lining, rebated both edges, tongued at angles, and including backings ...	
57	"	5 in. x 1 in. framed, splayed, grooved, and staff-headed grounds ...	
14	"	2 1/2 in. x 1 1/4 in. bed-mould, rebated and tongued in, including groove ...	
No. 6		Returned, mitred, and moulded ends ...	
57	run	3 in. x 1 1/4 in. architrave moulding, including mitres ...	
		Staircases in Deal.	
		Sundries in Deal.	
		Ironmongery, including Screws.	
No. 3		Sash fastenings (description) ...	
6		Sash lifts (description) ...	
6		Sash handles (description) ...	
12	run	1 1/2 in. x 1/4 in. galvanised iron tongue and bedding in red lead ...	
		Carried to Summary ...	£

Founder and Smith.
(Descriptions of Materials, &c.)

Feet.	£	s.	d.
24	...	run	Cast-iron, including Patterns. in. diameter, plain water pipe, and fixing with to brick facing
No. 2	...	run	Shoes and fixing... .. in. x in. eaves gutter, (description), screwed to fascia
28	...	run	Extra to stopped ends Do. to external angle Do. to internal angles Do. to outlets
No. 4	...	run	Wrought-iron.
1	...	run	
2	...	run	
2	...	run	
4	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	
	...	run	

Plumber.
(Descriptions of Materials, &c.)

Cwts.	qrs.	lbs.	Externally.	£ s. d.
3	1		Milled lead and labour in gutters and flashings ...	
	2	14	Do. in stepped flashings ...	
	Feet.			
	40		Lead wedging ...	
No. 57	run		No. gauge zinc soakers, 8 in. x 6 in., and fixing ...	
" 2			Gratings over outlets to eaves gutters (description) ...	
			Internally.	
			Carried to Summary ...	£

Plasterer.
(Descriptions of Materials, &c.)

Yards.	Feet.	£ s. d.
64	sup.	Render, float, and set walls ...
28	"	Lath plaster, float, and set ceilings ...
18	"	Pugging (description), joists measured in
67	run	Plastered moulded cornice, 9 in. girt ...
No. 6		Internal mitres ...
2		External do. ...
20	run	Keele's cement angle and aris ...
		Carried to Summary ...

Glazier and Painter.
(Descriptions of Materials, &c.)

Feet.				£ s. d.
27	...	sup.	21 oz. sheet glass, and glazing in squares not exceeding 2 ft. sup.	...
27	...	"	Do. do. in squares not exceeding 9 ft. do.	...
Yards.				
28	...	"	Twice distemper to approved tints on plaster ceilings	...
22	...	run	Do. on plaster cornice, 9 in. girt	...
			<i>Painting 4 oils—</i>	
24	...	run	On rain pipe	...
28	...	"	" eaves gutter in and out	...
No.	2		" shoes to rain pipe	...
			<i>Knot, prime, stop, and paint in addition 4 oils—</i>	
9	...	sup.	On woodwork generally	...
67	...	run	" skirting	...
28	...	"	" eaves fascia	...
No.	3		Dozens on squares	...
"	1/2		On sash sheets	...
"	6		On sash frames one side	...
No.	10		Pieces paper, p.c. rs. 6d. per piece, and hanging, including preparing walls	...
			Carried to Summary	...

Having taken the student through the routine of quantity taking, it now rests with him to put the principles into practice; and it is only by careful application in the practice of those principles that he can hope to become proficient in his profession. The extension and adaptation of the principles set forth to varying circumstances incidental to different works being entirely a matter of experience.

**APPLICATIONS UNDER THE 1894
LONDON BUILDING ACT.**

At the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent was given are granted on certain conditions* :—

Lines of Frontage.

Marylebone, East.—Bay windows at No. 10, Mortimer-street, upon the rebuilding of those premises (Mr. W. T. Walker, for Messrs. Bratt, Colbran, & Co.)—Consent.

Brixton.—That the application of Mr. J. T. Holmes, for an extension of the period within which the buildings to be erected on the site of Nos. 6A, 6, 8, 18, and 20, Coldharbour-lane, Lambeth, were required to be completed, be granted.

Clapham.—Houses on the south side of Poynder's-road, Clapham Park, on part of the grounds of Bygrove House. Messrs. Lee & Pain (for Sir J. Dickson-Poynder, Bart., M.P.)—Consent.

Dulwich.—One-story additions upon part of the forecourts of the "Walmer Castle" tavern and No. 100, Peckham-road (Mr. J. W. Brooker, for Mr. G. I. Brown, and Mr. J. Adams).—Consent.

Hoxton.—An enclosed iron footbridge over Anning-

street, Shorelitch, to connect Messrs. Clark, Hunt, & Co.'s premises (Mr. W. G. Scott).—Consent.

Kensington, South.—A bay window, with balcony over, in front of a studio on the south side of Yeoman's-row, Brompton, adjoining Miss Lovering's studio (Mr. A. J. Beesley, for Mr. C. E. Bassington).—Consent.

Paddington, South.—A porch and a three-story bay window in front of No. 25, Porchester-terrace, Bayswater (Mr. A. J. Hopkins, for the Surplus Lands Committee of the Metropolitan Railway Company).—Consent.

St. George, Hanover-square.—An iron and glass shelter erected over the public way in front of Hatchett's Restaurant, Piccadilly (Messrs. D. Young & Co., for Messrs. Nunn & Popham).—Consent.

Strand.—Two iron and glass shelters in front of the Tivoli Music Hall, Strand (Mr. W. F. Farthing, for the New Tivoli Company, Limited).—Consent.

Strand.—Two iron signs and lamps erected at the entrance to the New Gallery, No. 121A, Regent-street, St. James's (Mr. E. R. Robson, for the Directors of the Gallery).—Consent.

Wandsworth.—Houses, with shops, on the east side of Balham Hill, between No. 1, Balham High-road and No. 47, Balham Hill (Mr. L. S. Rogers, for Mr. J. Jenkins).—Consent.

St. Pancras, West.—A timber staging erected at Phoenix-wharf, Redhill-street (Messrs. J. Styles & Son).—Consent.

Lewisham.—A wooden summer-house erected in the garden at the side of a house known as St

Magnus, Dacres-road, Forest Hill, abutting upon Mayow-road (Baron Knoop).—Consent.

Greenwich.—That Mr. J. Ellis be informed that the application of Mr. P. Green for consent to the erection of houses with shops on the south-east side of Wellington-road, Old Charlton, near the "Wellington" public-house be not granted.

Islington, West.—Rebuilding of the "Caledonian Arms" public-house, Caledonian-road (Messrs. Treacher & Son for Mr. J. F. Fitch).—Refused.

Kensington, South.—An addition to the porch in front of No. 135, Gloucester-road (Mr. J. A. J. Keynes for Miss Richards).—Refused.

Marylebone, East.—Bay windows, porches, and three tiers of balconies to a proposed building on the site of Nos. 1, 3, and 5, Harley-street, Cavendish-square, at the corner of Wigmore-street (Mr. J. Worley).—Refused.

St. George, Hanover-square.—That Mr. R. Griggs be informed that his application on behalf of the Berkeley Hotel Company, Limited, for consent to the erection of two iron and glass shelters at the entrances to the Berkeley Hotel from Piccadilly and Berkeley-street respectively be refused.

St. George, Hanover-square.—Erection of an enclosed porch in front of No. 149, Lupus-street, Fimlico (Hubbard Syndicate, Limited).—Refused.

St. George, Hanover-square.—A wood, iron, and zinc verandah erected at the first floor level in front of No. 12, Charles-street, Berkeley-square (Mr. J. R. Cuthbertson for Mr. P. Gordon).—Refused.

St. George, Hanover-square.—The enclosure of the front of the portico at No. 11, Charles-street.

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Berkeley-square (Messrs. Ernest George & Yeates for Hon. Mrs. Greville).—Refused.

St. George, Hanover-square.—A glazed enclosure to the spandrel of the roof of a glass and iron portico at the entrance to No. 32, Curzon-street, Mayfair, and the fixing of an awning-box below the inclosure (Mr. M. P. Manning for Mr. Van Wart).—Refused.

Width of Way.

Islington, North.—An addition to the "Cock" public-house, Holloway-road (Messrs. Hicklin, Washington, & Passmore, for Messrs. Courage & Co.).—Consent.

Kensington, South.—The erection of a building on the east side of Adam-and-Eve-mews, High-street (Mr. A. F. Faulkner for Mr. J. A. Phillips).—Consent.

Levensham.—The erection of a parcel-room on the west side of Havelock-street, Forest Hill, at less than the prescribed distance from the centre of the road (Mr. P. H. Adams for the executors of the late Mr. F. Adams).—Consent.

Peckham.—The retention of the present forecourt boundary of Nos. 74A, 76A, and 78A, Scylla-road, Nunhead, at less than the prescribed distance from the centre of the road (Mr. H. J. Stevens for Mr. H. Baker).—Consent.

Wandsworth.—The widening of Elizabeth-place on its western side, between Oakhill-road and the embankment of the London and South Western Railway (Mr. C. W. Davies, for Mr. S. H. Brunson).—Consent.

Islington, North.—The erection of a building on the south side of Bowman's-place, Holloway, at less than the prescribed distance from the centre of the road (Mr. J. J. Connelly).—Refused.

Walsworth.—The erection of an addition at the rear of No. 41, Walsworth-road, Newington, to abut upon Ostend-place (Messrs. Canning & Mullins for Mr. W. H. Hurlock).—Refused.

Open Spaces about Buildings.

Hammersmith.—A modification of the provisions of section 41 of the London Building Act, 1894, with regard to open spaces about buildings, so far as relates to the proposed erection of a block of four-story residential flats on the west side of Richmond-road, at the corner of Addison-gardens, with an irregular space at the rear (Messrs. Booth & Fox for the Kensington Freehold Land Trust, Limited).—Consent.

Islington, North.—That the Council do, in the exercise of its powers under Section 41 of the London Act, 1894, permit the re-building of the "Boston Arms" public-house, Junction-road, at the corner of Dartmouth Park-road, with an open space at the rear (Mr. G. J. Thorpe for Mr. W. Lewis).—Consent.

Westminster.—That sanction be not given to a modification of so much of the provisions of Part V. of the London Building Act, 1894, with regard to the extension above the diagonal line as directed to be drawn by Section 41 of that Act, so far as relates to a portion of a proposed building, with an irregular open space at the rear, to be erected on the sites of Nos. 5 and 7, James-street, and upon a portion of the site of No. 56, York-street (Mr. C. J. C. Pawley for Mr. J. J. Hall).—Consent.

Line of Fronts and Width of Way.

Hackney, South.—Eleven houses (five with bay windows) and a house with projecting shop-front, on the south side of Lea Bridge-road, eastward of Chatsworth-road (Mr. R. A. Flowers for Mr. F. Russell).—Consent.

Formation of Streets.

Hampstead.—That an order be sealed and issued to Messrs. Boehmer & Gibbs and to Mr. C. W. Stephens, sanctioning the formation or laying out of new streets, 40 ft. wide, for carriage traffic, on the Treherne and Canterbury House and West End Hall Estates, West End-lane. That the name Fawley-road be approved for the new street to be jointly formed by the parties; and that the names Crediton-road, Lymington-road, and Honeybourne-road be approved for the other new streets on the respective estates.

Deptford.—That an order be sealed and issued to Messrs. G. Lansdown & Son, sanctioning the formation or laying out of two new streets for carriage traffic on the Sanford Estate to lead out of Woodpecker-road and Knolly-street. That the names Sanford-street (in continuation) and Whitcheer-street be approved for the new streets. That as the land upon which the streets are proposed to be formed appears to be below Trinity high-water mark, the attention of the applicants be called to the provisions of Part XI. of the London Building Act, 1894, with regard to the erection of dwelling-houses upon low-lying land.

Fulham.—That an order be sealed and issued to Messrs. Boyton, Pegram, & Buckmaster, sanctioning the formation or laying out of new streets for carriage traffic on the Elliott's Trust Estate, Munster-road, and the widening of a portion of that road. That the names Bronsart-road, Allestree-road, Mablethorpe-road, and Rowallan-road be approved for the new streets.

Deptford.—That an order be sealed and issued to Messrs. Brown, Norman, & Brown, refusing to sanction the formation or laying out for carriage traffic of new streets, on the Sanford Estate, to lead out of Woodpecker-street, Trundley's-road, Coldblow-lane, Hornshay-street, and Glasgow-street, and the widening of part of Coldblow-lane.

Artisans' Dwellings.

Hammersmith.—That the Council do, in the exercise of its powers under Section 42 of the London Building Act, 1894, approve and sanction the plans, delivered by Mr. H. M. Newlyn, for the trustees of Christ Church, Westminster Bridge-road, for the erection of six blocks of four-story dwellings, on land at the rear of Nos. 217 and 219, King-street West, with entrances from that street and Hampshire Hog-lane.

Height of Buildings.

Chelsea.—An addition on the south side of the Royal Chelsea Brewery, to abut upon Lot's-road (Messrs. Shoobridge & Rising, for the Royal Chelsea Brewery Company, Limited).—Refused.

The recommendations marked * are contrary to the views of the Local Authorities.

SANITARY INSPECTORS' ASSOCIATION.

AT the December meeting of this Association, held at the Carpenters' Hall on the 18th inst., a paper was read by Mr. Bell, sanitary inspector, Portsmouth, on "Infantile Diarrhoea." Defective drain construction, particularly where the disease visited houses of the better class, appeared to be responsible for the excessive mortality. Mr. Bell mentioned a number of cases in which he found the pantry where food was kept under an upstairs water-closet, with the trap projecting through the ceiling, or the soil-pipe running down in one corner. An escape of gas from any defective spot was very readily absorbed by food, particularly milk. The sanitary inspector had control over drains when a house had been built and occupied, but he thought it only right that he should have control over them during the course of construction.

A discussion followed, in which the Chairman (Mr. G. T. Dee), Messrs. West, Young, Duck, MacMahon (Torquay), and Shawcross (Lancashire and Cheshire Association), took part. The usual vote of thanks was accorded, to which Mr. Bell briefly responded.

COMPETITIONS.

THE GEORGE WOODFIN CHARITIES, SHEFFIELD.—The reports of the assessor, Mr. E. M. Gibbs, in the competition for designs for the proposed George Woodfin Almshouses at Brocco Bank, and George Woodfin Convalescent Home at Whiteley Wood, have been communicated. The following is the result:—For the almshouses:—First, Mr. W. R. Bryden, architect, Buxton; second, Messrs. Hemmell & Paterson, architects, Sheffield; third, Messrs. W. H. Lancashire & Son, architects, Sheffield; fourth, Messrs. George Sampson & Son, architects, Sheffield; and fifth, Mr. Frank Wilson, architect, Sheffield. For the convalescent home:—First, Messrs. Hemmell & Paterson; second, Mr. H. W. Lockwood, architect, Sheffield; third, Messrs. Holmes & Watson, architects, Sheffield; fourth, Mr. W. R. Bryden; and fifth, Messrs. George Sampson & Son. In his reports dated November 10, the assessor states that none of the competitors conformed with all the conditions, and he consequently excluded all the designs in both competitions; but he recommended the trustees to divide the premiums into equal payments to the competitors. The drawings were subsequently further examined, the original "conditions" being taken as "suggestions," and in reports dated December 18 the assessor decided as stated above.

WORKHOUSE, KIRKHAM, FYLDE.—A meeting of the Fylde Board of Guardians was held at the Workhouse, Kirkham, on the 15th inst., when the Clerk read correspondence which had passed between himself and the architect to whom he was instructed at the last Board meeting to write, offering him 100 guineas for his services in connexion with the plans for the proposed new Workhouse. The architect declined to give his services for less than 110 guineas, but suggested that his son, who had had considerable experience, would be willing to accept the office at the Board's price.—Mr. P. Blundell moved that Mr. Saxon Snell, jun., be appointed.—Mr. Finch moved that the Clerk be instructed to write to the Local Government Board, asking for other names, preference to be given to architects in the county.—Councillor Brodie thought they could get as good architects in Liverpool or Manchester as in London.—The amendment, instructing the Clerk to write asking for further names, was carried by eleven votes to nine. A further discussion took place

as to whether it would not be possible to get the work done at a less price than was decided at the previous meeting, and the Clerk was instructed to ask, when writing, for lowest prices. It seems a pity that the appointment of an assessor should turn upon a question of money rather than ability.

TRADE CATALOGUES, &c.

WE have received the two volumes of Messrs. Young & Marten's sumptuous new catalogue. It commences with chimney-pieces and tile grates of various types, including a new "movable canopy" grate of white we quote the following description:—

"The action of the patent canopy is as follows:—When the canopy is drawn forward it opens the aperture at the back and allows the smoke to pass up the chimney. This space can be regulated by the distance the canopy is drawn forward. A movable valve or damper is attached to the bottom of the canopy at the back, which should be opened when the fire is in action, and closed when the grate is not in use. Should the fire want drawing up quicker the draught be sluggish, causing the smoke to enter the room, then the canopy should be lowered vertically on the two small projections at the bottom of the fronts: it will work horizontally at its lower elevation the same as on the higher, so that the force of the up current can be regulated to overcome the down draught of the chimney, thus drawing up the smoke which would otherwise find its way into the apartment."

As a matter of appearance, the simpler design for grates are, to an architect, much better than the more ornate one, but that is probably not the taste of the general public. There are a number of stock designs for mantels and overmantels, and a large variety of ranges, grills, and heating stoves; gas fittings of every description, electric fittings, lightning conductors, pneumatic bell &c. The second volume includes lead good sanitary fittings, water-closets (one of which the "Household Closet," we observe is specially designed to enable the unsatisfactory official two-gallon flush to be made as efficient as possible in cleansing the basin), lavatory basins, baths, urinals, smoke-cured appliances, &c. There is a section devoted to wrought iron casements, the make and working of which is illustrated by good-sized sections. Among the other things which are included in this immense catalogue are nails, screws, door furniture, builders' plant and materials, grindstones and drilling machines, smiths' tools, safes, wire-work, constructional iron-work gallery railings and fencing, stable fittings, ornamental wrought iron-work, boilers for heating apparatus, gullies, drain-pipes, bricks, tiles, and joiners' work. The weak part of the catalogue is the decorative work—tiles, stained glass, &c. Work of this kind can hardly be satisfactorily carried out as a mere branch of a practical manufacture. In other respects the catalogue is all that can be desired, and a most useful one to architects and builders.—Messrs. College & Bridgen send us an excellent illustrated catalogue of door and lock fittings of all kinds, including also sanitary dust-bins, tanks, waste preventer cisterns, kitcheners, iron and brass pumps, wall ties, gutter clips, &c.—Messrs. Studd & Co. (Kettering) send a description and illustration of their patent electric low water alarm for boilers, of which we quote the description:—

"A mercury tube, similar to a thermometer tube, is encased in a metal fitting, which is attached to the boiler front by a pipe and elbow inserted at low water level, or through the crown of shell (as in a marine type); two platinum wire ends are inserted in the sides of the mercury tube above the normal position of the mercury, one of which is attached to the fitting, thus forming the earth part of circuit, and the other to the insulated binding screw at the top; there is, therefore, only one wire to the bell and battery.

So long as the water in the boiler is above the low water level, it is forced up into the pipe and body of fitting; the temperature, by the cooling action of the atmosphere, quickly falls below boiling point, thereby keeping the mercury below the wire ends; but should the water fall below the low water line, the water (by its gravity) falls back again out of the pipe and fitting, which is then instantaneously filled with steam, the higher temperature of which causes the mercury to rise above the two wire ends, thus making a mercurial connexion between them, completing the electric circuit and causing the alarm bell to ring; upon the water being replaced, the mercury falls again to its normal position, thus breaking the circuit, and the bell stops ringing."

—Messrs. F. McNeill & Co. (London and Glasgow) send us an illustrated descriptive

dressings of buff brick and terra-cotta, and roofed with blue slate, with red ridge tiles. The slaughter-halls and cooling-rooms have a dado 4 ft. to 5 ft. high of glazed white brick, and are fitted with hoisting machinery, and the adjacent roadways are laid in Val de Travers asphalt, on a bed of cement concrete 6 in. thick. The lairs for sheep and calves have a dado of salt glazed bricks, and are fitted with wrought iron railings and gates. The lairs for cattle have a salt glazed brick dado, and have bars secured to the wall. The drains are all connected to the main sewer, and the site comprises an area of 21.11 p. The buildings comprise slaughter-hall, cooling-room, and lairs for cattle, sheep, and calves in one block. There are also slaughter-hall, cooling-room, boiler-house, killing-pen, and lairs for pigs, together with caretaker's office; also store-room, rooms on the ground floor, and four bedrooms on the first floor. The floors of all the buildings are of granite paving laid on concrete. Rails are provided through the building with travelling pulleys. The cost of the buildings will be about 6,500l. The contractor for the buildings is Mr. George Rutter, Barry, and the contractors for the ironwork are Messrs. W. A. Baker & Co., Newport, Mon., while the clerk of the works is Mr. William Griffiths.

BUILDING IN ABERDEEN 1897.—The house-building trade has been very active, a feature of the year being the number of large warehouses in course of construction in the centre of the city to replace old buildings, while new dwelling-houses have been erected in all directions in the suburbs. The plans of new buildings approved of by the Town Council from January to December, 1897, inclusive, may be classified as follows:—Dwelling-houses (nearly all tenement houses), 38; blocks of dwelling-houses and shops, 2; cottages, 10; shops, 10; alterations and additions to various premises, 80; workshops, factories, &c., 25; miscellaneous, 35; public buildings, 14. The public buildings include south wing, Marischal College; new baths at sea beach, central fire-engine station, Union clubhouse and hall, School Board and Parish Council offices, theatre of varieties, two schools, two mission halls, and new blocks at two hospitals. There has been no serious labour dispute during 1897, except the slaters' strike in the beginning of the year. The prospects of the building trade for 1898 are good. In particular, the Government is to make a start in May with the new post-office. Contracts for the extension of the joint passenger station will probably be entered into about the same time, and the Waterloo goods station at Aberdeen harbour is also to be greatly enlarged. The reconstruction of Aberdeen Lunatic Asylum will likewise, it is expected, be commenced next year, and it has been agreed to build a new poorhouse to take the place of the two existing institutions.

VILLAGE HALL, COWFOLD, SUSSEX.—On the 17th inst., the Village Hall and Club at Cowfold was opened. The hall is the gift of Mr. F. D. Godman. It contains a public hall (60 ft. by 30 ft.), green-room, reading-room, and kitchen, scullery, and caretaker's room. The style is Domestic Gothic, the external timber work being in oak. Messrs. Fowler & Sons, of Cowfold, were the builders, and the work was carried out from the designs and under the superintendence of Mr. Frederick Wheeler, of London and Horsham, at a cost of 2,700l.

A YEAR'S BUILDING IN BLACKPOOL.—At a meeting of the Building Plans Committee, held at the New Town Hall on the 2nd inst., Mr. Wolstenholme, the Borough Surveyor, presented his annual report for the year ending October, 1897. In the course of his remarks he said the rapid increase of new buildings in the borough is still maintained, and the number of dwelling-houses erected and certified for habitation during the last twelve months is greatly in excess of any previous year. 984 houses have been erected and certified for habitation, being an increase of 240 over the previous year, and at the rate of 269 houses per week day for the whole year, or 315 houses per week day. The approved plans for last year consisted of the following buildings: Dwelling-houses, 1,591; shops, 216; additions and alterations to houses, 141; stable and coach houses, 159; warehouses, 7; offices and store rooms, 38; workshops and laundries, 28; club premises, 2; churches and chapels, 2; schools, 2; additions to schools, 2; theatre, circus, &c., 1; greenhouses, 6; verandahs, 24; estate plans, 31. The 31 estate plans represent nine miles of new streets, of which 6½ miles were front streets and 2½ back streets; in connexion with these streets, 3½ miles of 15 in., 12 in., and 9 in. pipe sewers were laid. Over 10,000 yards of 6 in. and 4 in. drains have been laid to new buildings during the last twelve months. At the present time 690 dwelling-houses are in various stages of erection. These do not include any stables, coach-houses, workshops, &c., or any other addition or alteration. Since February last upwards of 550 drains in connexion with new buildings have been tested by smoke tests, before being covered over, and with very satisfactory results to the builder. The Committee is urged to consider the advisability of adopting the by-laws relating to strength of timber used in new buildings.—In addition to the report the Committee had to consider 86 plans, 48 of which they approved, while they disapproved of 38.

BUILDING IN DUNDEE.—The building trade in Dundee, which for the past few years has been attended with steady briskness, has enjoyed during the past twelve months another period of prosperity. Opening the year with abundance of work on hand, contractors have been fully employed, with the result that many large blocks of property have been added to the assessable rental of the city. The ease for tenement building seems to be year by year less pronounced. Speculators appear to be at last convinced that the reckless construction of tenement after tenement, without due regard to the public demand, is not a paying policy; but it must also be pointed out that an even more effective check upon the building fever during the past year has been the high rates of wages prevailing in the trade, which have added considerably to the expenses of erecting properties of any kind. The year has been free of trade trouble, and wages have remained at the high standard at which they stood when the year began. The buildings of a public or semi-public character in course of construction this year have been both numerous and important. Mention must first be made of the new Post Office in Meadowside. During the year the mason, carpenter, and slater work has all been completed, and the plasterers are now busy in the interior. The block erected by the Prudential Assurance Company at the east end of Albert-square has been finished and occupied. A beginning was made early in the year to the new offices of the Pearl Assurance Company, adjacent to the Royal Exchange Buildings in Meadowside. The mason work is now well forward. Immediately opposite, the Scottish Provident Institution have acquired the site adjoining the Union Bank, demolished Meadow House—one of the oldest business blocks in the town—and begun the erection of offices. Another building begun during the year is a structure for the Royal Bank of Scotland in High-street and Castle-street. This necessitated the demolition of a very old and characteristic range of buildings extending from Castle-street to Tindal's Wynd. The Nurses' Home was opened on November 29, and a beginning has just been made in the construction of the Caird Hospital for Women. The foundation-stone of the Convalescent Home and House of Mercy, attached to the Roman Catholic Convent in Lawside-road, was laid on April 21, and the building itself is expected to be finished in the beginning of the year; while additions have also been made to the Convent and to Wellburn House, Loches, another Roman Catholic institution. A gospel hall for the use of mill girls was erected in Long Wynd for the Young Women's Christian Association. The most important ecclesiastical building of the year is the large church and presbytery for the Roman Catholic congregation at the junction of Maitland-street and Arturstone-terrace. Loches-road U.P. Church was completed and opened in September. The hall and vestry in connexion with the parish church have also been finished. The work of covering in the Cattle Market is expected to be concluded before the end of the year. The cost of the improvement will be about 5,000l. The only other work of importance carried out by the Town Council during the year has been the construction of public wash-houses in Guthrie-street. A feature of the year's building has been the large number of warehouses that have been constructed for the storage of jute.—*Dundee Advertiser.*

FOREIGN.

FRANCE.—The Orleans Railway Company has taken possession of the Cour de Comptes site, and also of that of the cavalry barracks on the Quai d'Orsay, where the new terminus station is to be built.—The administration of the Department of the Seine intends to open a competition for landscape-paintings to decorate the Salle des Fêtes of the new Mairie at Vincennes, of which M. Calinaud is the architect.—A statue to the eminent doctor Charcot is shortly to be erected in front of the hospital of La Salpêtrière.—The small church at Bougival, the choir of which dates from the twelfth century, has just been restored. It is now to be adorned with a new high altar and throne, to be executed by M. Saint-Marceau.—A subscription committee has been formed to raise a monument to Troyon, the painter, in the part of St. Cloud adjoining the small town of Sevres.—Mme. Marjolín, a daughter of Ary Scheffer, has presented to the museum at Rouen a large number of drawings and water-colours by various masters—Delacroix, Pils, Chas. Jacques, Theodore Rousseau, Troyon, &c., as well as a series of drawings by Johannot for the illustrations of "The Vicar of Wakefield." The work will be arranged in a special room to be called the Marjolín-Scheffer room.—The well-known bridge at Bordeaux is becoming insufficient for the traffic, and the municipality is occupied with a scheme for making a second road over the Garonne, either by means of a moving or ferried bridge, a swing bridge, or possibly a tunnel.—It is stated that a financial company has been formed with the view of connecting Lyons and Marseilles by a large canal at an estimated cost of 300 million francs. One object of the scheme is to attract, for the commercial benefit to Lyons, the traffic that would otherwise go by the Simplon.—The enlargement of the port of Rochelle is shortly to be undertaken, by means of the con-

struction of a new harbour at a cost of about 2,500,000 francs.—M. Sartory has been appointed architect to the Government of Algeria, in place of M. Rattier, who has resigned.

MISCELLANEOUS.

CHURCH BUILDING SOCIETY.—The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its usual monthly meeting on Thursday last week, at the Society's House, Dean's-yard, Westminster, the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Lasey, St. Michael and All Angels, in the parish of North Stoneham, near Southampton, 40l.; Bakerssea, St. Bartholomew, Surrey, 300l.; and Willesden, St. Matthew, Middlesex, 250l.; and towards enlarging or otherwise improving the accommodation of the churches at Aberystwyth, Holy Trinity, roof; Orsehill, St. Barnabas, near New Swindon, Wilts, 60l.; North Searle, All Saints, near Beshorpe, Lincs, 25l.; and Hale Magna, St. John the Baptist, near Heckington, Lincolnshire, 50l. in lieu of a former grant of 35l. Grants were also made from the Mission Building Fund towards building Mission Churches at Carlisle, St. Stephen, 20l.; Coventry, St. Saviour, 25l.; and Woolwich, St. John, 55l. in lieu of a former grant of 40l. The following grants were also paid for works completed:—Enfield, Mark, Middlesex, 80l.; East Tuddenham, All Saints, near Norwich, 5l.; Willesden, St. Andrew, Middlesex, 135l.; Kirtton in Holland, St. Peter, 10l.; St. Paul, near Boston, Lincolnshire, 2l.; Orford, St. Bartholomew, near Wickham Mark, Suffolk, 60l., balance of a grant of 100l.; Hamnash, in the parish of Kimbolton, near Leamster, 10l.; Ivyhouse, in the parish of Broadwood-Widger, Devon, 10l.; Dwygelych, David's, in the parish of Penmaenmawr, 50l.; and Leytonstone, St. Margaret, Essex, 20l. In addition to this the sum of 611l. was paid towards the repairs of eleven churches. The Society likewise accepted the trust of a sum of money as a repair fund for the Church of St. Mary the Virgin, Burham, near Rochester. The grants voted at this meeting have exhausted the Mission Buildings Fund, and the Committee appeal for contributions both to the general fund and the Mission Buildings Fund to enable them to continue the work which the Society has carried on during the past eighty years. The following resolution was passed unanimously:—"That the Committee of the Incorporated Church Building Society desire to place on record their sense of sincere regret at the death of Mr. J. L. Pearson, R.A., who for thirty-nine years was a member of the Committee of Honorary Consulting Architects. Until the last few years, when his advanced age prevented it, he was a regular attendant at the meetings of that Committee, and bestowed great care and attention on the examination of drawings submitted to the Society. The Committee desire to express their sympathy with Mr. Frank L. Pearson in the loss he has sustained, and to assure him of the regard which they had for his father and of the high value they placed on his work for the Society."

ROYAL INSTITUTION.—The afternoon lecture arrangements before Easter include six lectures by Professor Oliver Lodge on "The Principles of the Electric Telegraph," (adapted to a juvenile audience), commencing on 28; three lectures by Dr. Jean Pei, Richter on "Some Italian Pictures at the National Gallery," commencing February 10; five lectures by Professor Fleming on "Recent Researches in Magnetism and Diamagnetism" commencing March 3; and two lectures by Mr. Lionel Cust on "Portraits as Historical Documents" and "Portraits as Monuments," on March 26 and April 2. Among the Friday evening lectures announced are "New Studies in Cathode and Röntgen Radiations" by Mr. Campbell Swinton (February 4); "The Metals used by the Great Nations of Antiquity," by Dr. J. H. Gladstone (February 11); "The Scientific Principles of Modern Colour Photography," by Captain Abney (February 25); Recent Results of Physico-Chemical Inquiry," by Professor T. E. Thorpe (March 4); "The Bringing of Water to Birmingham from the Welsh Mountains," by Mr. James Mansergh (March 18); and "Canterbury Cathedral," by the Dean of Canterbury (March 25).

OPEN SPACES AT HAM, SURREY.—The Board of Agriculture have drawn up two schemes, under the Metropolitan Commons Acts, 1866-78, in respect of Ham Common and Ham Common Fields. They provide in each case for the appointment of a body of conservators, who are to maintain the ground free from encroachment, make by-laws for the preservation of order and prevention of nuisances (including the taking of birds, birds' nests, and eggs), to execute drainage, with other necessary works, as well as to set apart portions for games, and lay out cricket-grounds.

SALES OF PROPERTY.—Messrs. C. C. & T. Moore held their first sale at the May on Thursday last week, when they offered part of the estate of the late Mr. George Burnell. A freehold ground rent of 117l. 10s. realised 3,350l., and four shops in "The Lane" (i.e., Middlesex-street) sold for 7,600l. A block of property in Old Montague-street, the lease of which had only thirteen years to run, fetched

4,550l. Our property increased the total of the day's sale 128,000l.

CRYSTAL PALACE SCHOOL OF ENGINEERING.—The certificates awarded to the students of the Crystal Palace School of Practical Engineering at the close of the winter term were distributed on the 19th inst. by Mr. John Aird, M.P. In the course of his open address, Mr. Aird remarked that on leaving a institution the young engineer often experienced a good deal of anxiety with regard to his future. It was a difficult matter to obtain immediate employment as an engineer, and parents were frequently unable to help their sons by paying a premium on, however, it was a bad thing for young men to remain idle, he would suggest that they should follow the example of Sir J. Wolfe Barry, and put a certain amount of time in a joiner's shop. (They might go to some large contractor and obtain a situation as timekeeper, which would enable them to support themselves while gaining valuable experience. Perhaps they might think this advice somewhat rough, but he was not asking them to do what he had not done himself, for he was a timekeeper in his father's works for four years, and in the last three of those years he was engaged on the construction of the Crystal Palace. After the certificates had been presented a vote of thanks was passed to the canners, who were then repaid. Mr. W. Wilson, the Principal of the school, said that the Crystal Palace School had now been in existence for a quarter of a century, and during that time it had trained men who were employed in engineering works in all parts of the world. Mr. Rait, Chairman of the Crystal Palace Company, proposed a vote of thanks to Mr. Aird, and Mr. Aird, in his reply, spoke of the great good to British trade which resulted from the Exhibition of 1851, and said that nine years ago, when speaking at that School, he suggested that a similar exhibition should be organised. It was thought then that the time was not opportune, but he was ventured to repeat the proposal, and he was sure that the time was now ripe for the forthcoming Paris Exhibition would be appropriate, as being the 50th anniversary of the Exhibition of 1851.

KEIGHLEY BUILDING TRADES AND STONE EXCHANGE.—The Mayor of Keighley (Mr. R. N. Smith) opened the new premises of the Keighley Building Trades and Stone Exchange, Limited, on the 15th inst. The ceremony was preceded by a dinner at the Devonshire Hotel, and afterwards the company adjourned to the headquarters. Mr. W. Vitty presided, and in the course of a speech he showed how necessary the Exchange was to the trade. He mentioned that up to the 14th of the present month the Corporation had passed plans of fewer than 304 houses during the present year. The Mayor declared the premises open, and discussed the relations of capital and labour.

SCARBOROUGH MASTER BUILDERS' DINNER.—The members of the Scarborough Master Builders' Association dined together at the Albemarle Hotel yesterday. The chair was occupied by the President, Councillor Bland. After the loyal toasts, that of the Builders' Association was proposed by Mr. Sinclair, and responded to by the Chairman, the speakers expressing their regret at the continued refusal of the operative bricklayers to come to terms with the employers after the concessions made to them during the past year. The Chairman said that the building trade had settled their disputes without resorting to the extreme method of going out on strike. The masters had by every possible means endeavoured to adjust the differences between the men in a conciliatory spirit. No aggressive measure had, during the seven years that the Association had been formed, been resorted to by employers. The "Town and Trade of Scarborough" was proposed by Mr. Peckett, and responded to by Mr. Abraham Moore, who dwelt at some length on the various improvements which had been carried out, and the growth of the town, which had been largely assisted in its development by the builders present.

WOOD PAVING AT CARDIFF.—During the proceedings of the Cardiff County Council on the 13th inst., Mr. Harpur (the Borough Engineer), in reply to a question, estimated the cost of paving with Australian hard-wood blocks from kerb to kerb, the streets to be traversed by the proposed tramways, at 260,000l. Alderman Carey said that they were guided in their recommendation by the results of the wood paving already carried out. He hoped the Council would endorse the idea of importing the wood itself direct to Cardiff, erect machinery for cutting up the timber into blocks, and so save the expense of middlemen, help to cultivate an import trade in the wood, and make Cardiff a large centre of distribution, affording employment to many people. The report was adopted. On the motion of Dr. Buist, seconded by Councillor Hughes, it was resolved that Bute-terrace be paved with Australian hard wood, the suggestion that Adam-street be similarly paved being referred to the Public Works Committee for further consideration. Councillor Jenkins moved, and Councillor Mildon seconded, that Penarth-road up to the Taff River bridge be also paved with wood, and this was agreed to.

PUBLIC IMPROVEMENTS, BIRMINGHAM.—On the 15th inst. Colonel A. G. Durnford, R.E., held an official inquiry at the Council House, Birmingham, with respect to an application by the Council for sanction to obtain loans amounting in the aggregate

to 60,000l. for public improvements. The works for which the loans are required are principally the widening of Bull-street, the provision of underground conveniences in the Old-square and Bull Ring, the diversion of the River Rea, near Cannon Hill Park, with the widening of Edgbaston-road, and the extension of Lower Edwards-street, and the formation at Edgbaston of a "Rotten-row."

MEMORIAL TABLET TO MR. GEORGE RICHMOND.—A memorial tablet to the late Mr. George Richmond, R.A., which has been placed in the crypt of St. Paul's Cathedral by his sons and daughters, at their invitation, "the Dean and Chapter, was unveiled on the 15th inst. by the Dean of St. Paul's. The bronze medallion, with a life-like portrait in low relief within a wreath supported by two amorini with inverted torches, designed by Sir William Richmond, R.A., is mounted in a tablet of rosso antico marble adapted by Mr. John Richmond from an ancient altar figured in Mr. C. H. Tatham's work on classical ornament—*The Times*.

BARRY MASTER BUILDERS' ASSOCIATION.—The first annual dinner in connection with the Barry Master Builders' Association was held a few days ago at the Barry Hotel, Barry. The chair was occupied by Mr. George Rutter, President of the Association. Mr. Tennison of Cardiff, proposed the Barry Master Builders' Association. The President, in replying, said the Association had been formed, not for aggression, but for protection, and he hoped they would be able to work in harmony with those whom they employed. Speaking as to Trades Unionism generally, Mr. Rutter said he feared the leaders of the men whom they employed were wrong in their direction. He should like to see a better feeling existing between masters and men. Mr. Edward Phillips also responded. Mr. E. B. Smith-Jones proposed the toast of the Barry District Council, to which Mr. W. Thomas, J.P., Chairman of the Council, replied. In the course of his remarks, he expressed a hope that the Barry Company, a private enterprise, might be applied to Parliament next session to secure power to construct a through line of railway to Cardiff. Other toasts followed.

MASTER BUILDERS' DINNER, CARDIFF.—The annual dinner of the Cardiff Master Builders' Association was held at the Royal Hotel on the 16th inst. Mr. J. E. Turner, the President, occupied the chair. Mr. David Davies, in the absence of Alderman David Jones, submitted the toast of "The Architects and Engineers."—Mr. Edwin Seward, in responding, referred to the recent architectural competition for the designs of the new municipal buildings. According to some people, the question of the successful design was already settled, but there were opinions to the contrary, and if the advisers of the Corporation in the matter had not yet spoken, he believed it to be most judicious and discreet to withhold any criticism until after the pronouncement had been made. The architects of Cardiff, he ventured to say, had taken a very creditable part in the competition, and he hoped their work would not be utterly thrown away. Mr. Fawcner (Messrs. Habershon & Fawcner) also replied. Mr. W. Symonds gave "The Cardiff County Council." Councillor F. J. Veall, in reply, said the Council were fully sensible of the responsibility in leaving the selection of the designs for the New Town to the Cardiff County Council. Mr. W. Symonds, of whose fitness for the task they were thoroughly satisfied. He applauded the spirit in which disappointed competitors had received the result. Councillor J. W. Courtis also responded. Mr. E. W. M. Corbett, in submitting "The Cardiff Master Builders' Association," said the speculative business in Cardiff could not be carried out with less than 20,000 houses at a cost of 6,000,000l. or more, while they were annually adding to the town something like 1,500 houses at between 300,000l. and 400,000l. The President (Mr. J. E. Turner), Mr. J. Seymour Chubb, and Mr. George Couzens responded. "The Visitors" was proposed by Mr. John Gibson, and responded to by Mr. A. Krauss, Bristol, and Mr. T. W. David.

THE PURIFICATION OF SEWAGE.—At a meeting of the Society of Arts, which was held on the 15th inst. under the presidency of Sir Douglas Galton, K.C.B., F.R.S., a paper was read by Dr. Samuel Rideal on the "Purification of Sewage by Bacteria." He remarked that the success which had attended the experiments at Exeter on the disposal of sewage by means of the septic tank process, made the present time a fitting one to review the whole problem of sewage disposal. The various methods based upon chemical precipitation and subsequent land treatment of the effluent had given results which had not been satisfactory, and which had often been disastrous from other causes to such an extent that many authorities were refraining from the erection of works on the old lines. The difficulties were usually due either to the injudicious and extravagant use of chemicals or to the unsuitability of the land acquired for the treatment of the effluent. Dr. Rideal then gave a brief outline of the different methods which were in use for dealing with raw sewage. In judging the results obtained by the newer processes of sewage purification, they were brought face to face with the problem as to what might be regarded as a satisfactory effluent. The standard fixed by the Rivers' Pollution Commission was formulated on the ground that no river in the United Kingdom was

long enough to secure the destruction of any sewage. Experiments had shown that this was not the case. Dr. Dupré had succeeded in arresting putrefaction of London sewage by adding thirty-five times its volume of London tap-water. The agencies in this process were almost entirely bacterial. After partial nitrification in a filter, the action of another class of bacteria, which absolutely required a certain amount of organic carbon as food, converted the latter into carbonic acid and harmless gases, the oxygen required being taken from the air or from that dissolved in the water. After a number of careful experiments, he considered that an effluent which was an active state of self-purification, if clear and nearly free from odour, might safely be discharged into a river of moderate volume.

LOWE'S PATENT SANITARY PIPE JOINT.—We have had an opportunity of seeing this invention, for which many advantages are claimed. The patent consists, we presume, in the use of bitumen for the joint, doing away with a socket altogether. The ends of the pipes are spigot shaped and have the edge chamfered off so that the portions which come against each other are about one quarter of an inch thick, leaving a V-shaped notch at the junction of the pipes all round the outside. Both ends are alike. To make a joint, the ends which butt are smeared over with clay in a plastic state, and then also drawn round the V-shaped space. This is done to prevent the composition with which the joint is made getting inside the pipe. A cast iron collar is then fitted over the joint into which the bitumen or composition is poured through a hole in the top. This hot mixture flows round the pipe, filling up the space between the pipe and the collar, and completes the operation. The time required for the joint to cool is about the same as that occupied in making one, so that with two sets of collars or joint moulds a man can keep at work continuously. It is said that three lengths of pipe can be joined on the bench and lowered into position, so that one joint in four need only be made in the field, and that the material of which the joints are made is sufficiently elastic to allow of the pipes bending at the joints without causing any tendency to leak. Models of egg-shaped pipes were shown jointed in this manner, but the difficulty up to the present has been in the junction not to the joints. If men could be got who would do the work carefully, the joint appears capable of being made sound, but the fact of putting wet clay round the pipe before pouring in the hot bitumen seems against sound principles, as the jointing material will not adhere to the clay or any part of the pipe which is wet from the clay having come in contact with it, and if any imperfect joint should be made it can only be discovered after the clay has been washed out of the joint, which may take some time, and after the work has been covered in. It appears to us quite unsuitable for very wet situations.

ARCHITECTS' BENEVOLENT SOCIETY.—A meeting of the Council of the Architects' Benevolent Society was held in the rooms of the Royal Institute of British Architects on Monday, under the presidency of Professor Aitchison, A.R.A. There were seventeen applications for assistance, and out of this number relief was afforded to fourteen, 215l. being distributed. During the meeting the honorary treasurer (Mr. W. Hilton New) reported that many subscriptions due at the beginning of the year had not yet been received.

YORK HOUSE, TWICKENHAM.—The Duc d'Orléans will, we understand, shortly take up his residence at this house. The building has not undergone any material change in the main fabric, but the following alterations have been carried out:—the main drainage and sanitary arrangements, the pipe drains exceeding a mile in length; an installation of electric light for nearly 500 lamps, and motor fans for ventilating purposes (sufficient electricity is stored to also supply an electric launch and motor car. The electric fittings are in Louis XIV., XV., and XVI. styles, specially made with the coat of arms worked thereon); complete intercommunication of telephones, bells, and electric watchman's tell-tale; the oak Elizabethan staircase has been wholly preserved, but slightly added to in the main entrance; wrought iron entrance gates with the Duke's crest; the ceilings have been all renewed in the Louis XV. style, but the original ceiling on the first floor, in the early Elizabethan style, remains intact. The whole of the building is heated by hot water, and modern baths, lavatories, and towel airers are provided. The floors are laid throughout in parquet; the entrance and conservatory floors in black and white marble. The premises are fitted with hygienic in various parts in case of fire, together with the usual appliances, with full constant service from the Grand Junction Water Company. A bridge over the road to meadow and boat house is provided opposite Eel Pie Island. The surveyors of works were Messrs. Rogers, Chapman, & Thomas, and the contractors were Messrs. Leslie & Co., Kensington. The engineers and electricians were Messrs. Rawlings Bros.

CAPITAL AND LABOUR.

DUNDEE MASONS' STRIKE.—The strike of Dundee masons, which began in consequence of an intimation from the masters that the wages were to be reduced by 3d. per hour, terminated on the 15th

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Prerequisites.	Designs to be delivered.
*Police Station and Lock-up	Berwick-upon-Tweed Corp.	101, first, 322, second	Mar. 14

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
Sewers, Chingford Hatch	Chingford U.D.C.	W. St. John, "Ridgway," Chingford	Dec. 28
Quernway Granite and Flints	Dorset T.O.	E. W. Knocker, Town Clerk	do.
Stoneware Pipe Sewers	Quintford R.D.C.	J. Dowling, O.E. Com.	do.
Additions, &c. to baths, Stable-st.	Liverpool Corp.	W. R. Court, Engr. 15, Great George-st., Liverpool	do.
Pipes, Manholes, &c.	Sedgefield (Durham) R.D.C.	W. Snowdon, Surveyor, Council's Office	Dec. 29
Road Works, &c. West Cliff-terrace.	Harrigate Corp.	S. Stead, Boro Surveyor, Municipal Office	do.
Drainage Works, Williamstown	Rhondda U.D.C.	W. J. Jones, Boro Council's Office	Dec. 30
Making-up Seymour-road, &c.	East and West Molesey U.D.C.	Waltoned East Molesey Mr. Chippam, Callery Office, East Hutton	Dec. 31
Footpath, &c. Cosbee Mill road, &c.	Coxhoe Parish Council	I. Foster, Boro, Bedford-road, Kempton	do.
Street Works, Spring-road, &c.	Kempton U.D.C.	Manager, Society's Office, Abbeydorney	Jan. 1 1898
Residence, Abbeydorney, Ireland	Co-op. Dairy Soc. Ltd.	J. A. Mackenzie, Boro Surveyor, Liverpool	do.
Carriage-way of Suspension Bridge, Liverpool .....	.....	W. W. Bradley, O.E. Town Hall	do.
*Public Convenience and Fencing and Levelling Recreation Ground.	Wolverhampton Corp.	Francis Newman & Co., 10, St. Thomas-st., Exeter	Jan. 3
*1,500 Wooden Boxes	Shanklin U.D.C.	Turner, 9, Cornwall-st., District Head Quarters Office, Colchester	Jan. 6
Schools, Bulth Wells	Walmer U.D.C.	F. Smith, Archt. Bulth Wells	do.
Road Works, Fencing, &c.	Governors	H. H. Howard, Surv. Town Office	do.
*Repairing Loading Pier	Littlehampton T.O.	A. Fuller, Boro Surveyor, Clarence-st., Southend	Jan.
*Roofing Underground Conventicles	Southan Iron-Sea Corp.	Courthouse, St. Marylebone	do.
*Cutting Away Slips and Sewage-pipes	do.	do.	do.
*Watering Streets and Roads	St. Marylebone Vestry	do.	do.
*Removal of House Refuse	do.	do.	do.

CONTRACTS—Continued.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by.	Tenders to be delivered.
*Thirteen Shops	Manchester Corp.	City Surveyor, Town Hall	Jan. 10
*Twenty-three Tenement Buildings and Two shops	do.	do.	do.
Additions to Dudding Street Depot	do.	C. J. McCarthy, Archt. Municipal Buildings	do.
Marrowbone-lane	Dublin Corp.	W. D. Gang, O.E. Kilkenny, Archt. & St. Patrick's Church	Jan. 19
Reservoirs, Filters, Pipes, &c.	Kirkcaldy, &c. Water Councils	Willak & Thicknesse, Archts. 14, Castle-st., Liverpool	Jan. 22
Schools, Blaenau Ffestiog, Wales	Festiniog City. Sch. Gwyn	The Clark, 21, Wallhall place, E.W.	Jan. 24
*Temporary Structures for Patients and Staff	Asylum Com. L.C.O. Southampton Corp.	Bright, Archt. & St. Peter's Church, Wale, Nottingham	No date
*Isolation Hospital .....	.....	Davidson & Boodle, Archts. 33, Grainger-st., West, Newcastle	do.
Chapel, Newcastle-on-Tyne .....	.....	Thos. Wind, Archt. 80, Albion-st., Leeds	do.
Boiler House, Basingthorpe, Leeds	W. L. Jackson & Sons, Ltd.	Thos. Trevel, Archt. 62, High-st. Winchester	do.
Headland Hotel, Newquay, Cornwall .....	.....	A. Burton, Surv. & Guide, 10, Roper Hill, Boro, Surv. Municipal	do.
Additions, &c. to School, Southbourne .....	.....	N. Houlton, Archt. 7, Yeadon Crickmay & Sons, Archts. 1, Victoria-st., E.W.	do.
Pipe Sewer	Audenshaw (Lanc.) U.D.C.	Vassil & Sant, Archts. & Architects, 10, Gifford-gate, Cardiff	do.
Grit Sifts (Hastings)	Manchester Corp. ....	.....	do.
Home and Factory, Harrogate	C. Burroughs .....	.....	do.
Hotel, Padstow, Cornwall .....	.....	.....	do.
Church, Schools, &c. Cowbridge, Glamorgan .....	.....	.....	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be made.
*Town Surveyor, Inspector of Nuisance, &c.	E. Cowes U.D.C.	1000 rising to 1200 per ann.	Decr. 1897
*Building Inspector	Bishopsclee T.O.	1200 rising to 1200 per ann.	Decr. 1897
*Second Engineering Assistant	Manchester Corp.	1800 per ann.	Jan. 1898

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & x. Public Appointments, pp. xvi. & xvii.

inst. The masters, at a meeting held in the afternoon, discussed the situation, and after full consideration they resolved to withdraw the notices, and to invite their employees to return to work.

LEGAL.

LEEDS ANCIENT LIGHTS CASE.

THE case of Ray v. Bullock came before Mr. Justice Romer in the Chancery Division on the 17th inst., on a motion on behalf of the plaintiff for an injunction to restrain the defendant, the vicar of Holy Trinity Church, Leeds, from erecting a building so as to interfere with the plaintiff's ancient lights. Mr. Farwell, Q.C., now said that the defendant would agree to treat the motion as the trial of the action, and he admitted he was in the wrong, and undertook to pull down what he had put up, and not to erect any building so as to interfere with the plaintiff's ancient lights, and to pay the costs.

THE CLARE MARKET LIGHT AND AIR CASE.

THE case of Farlow v. McRae was again mentioned to Mr. Justice Romer in the Chancery Division on the 17th inst. Mr. Farwell, Q.C., stated that the action was to restrain the interference with plaintiff's ancient lights in Clare Market, and the action stood over for the surveyors on each side to meet, to agree, if possible, as to what should be done to pull down in a specified manner instead of a mandatory order. He was glad to say the surveyors had met and had agreed as to what should be pulled down. It was shown in the plans what the defendants were to pull down. He (Mr. Farwell) should ask that the defendant should cover with white glazed tiles such part of the wall as was marked, and that the costs of the surveyor should be included in the costs of the action to be borne by the defendants.

His Lordship made the order as suggested; the defendants to have forty-two days in which to pull down.

THE COMBINED DRAINAGE QUESTION.

At the North London Police-court on Tuesday Mr. d'Eyncourt gave his decision in a somewhat singular case under the Public Health Act. Mr. William Jennings, the leaseholder of a house in Bayston-road, Stoke Newington, summoned two adjoining owners for 6l. odd, being their share of the cost of repairing a combined system of drainage. The defendants were Mr. John Astins and Mr. John G. Paddey.

Mr. C. T. Jackson appeared in support of the summonses, and Mr. Avery defended.

Briefly, the facts were these: The entire drainage of five houses passed under Mr. Jennings' house in

September last it was found that the drain had become obstructed, and the Hackney Vestry served a notice calling upon Mr. Jennings to make the defects good. Mr. Jennings at once complied with the notice, and the builder's bill came to over 31l. After the completion of the work, Mr. Jennings called upon four neighbouring owners to pay equal sums with him. Two of the neighbours were gratified at the obstruction being so expeditiously removed, and they paid their share, but Messrs. Astins and Paddey refused to pay.

Mr. Jackson said that the summonses were taken out under the 11th Section of the Act, which provided that where proceedings had been taken under the Act, and one owner had made a defect good in consequence, the other owners in a combined system of drainage might be called upon to pay their portion, and such apportioned sum might be recovered in a court of summary jurisdiction.

Mr. Avery said that he should contend that the "notice" could not be considered "proceedings" under the Act.

Mr. d'Eyncourt now said that he had carefully considered the case. He came to the conclusion that the notice could not be considered to be "proceedings" against Mr. Jennings. In his opinion the section was not meant for the protection of private individuals, but for public authorities who might step in and do the work and then charge the owners for it. If private owners could proceed there would be no limit to the improvements they might effect to their own property. What was there to prevent an owner spending 200l. or 300l. and then charging his neighbours? Judgment would be for the defendants, but the complainant would have no ground for complaint as he had power under his lease to bring the matter before another tribunal which was more qualified to apportion the costs than a police-court.

Mr. Avery asked for costs, and Mr. d'Eyncourt granted 21. 2s. in each case.

Mr. Jackson then asked for a case for the consideration of the Superior Court. As to the other course which was open to Mr. Jennings, he (Mr. Jackson) could only say that the power in the lease to compel the owners to contribute put a very expensive machinery in motion, and it was agreed with the freeholders—the Prædential Assurance Company—that the police-court proceedings should be taken.

Mr. d'Eyncourt said he would consider whether he would grant a case on the point of law raised, and he advised Mr. Jackson to consider the matter also before he renewed the application.—*Morning Advertiser.*

MEETINGS.

SATURDAY, JANUARY 1.

British Institute of Certified Carpenters.—Meeting at Carpenters' Hall. 6 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

27,405.—CONTINUOUS KILNS FOR BURNING BRICK TILES, &c.: P. Wood.—Inventor claims in a series of battery of two or more kilns for burning clay goods, the construction of which with a main hot gas flue, and auxiliary flues leading therefrom, such flues being controlled by dampers.

29,518.—SYPHONS FOR WATER WASTE PREVENTERS: M. Syer.—Claims a cluster of three or more compartments by movable partitions, centre reserved for syphon apparatus and connexion for flushing. The slides for partition are fitted by a trigger arrangement.

29,518.—WATER-CLOSETS AND THEIR FIXTURES: F. Kinnemann.—Inventor claims a means of cleansing the body of water-closets consisting of a spray nozzle secured at the extremity of a vibrating arm. This construction enables a system of blocks (preferably of wood) in the basin by means of an operating handle and lever.

29,793.—DRIVING FLOOR FOR BRICKS, &c.: E. Ashby and Another.—On a series of longitudinal dwarf walls, inventors arrange a system of blocks (preferably of wood) so as to form a chequered, perforated floor, on which goods to be dried are laid. Between walls are laid down pipes supplied with hot air or steam.

29,793.—SANITARY AND OTHER DEVICES: A. Wakefield.—Inventor claims in sanitary earthenware, &c., pipes, a horizontally corrugated (or partially corrugated) socket, having the ridges of such corrugations recirculated centrally, &c., in the transverse or circumferential direction of the socket.

29,793.—BITS AND BORING TOOLS: M. Steudner.—Invention consists in a borer having straight-running cutting edges, which are provided with one or more hollows of any form, for the purpose of cutting ridges on the base of the bore-hole, and thus preventing the borer from scraping. Also a borer provided longitudinally on the side of the cutting edge with grooves for the purpose of obtaining straight edges by means of after grinding.

29,793.—WATER-CLOSETS: M. J. Adams.—Inventor claims the arrangement of a bucket or scoop, which is placed within a cistern, enables water to be lifted out of water from which said bucket takes its supply.

29,793.—STEP LADDERS: C. A. Allison.—Inventor claims a ladder consisting of two members, a set of steps, and a support for same, said members being adapted to pass one through the plane of the other, and to be rigidly interlocked solely by the gripping of one by the other, due to force tending to lessen the angle made by the two.

29,793.—GAS BRACKETS: G. J. Findley.—Invention consists in a fitting or attachment, readily attachable to, or detachable from, a wall bracket, &c., and which attachment fulfils the duplex function of a burner and a branch and tension whereby gas may be led to a gas stove, &c.

NEW APPLICATIONS FOR LETTERS PATENT.

DECEMBER 6.—28,740, E. Smith, Mitting Tool.—28,756, P. Stanton, Baths.—28,752, A. Kershaw, Buffers for Preventing Noise and Concussion when Opening and Closing Doors.—28,759, J. Mewburn, Decorative Panels, &c.

DECEMBER 7.—28,832, J. Leather, Ventilating Appliances.—28,824, H. Gruner, Composition for the Manufacture of Artificial Stone, Cement, &c.—28,869, J. Ewen, Prism Lights and Plates, &c.—28,904, W. Lewis, Slate Mantel-piece Piers or Jambs.—28,908, W. Woods, Roofs of Dwelling and Other Buildings.—28,970, W. Lambert, Road Scarifier.

DECEMBER 8.—28,974, T. Potter, Fireproof Floors, Ceilings, and Partitions.—28,978, E. Parkinson, Flushing

KIRBY MUXLOE (Leicester).—Accepted for the erection of six houses and outbuildings, Contract No. 1. Messrs. Miles & Beasley, architects and surveyors, Friar-lane, Leicester. Urban Survey, Town-street, Leicester. £1,300

LAINCESTON.—For sewerage and sewage disposal works for the Corporation. Mr. A. P. I. Cotterell, C.E., Lonsdale Chambers, Baldwin-street, Bristol. £1,300

Contract No. 1.
 1. Snodock £645 11 11 Stephens & Son £1,800 0 0
 2. Pethick Bros. 4,994 0 0 J. C. Trueman 3,863 0 0
 3. W. H. & Arthur Thomas 4,443 0 0 Wm. Nunn 3,563 4 0
 4. Mingo & Boone 4,121 0 0 Sons 2,990 0 0
 5. J. C. Lang 3,977 0 0 Launceston 2,990 0 0
 6. J. Fisher 3,968 0 31 [En. erect. estimate. 2,990 0 0]

Contract No. 2.
 Pethick Bros. £889 0 0 W. Oliver £390 0 0
 Mingo & Boone 585 0 0 W. L. Dodge 390 0 0
 J. Fisher 407 0 0 E. Shandland 350 0 0

LISCARD.—Accepted for new church, Liscard, Cheshire. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £1,250

LISCARD.—Accepted for new house, Liscard, Cheshire. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £1,450

LISCARD.—Accepted for boundary wall, Liscard, Cheshire. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £1,600

LONDON.—For cleaning the interior of Old Castle-street school, for the London School Board.—
 F. Holdway £310 G. Barker £245
 D. Gibb & Co. 359 A. W. Deily 350 0 0
 E. Jackson 265 J. Kybett 208
 * Accepted.

LONDON.—For painting and decorating No. 24, Elm Park-gardens, Kensington, for Mr. F. R. Round, C.M.G. Messrs. Knight & Co., surveyors, Sussex-place, Kensington.—
 W. Rhind & Son £217 Simmonds Bros. £190
 W. H. Jotam 293 Selman & Co. (accepted) .. 277

MORECAMBE.—For additions, &c., to house, West View-terrace, for Dr. Glegg. Mr. James Marshall, architect, Back-crescent, Morecambe. J. Edmondson, Morecambe. £400

NEWTON ABBOT.—For the erection of labour shed, boiler-house, &c., at the Workhouse, for the Union Guardians. Mr. S. Siegel, architect, Union-street, Newton Abbot.—
 Mingo & Boone £597 0 0 F. A. Stacey, Newton Lewis Beame 321 13 11 Abbot 870 0
 Parker Bros. 290 0 * Accepted.

REIGATE.—For proposed houses, Croydon-road, Reigate, for Mr. C. Underwood. Mr. C. E. Salmon, architect, Bell-street, Reigate.—
 R. Killick £4,944 18 11 C. Nightingale & Sons £2,250 0 0
 W. Buckley & Sons 2,750 0 J. Waycott 1,917 0
 H. Clarke 2,420 0

RUNCORN.—Accepted for the enlargement of board-room, &c., at the workhouse, Dutton, for the Runcorn Board of Guardians. Mr. Samuel Davies, architect, Runcorn and Frodsham. Thomas Davies & Sons, Frodsham. £425

RUNCORN.—Accepted for alterations and repairs to Bank House, Runcorn, for Part's Bank, Limited. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £240

RUNCORN.—Accepted for alterations to Grove House, Runcorn. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £500

RUNCORN.—Accepted for new theatre, Lowlands-road, Runcorn. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn (first contract only) £1,900

C.B.N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,
 Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGTON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
 Telephone, No. 274 Holborn. Tele. Address: "SNEWIN," London.

RUNCORN.—Accepted for alterations to premises, Greenway-road, Runcorn, for Mr. Walter Collier. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £250

RUNCORN.—Accepted for alterations and repairs to premises, Halton-road, Runcorn, for the Wigan Coal and Iron Company, Limited. Mr. Samuel Davies, architect, Runcorn and Frodsham. W. Farrell & Son, Runcorn. £140

THORNTON-LE-MOORS.—Accepted for new Sunday-school. Mr. Samuel Davies, architect, Runcorn and Frodsham. John Lister, Frodsham. £17

WARRINGTON.—Accepted for forming and paving Sharp-street, Annie-street, &c., for the Corporation. Mr. T. Longdon, Borough Surveyor, Warrington. Sharp street, Annie-street, T. Stringer, Warrington. £170 10 11

WEST KILBRIDE (N.B.).—For the works in connection with sewerage extension (1,500 yds.) for the Drainage Committee. Mr. Wm. A. Milne, Parish Council Chambers, West Kilbride. Quantities by Messrs. Warren & Stuart, engineers, Glasgow.—
 Warlop & Munro £1,172 5 0 Alex. Donald £39 10 6
 Gas Stevenson 1,028 17 2 Shanks & McEwan 213 7 2
 Wm. Donald 203 4 9 Glasgow 822 8 1
 Wm. Simpson 649 15 0 Peter Row 759 16 4
 James Aborne 234 2 5 C. M. Stirling 699 18 0
 Thomas Scott 89 15 2 R. C. Brebner & Co. 699 18 0
 * Accepted.

WIDNES.—Accepted for converting three houses into shops at Appleton, Widnes, for Mr. James White. Mr. Samuel Davies, architect, Runcorn and Frodsham. Joseph Penney, Widnes. £539

WILLINGTON QUAY.—For levelling, paving, &c., Back View-terrace, for the Urban District Council. Mr. J. F. Davidson, surveyor, Putter-street, Willington Quay.—
 G. Maughan Scheduled Work.
 J. Wardlaw
 G. E. Simpson, Elision-terrace, New-castle (accepted) ..

TO CORRESPONDENTS.

J. C. (received). S. S. (amount should have been stated).
 NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications beyond news items which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,
 SLATER and TILER.

ESTIMATES GIVEN FOR

SLATING AND TILING,

To be executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,
 Oakeley - Portmadoc,

And other description of Slates Ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to
 BETHNAL GREEN SLATE WORKS,
 BETHNAL GREEN, LONDON, E.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 12s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 25s. per annum. Remittances payable to DOUGLAS FOURMILNER should be addressed to the publisher of "THE BUILDER," No. 48, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 12s. per annum or 4s. 6d. per quarter), can ensure receiving "The Builder," by Friday Morning's Post.

THE BATH STONE FILMS, Ltd.

BATH,
 FOR ALL THE PROVED KINDS OF
BATH STONE.
 FLUATE, for Hardening, Waterproofing,
 and Preserving Building Materials.

HAM HILL STONE DOULTING STONE

The Ham Hill and Douling Stone Co.
 (Incorporating The Ham Hill Stone Co. and Crasak & Son The Douling Stone Co.)

Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Maitland Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.]

SPRAGUE & CO.

LITHOGRAPHERS AND PRINTERS.

Estate Plans and Particulars of Sale promptly executed.

4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.]

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIN & SON (8 PRINCES STREET, ST. GEORGE'S WESTMINSTER).
 "QUANTITY SURVEYORS' DIARY AND TALES," For 1898, price 6d. post 7d. In leather 1/- Post 1/- [ADVT.]

THE French Asphalte COMPANY.

Suffolk House, Cannon-street, I.C.
 SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOF, WASHHOUSE AND DAIRY FLOORS, &c., &c.

This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

IRON CISTERNS.

F. BRABY & CO.

VERY PROMPT SUPPLY.

LARGE STOCK READY.

Particulars on application.

CYLINDERS FOR HOT-WATER CIRCULATION.

LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL: 6 and 8, HATTON GARDEN.

GLASGOW: 47 and 49, ST. ENOCH-SQUARE.

BRISTOL: ASHTON GATE WORKS, CORONATION-RD.



GETTY CENTER LIBRARY



3 3125 00702 3035

